#Supplemental Data 1
#Molecular Biology Reports
#Evolutionary dynamics of spliceosomal intron revealed by in silico analyses of the P-Type ATPase superfamily genes
#Toshiyuki Oda, Ryosuke L. Ohniwa, Masatsugu Denawa, Hideyuki Okamura and Kunio Takeyasu

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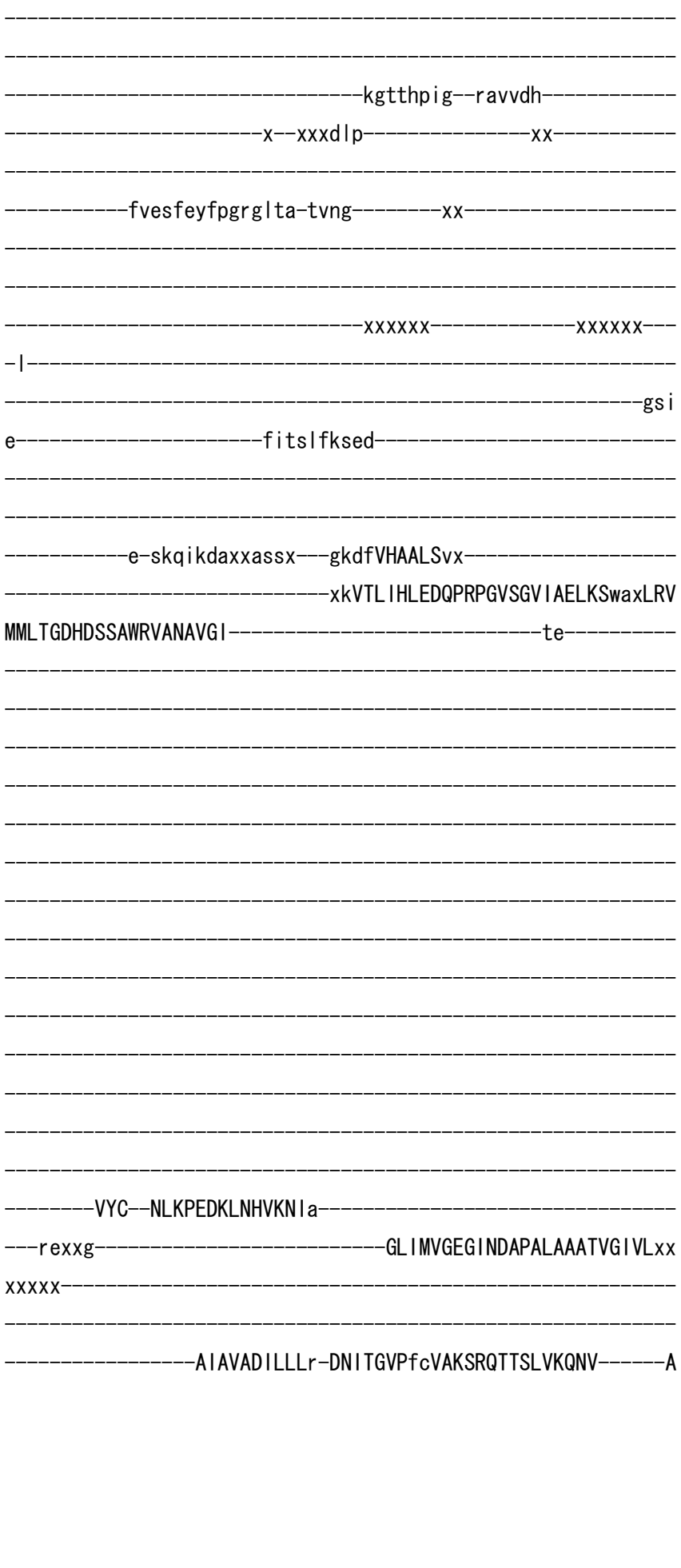

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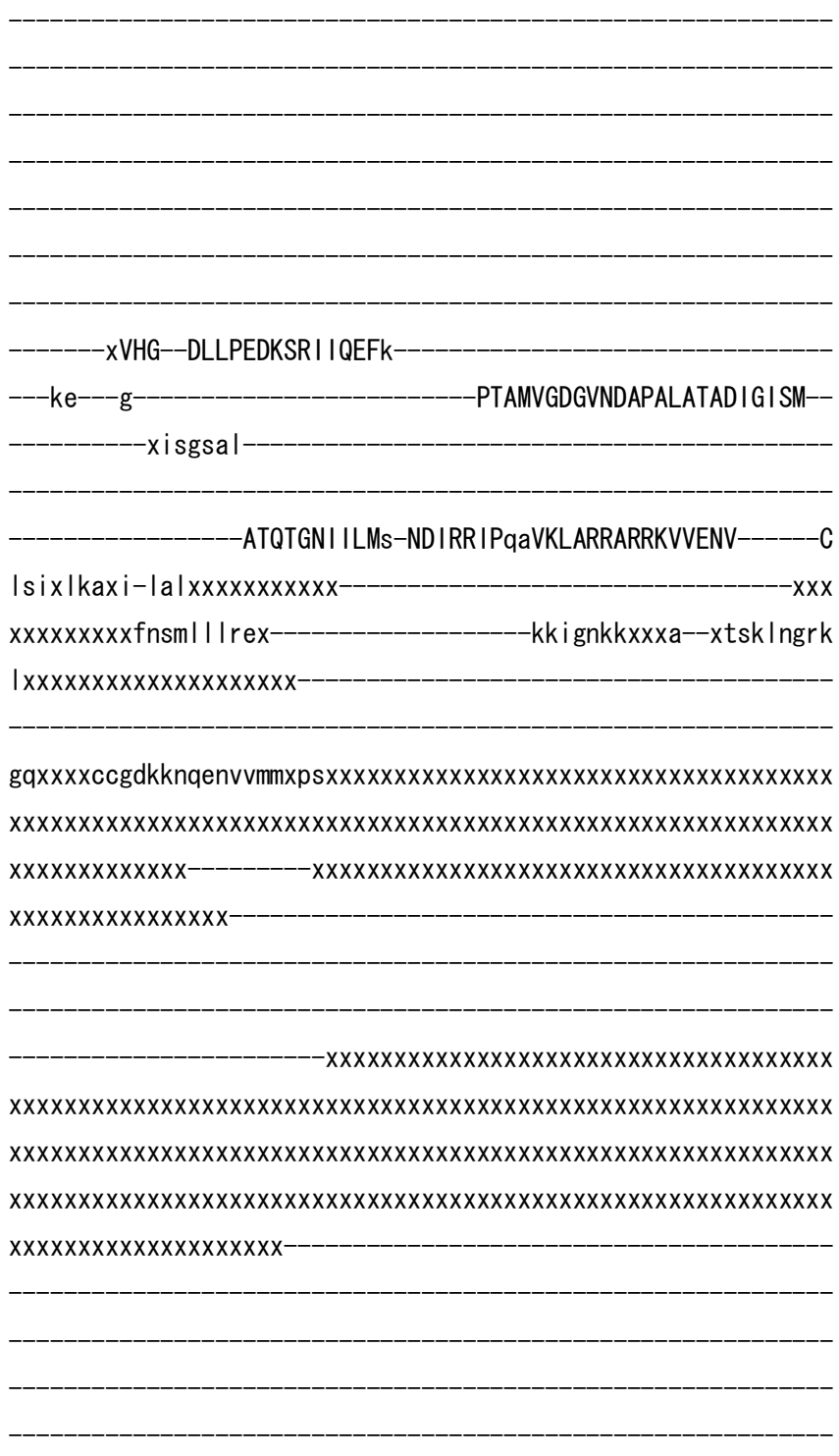

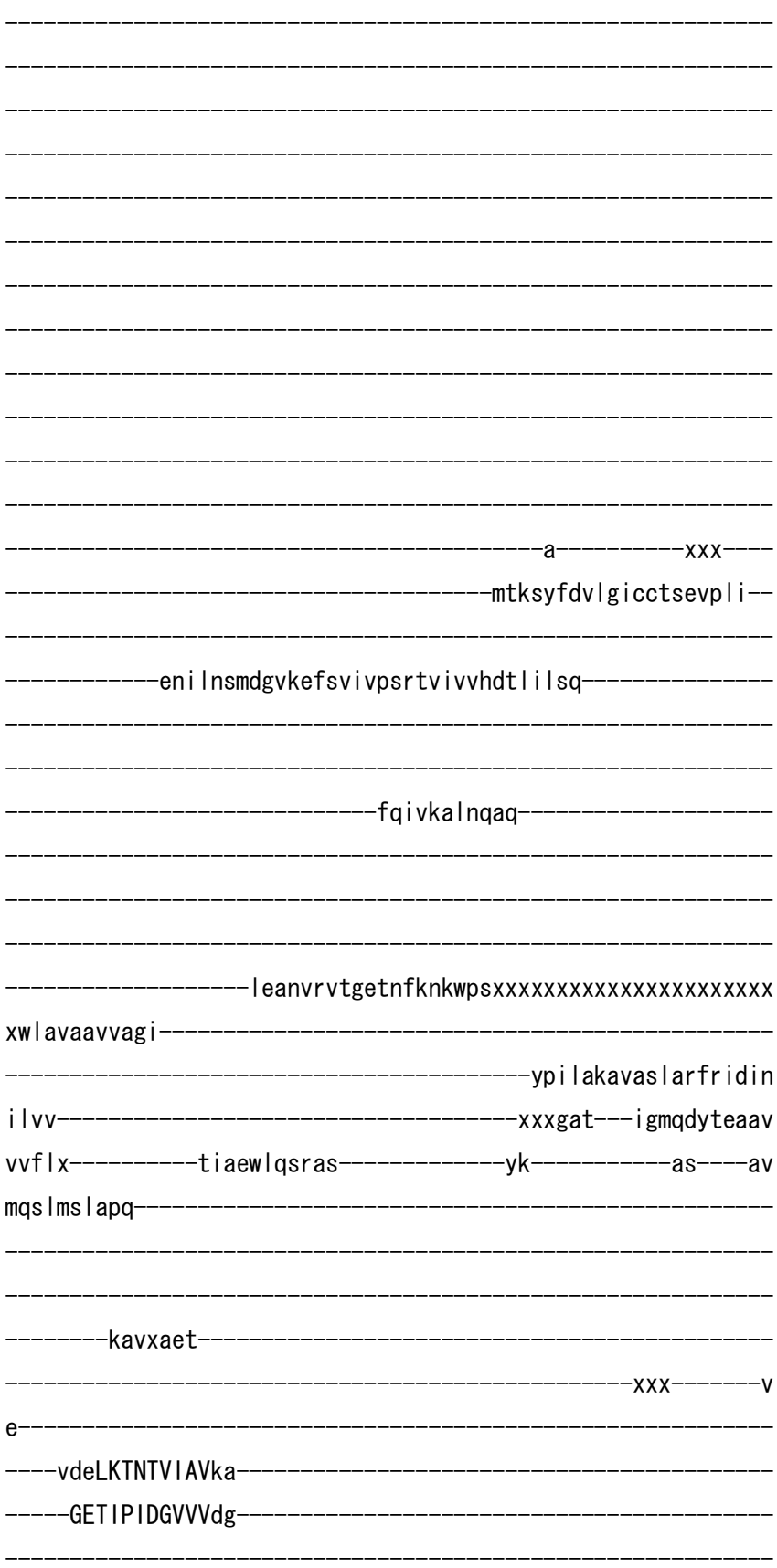

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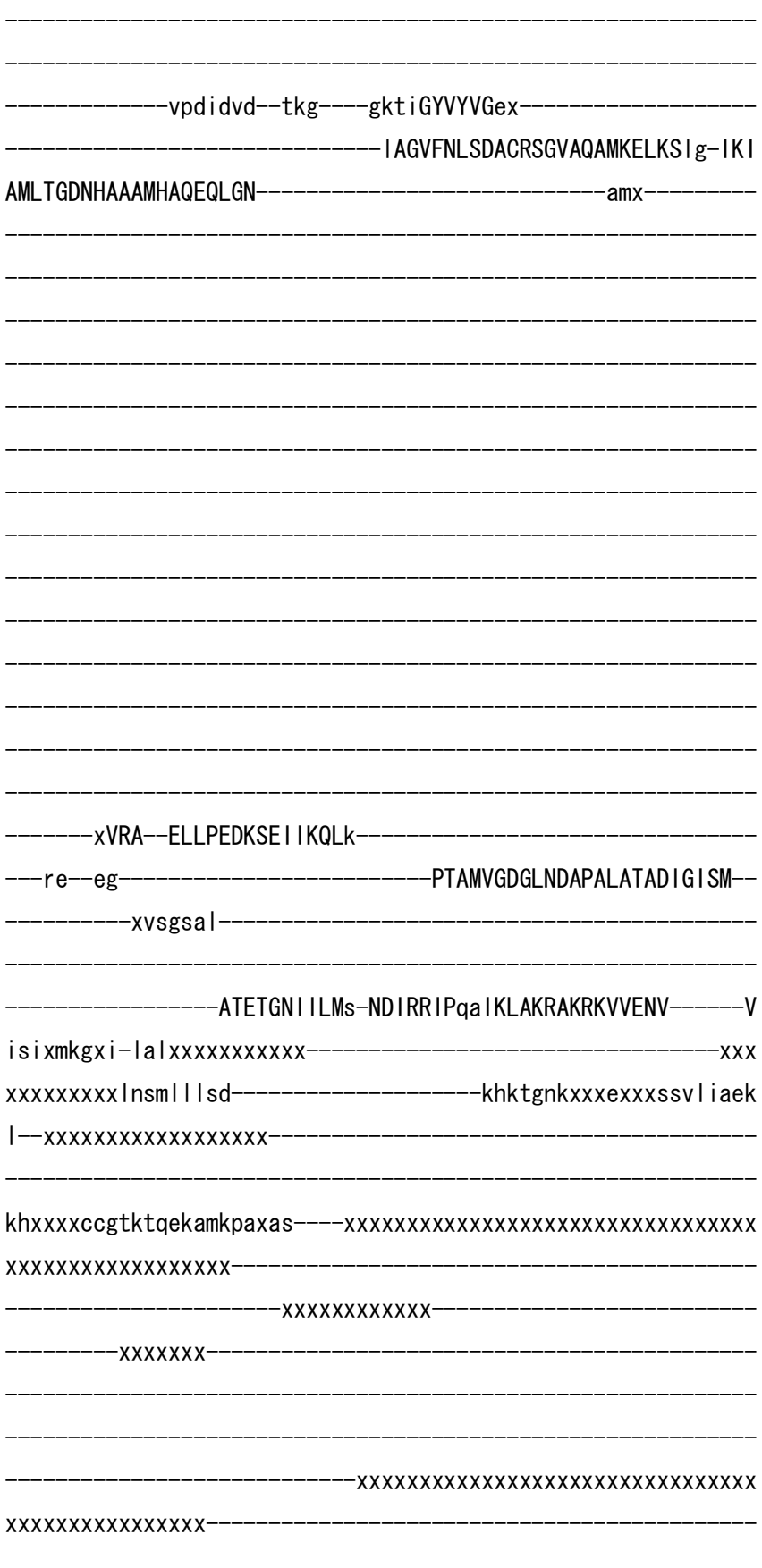

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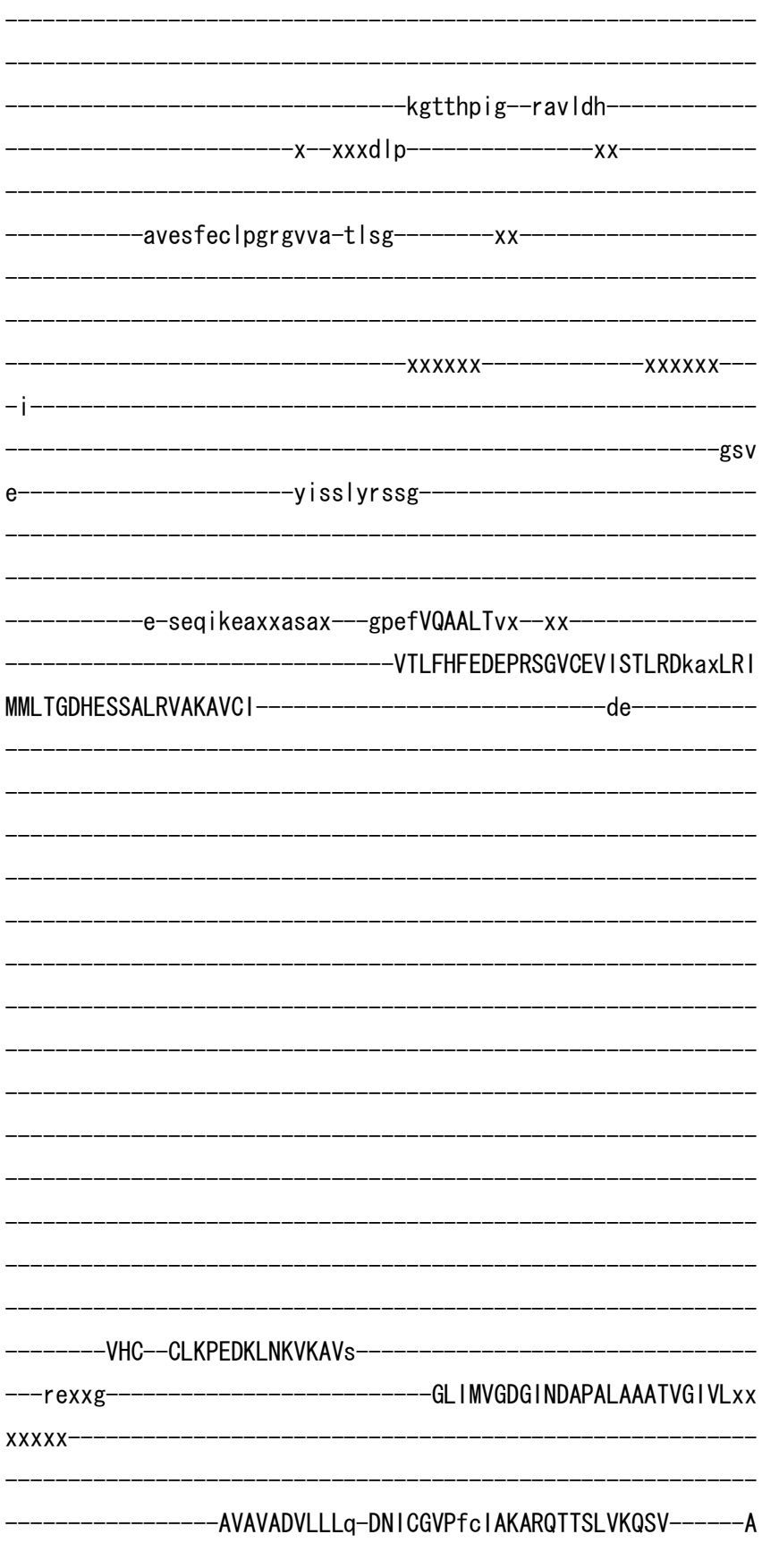

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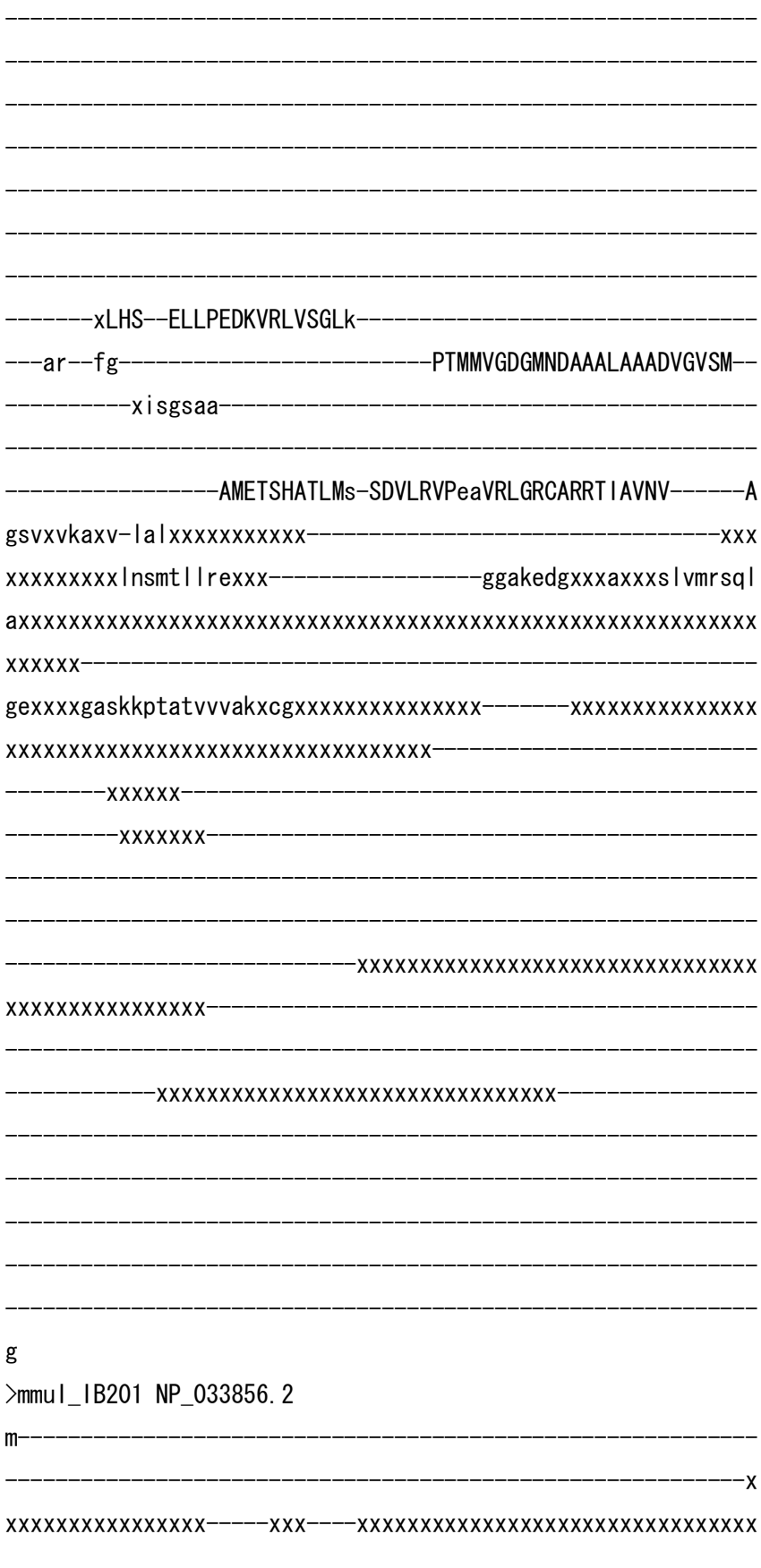

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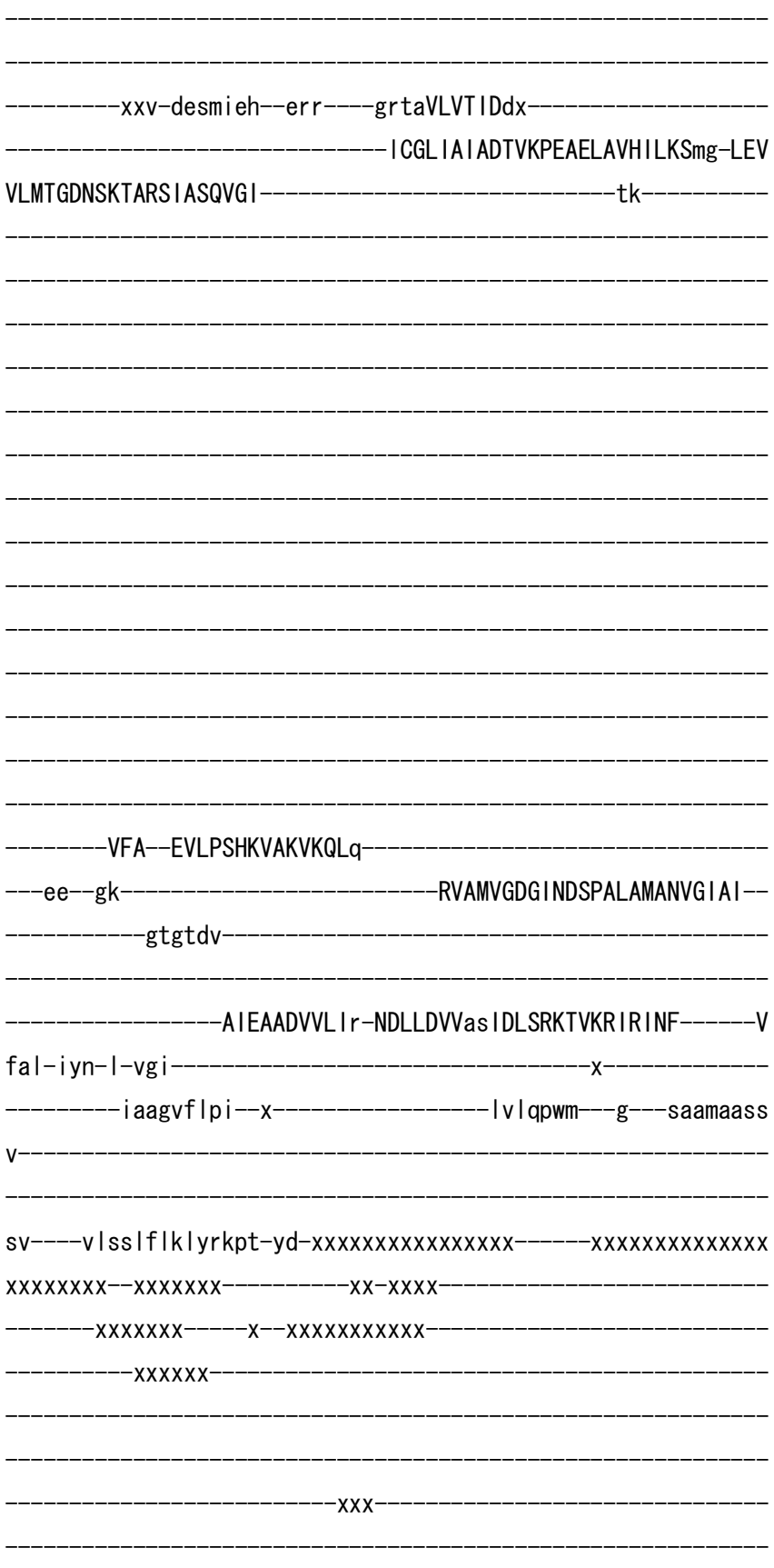

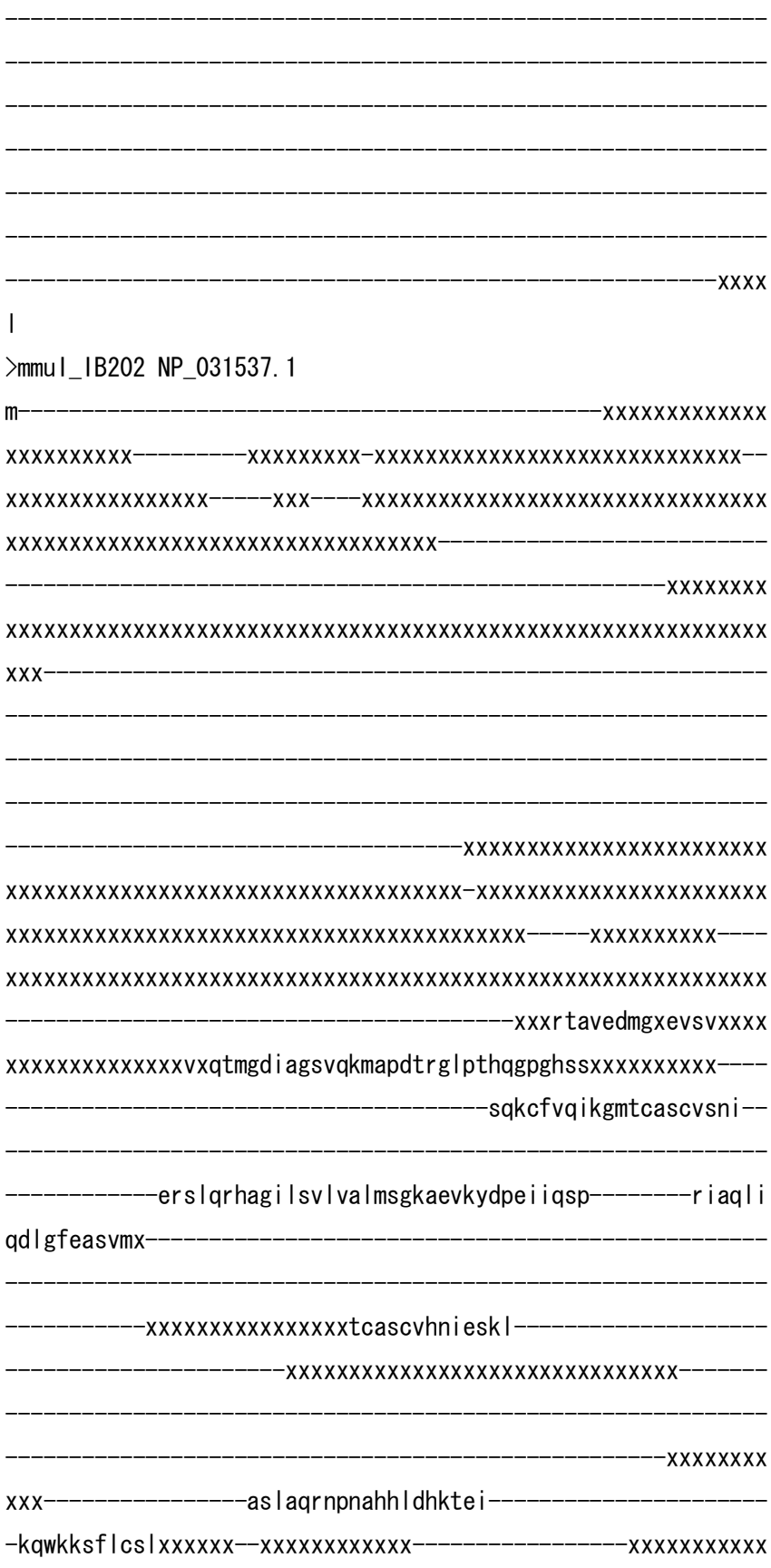

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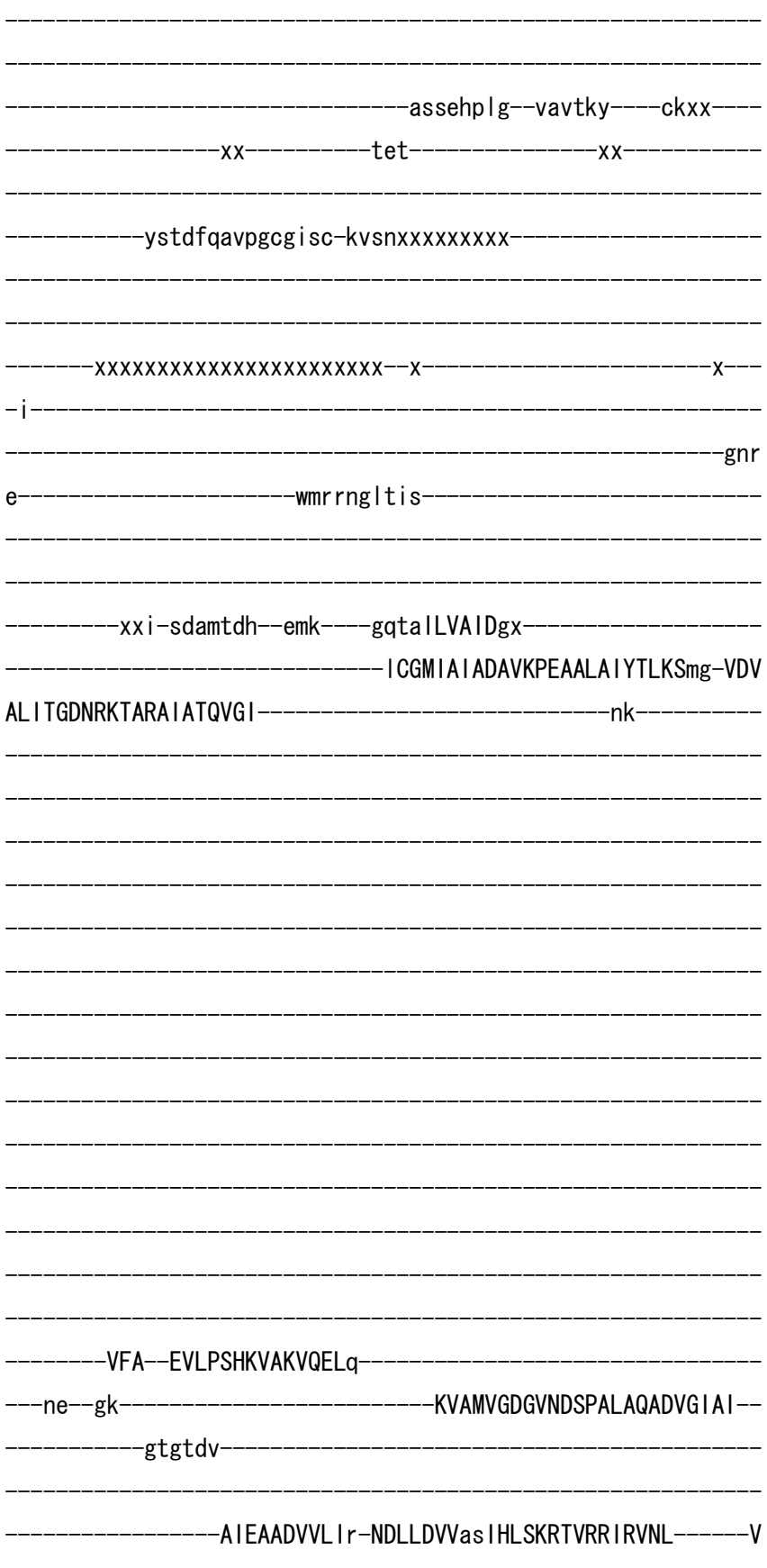

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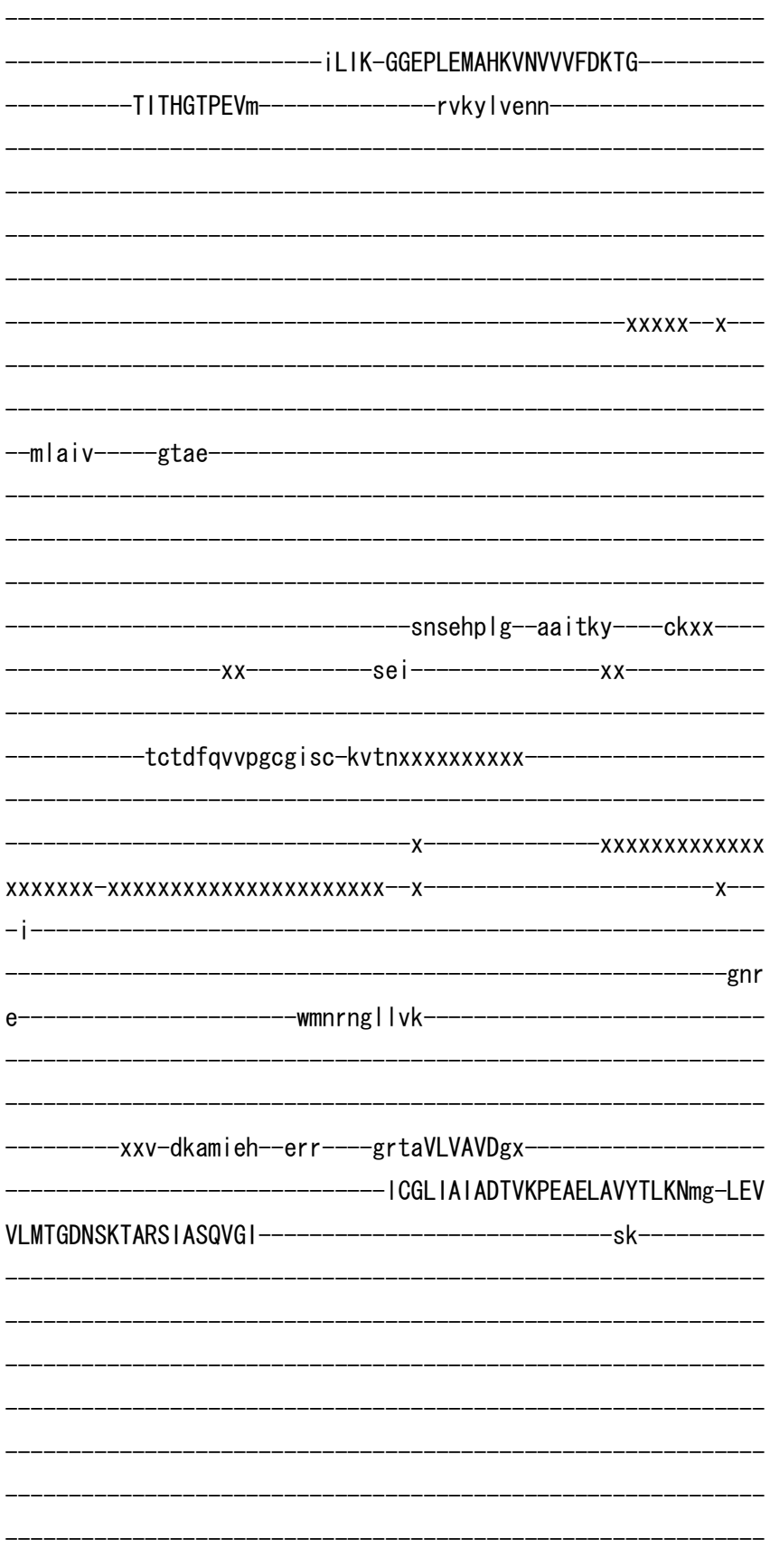

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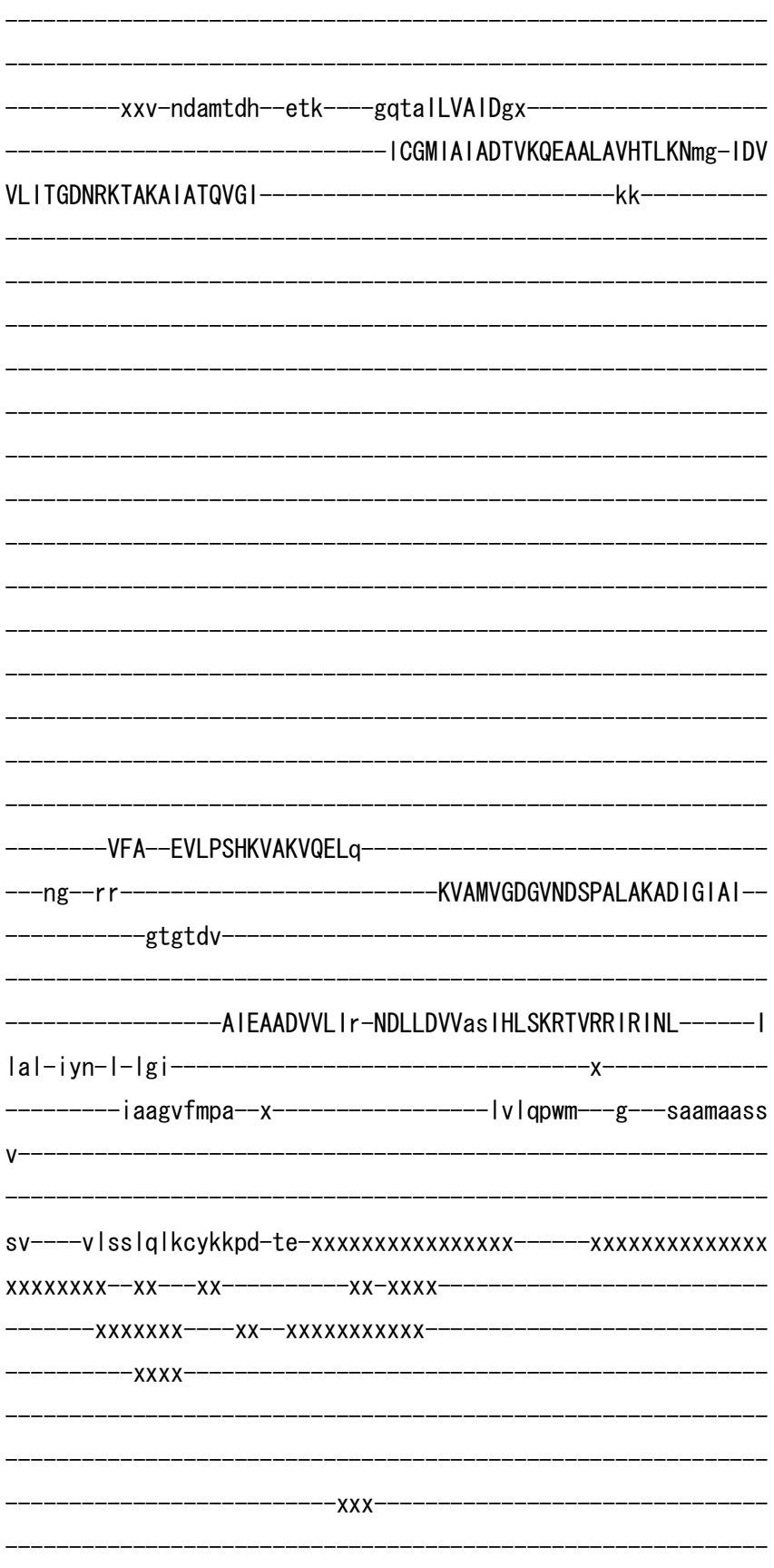

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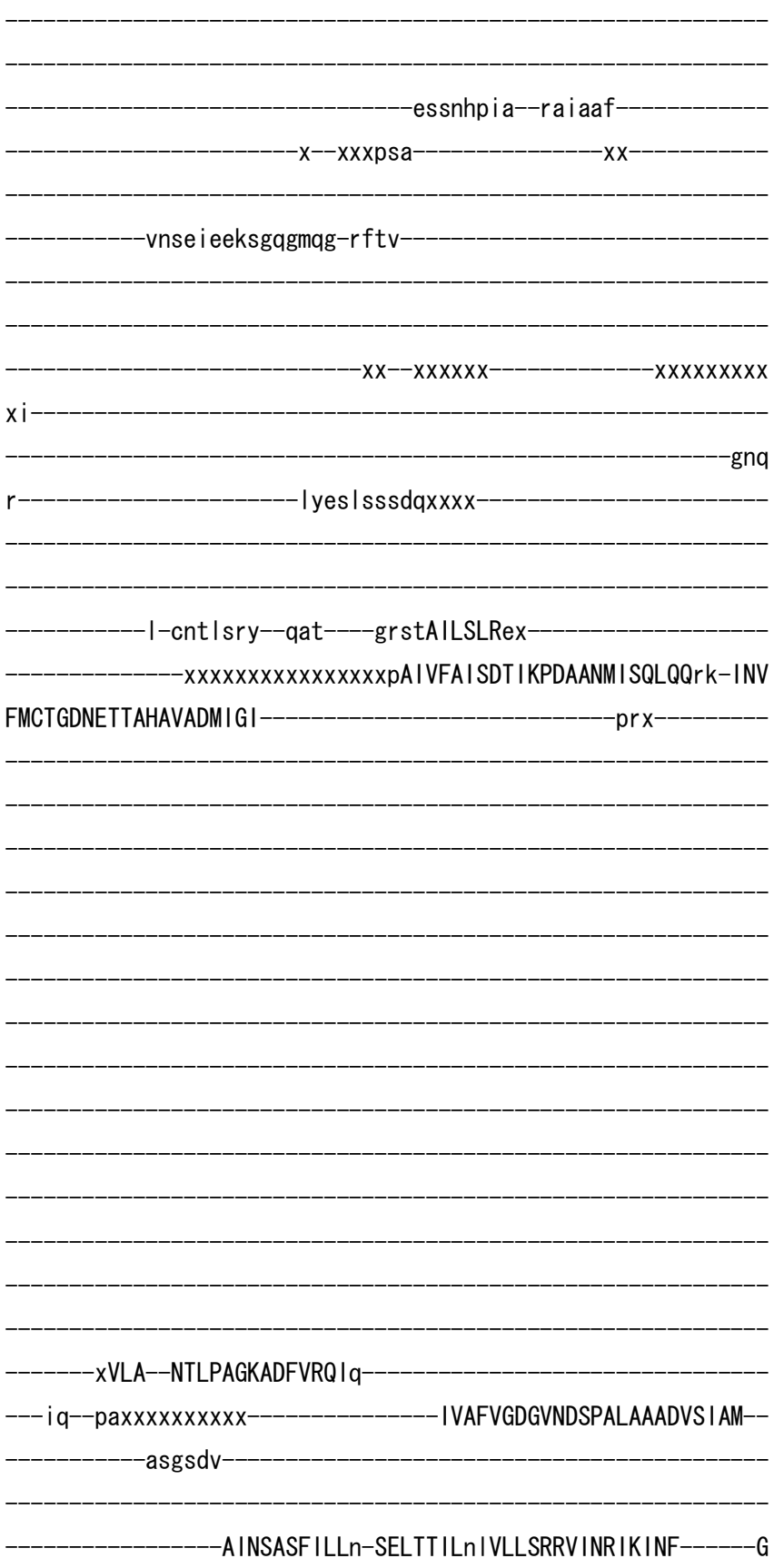

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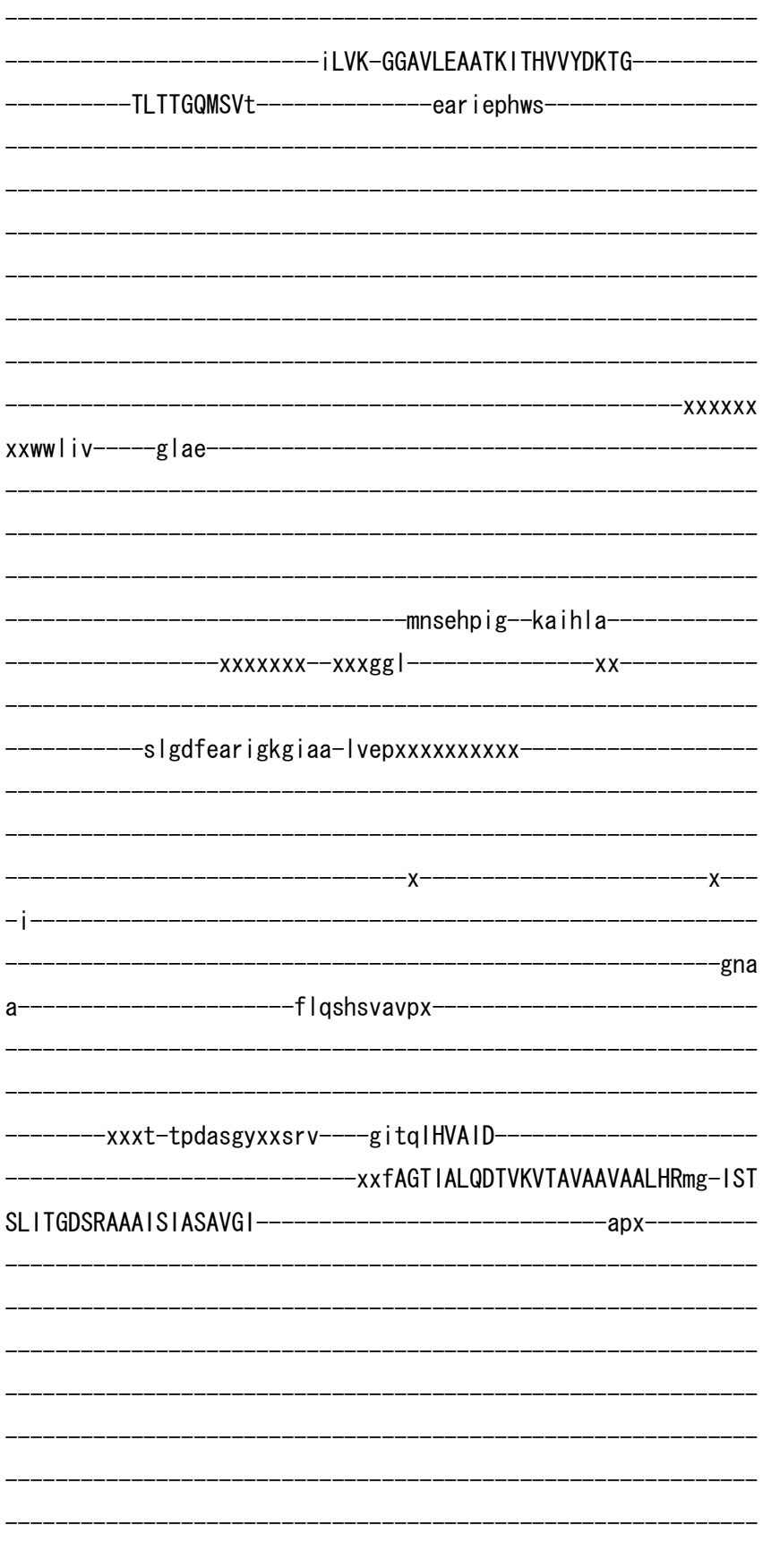

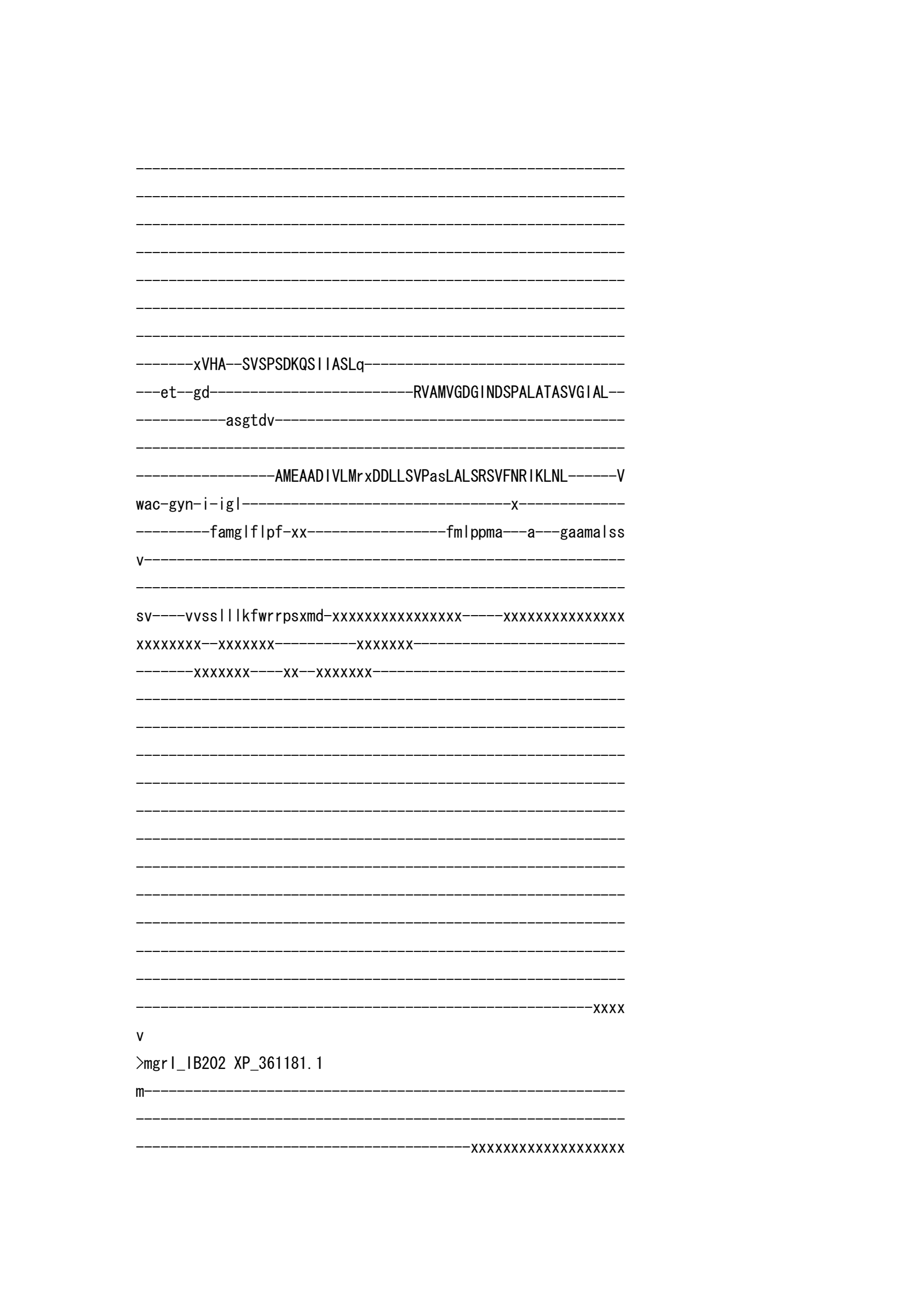

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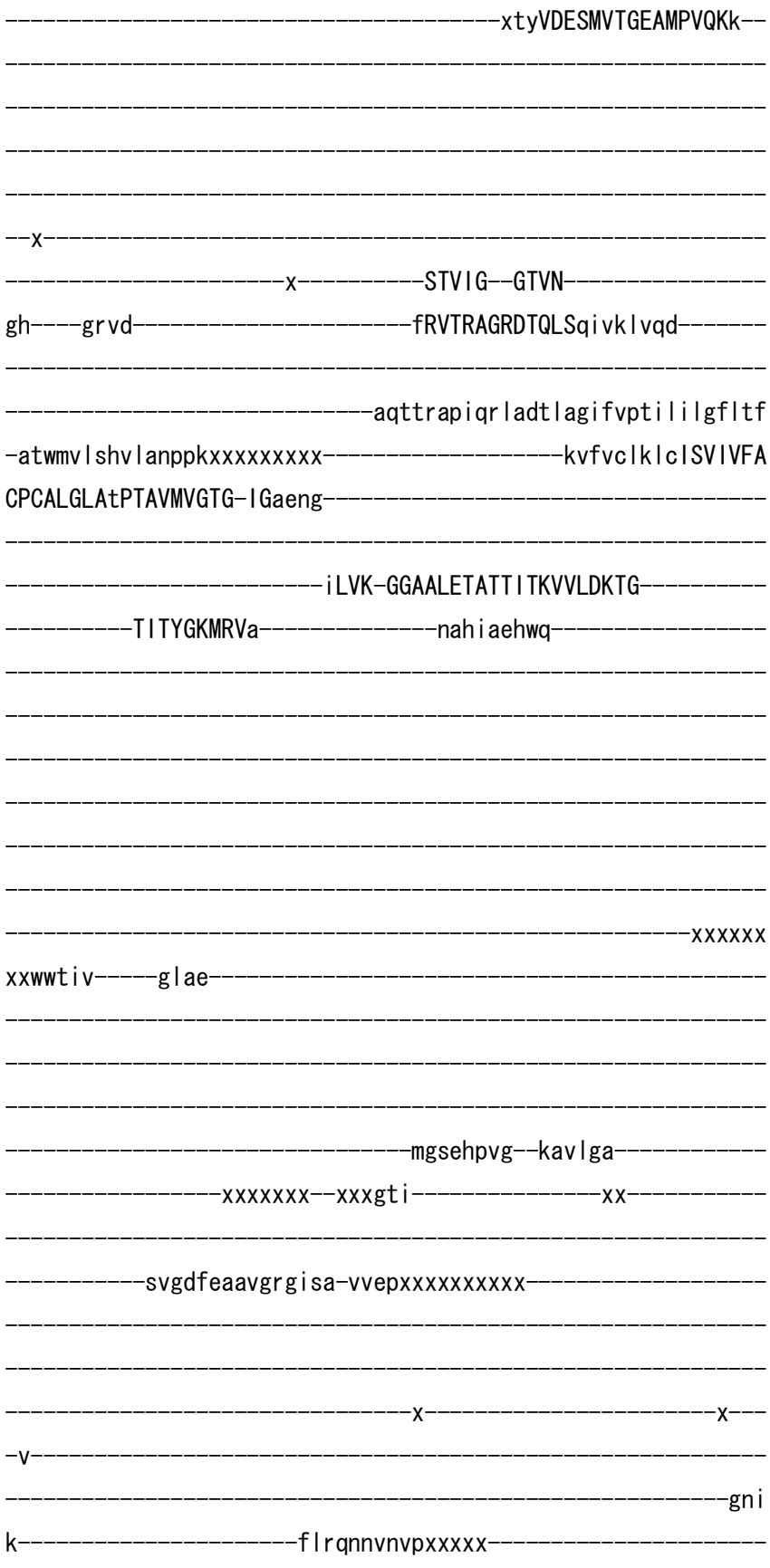

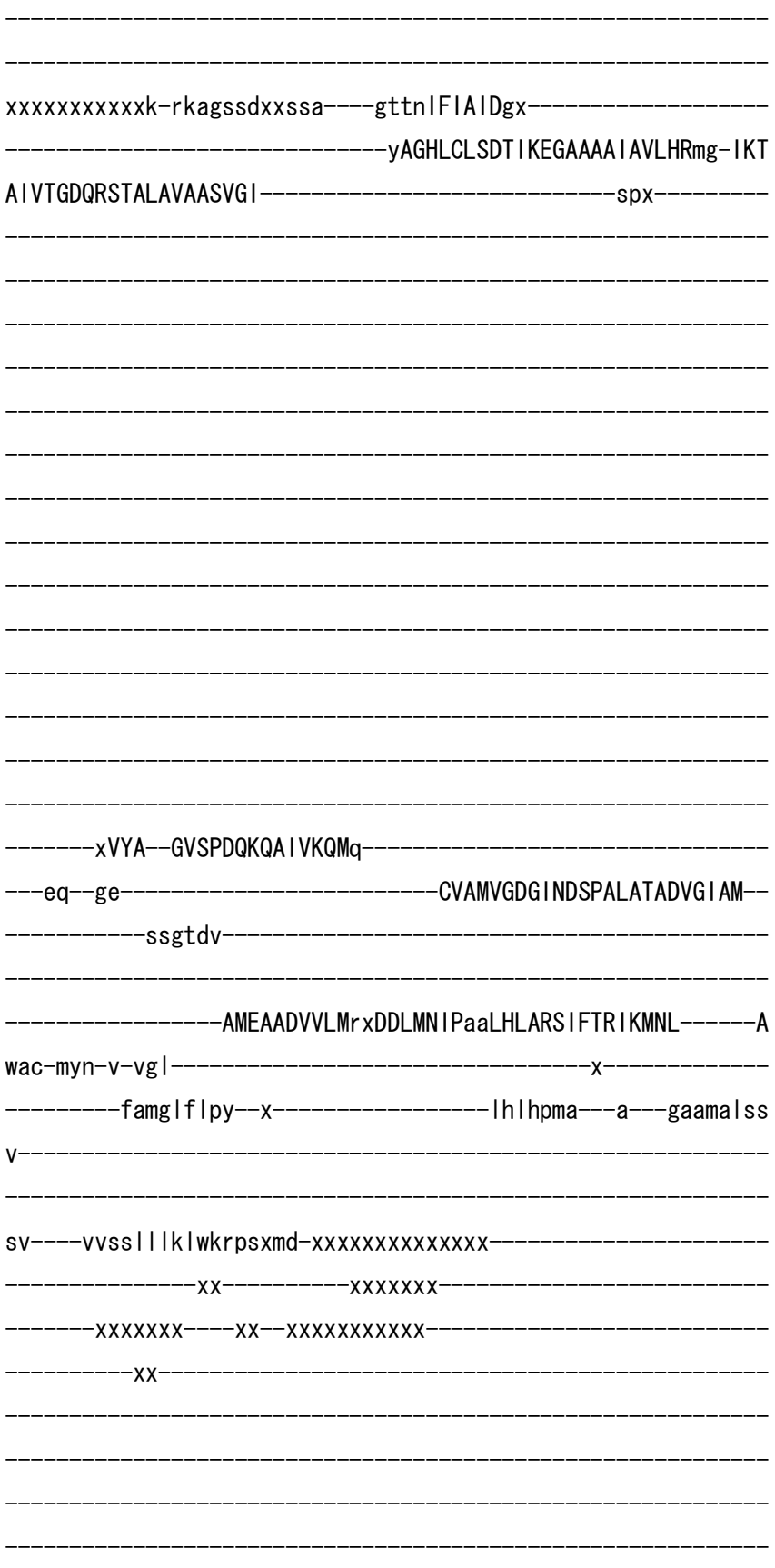

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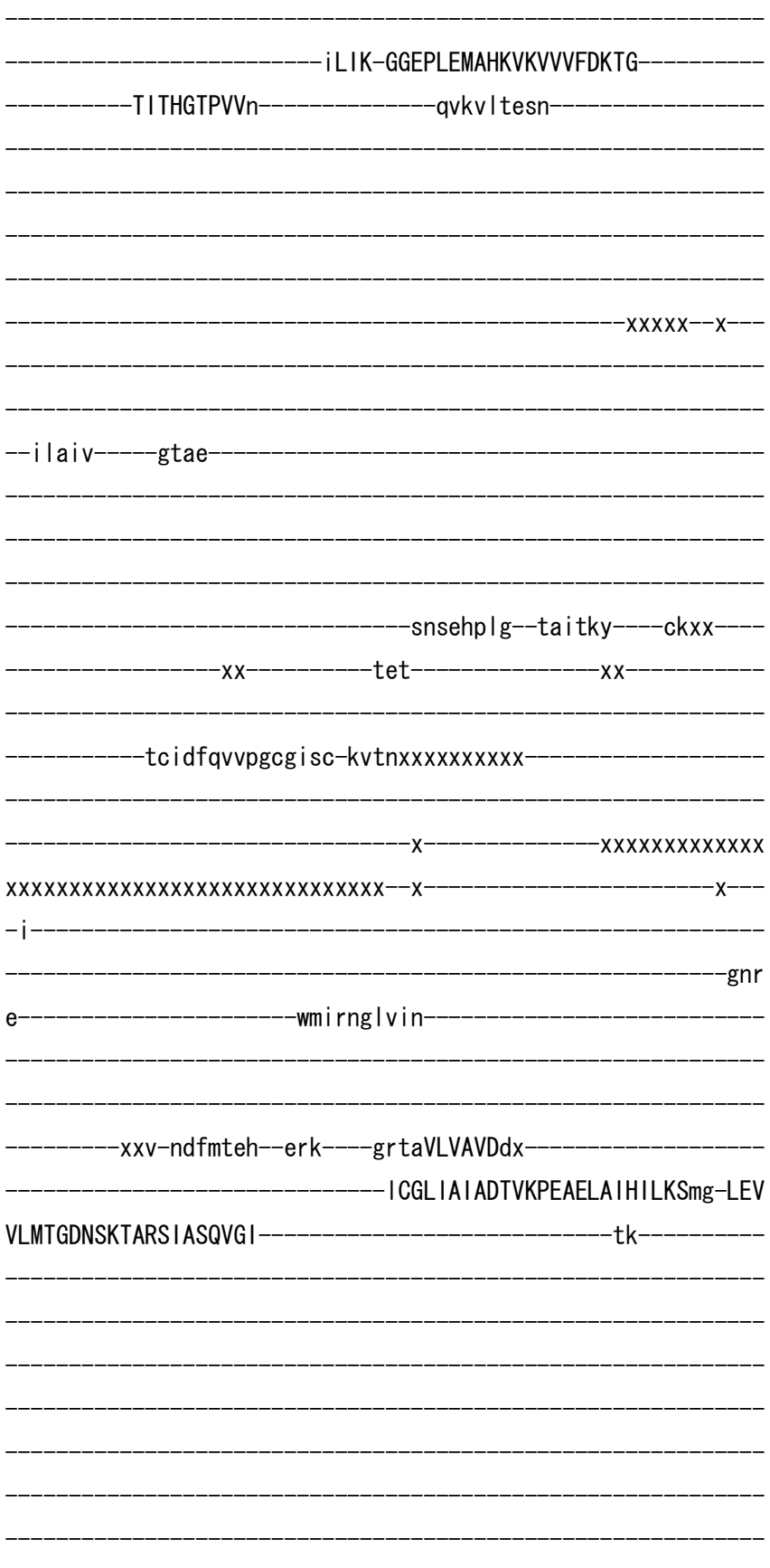

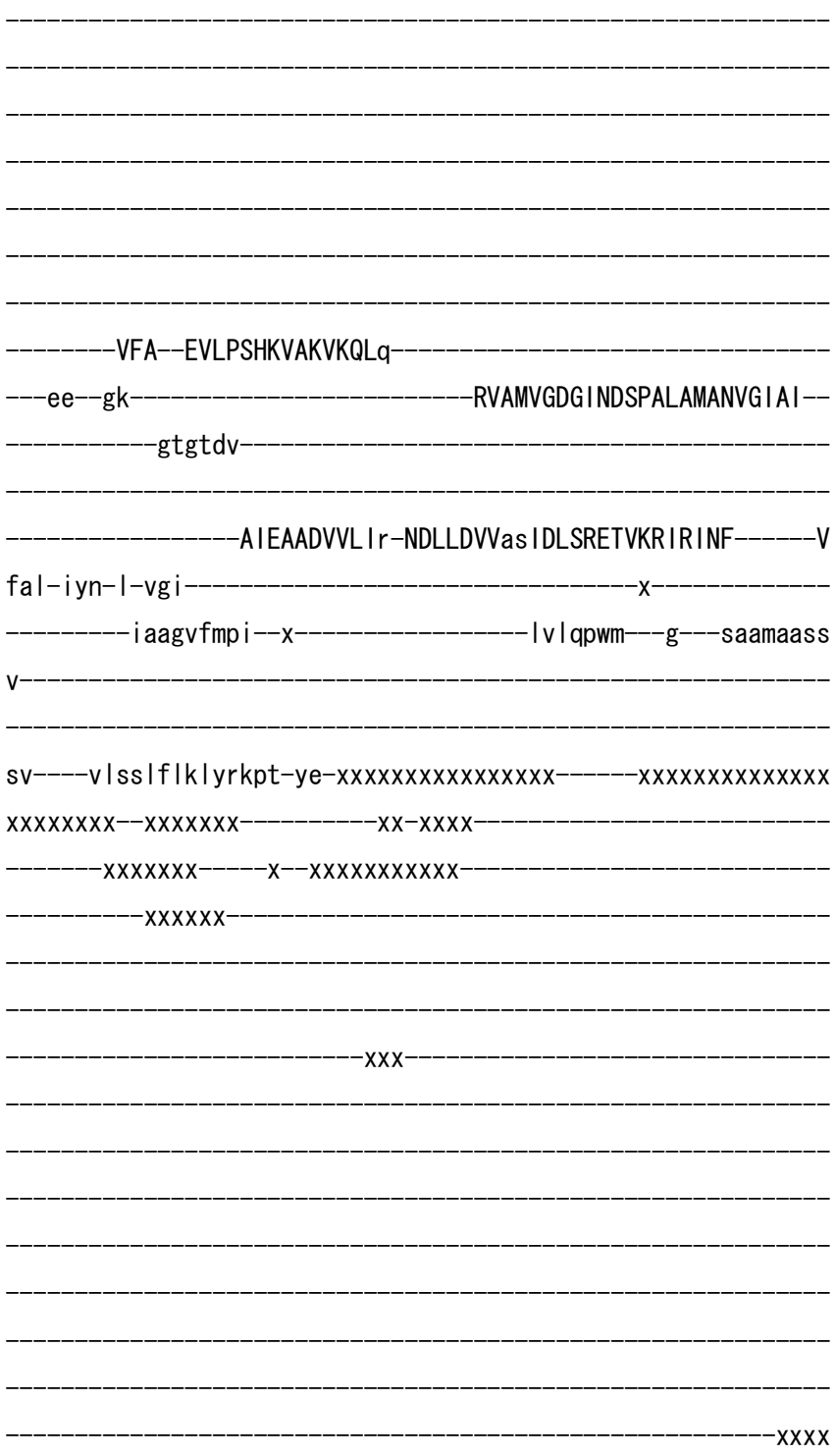

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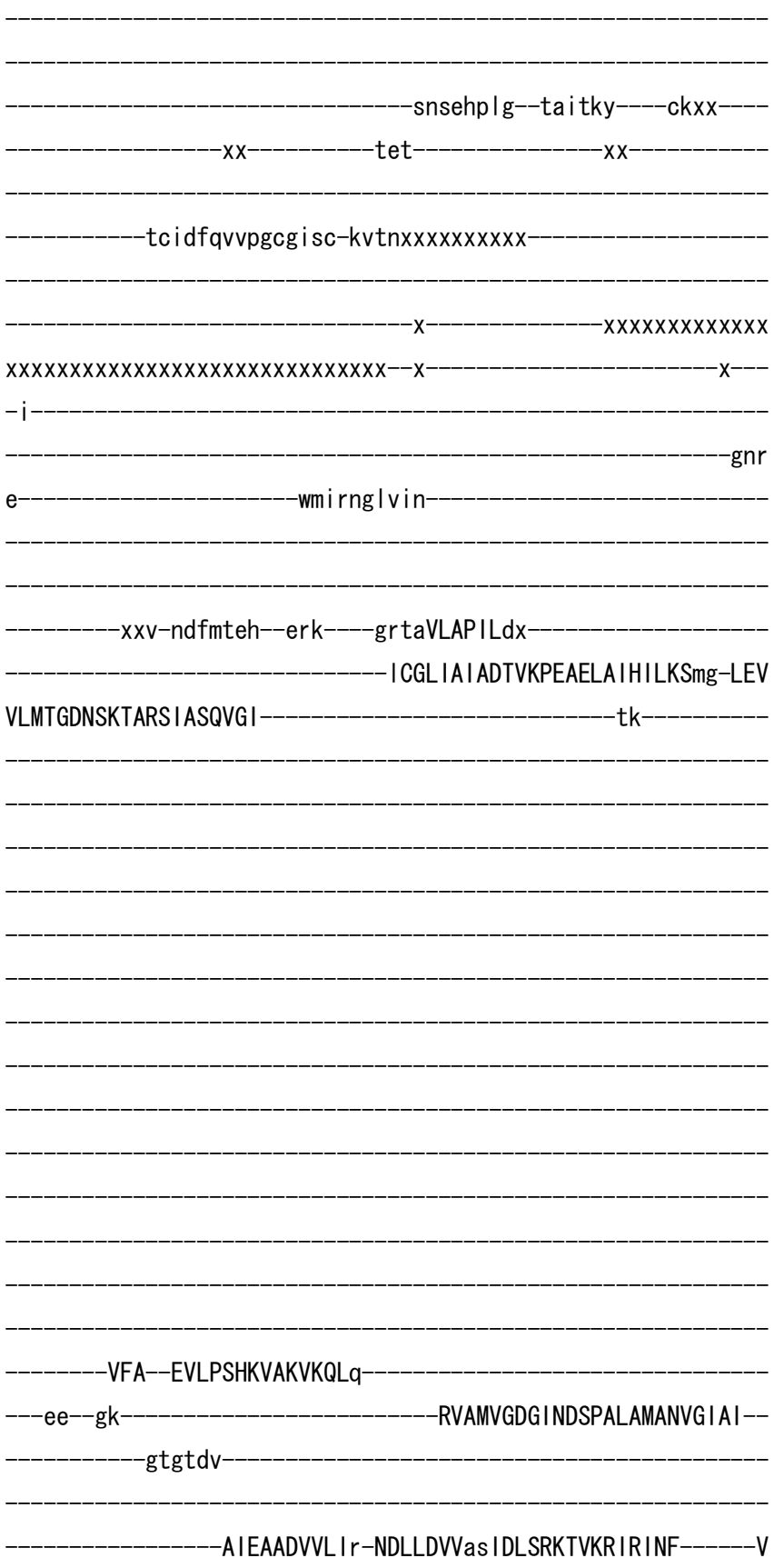

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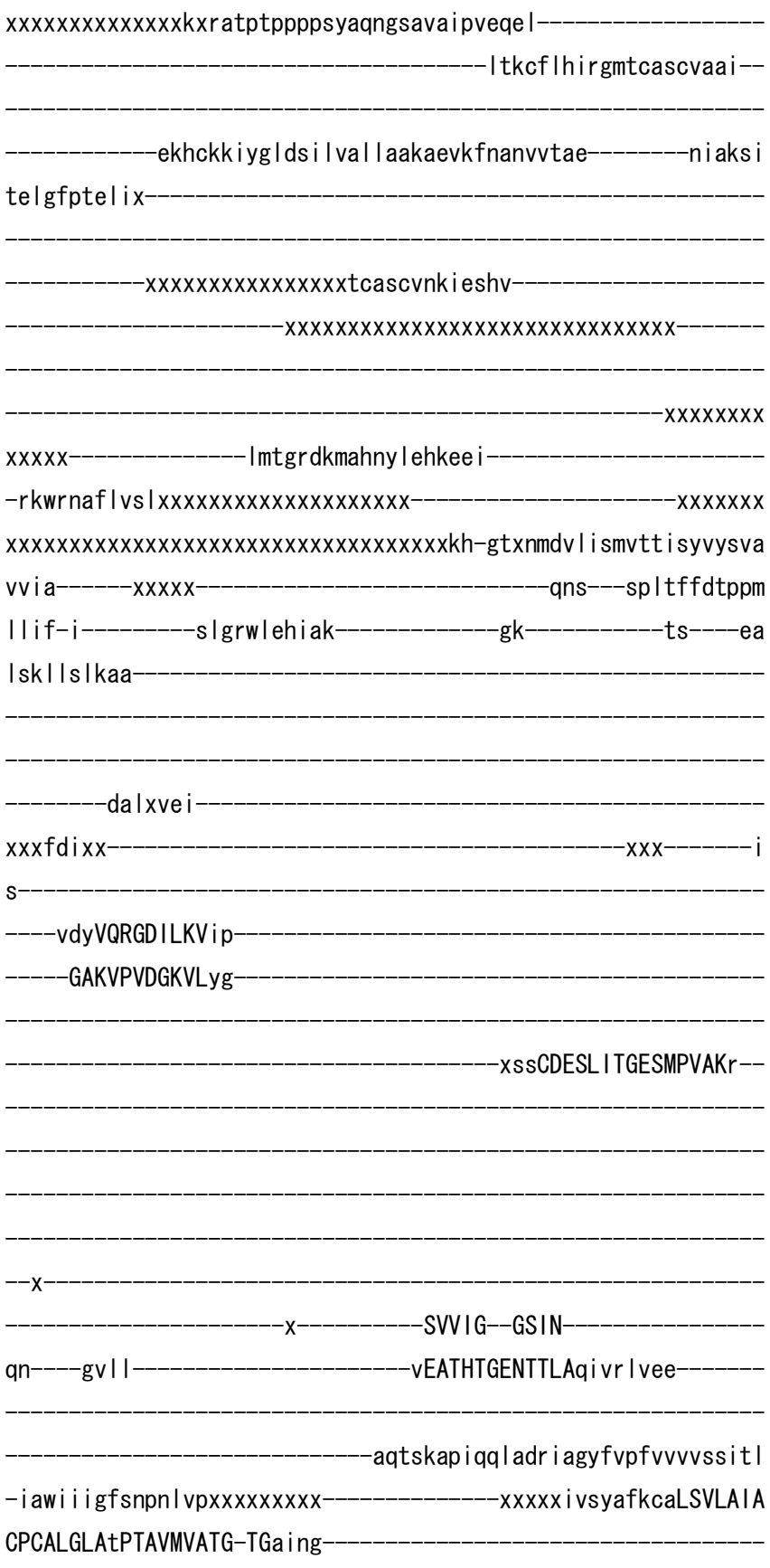

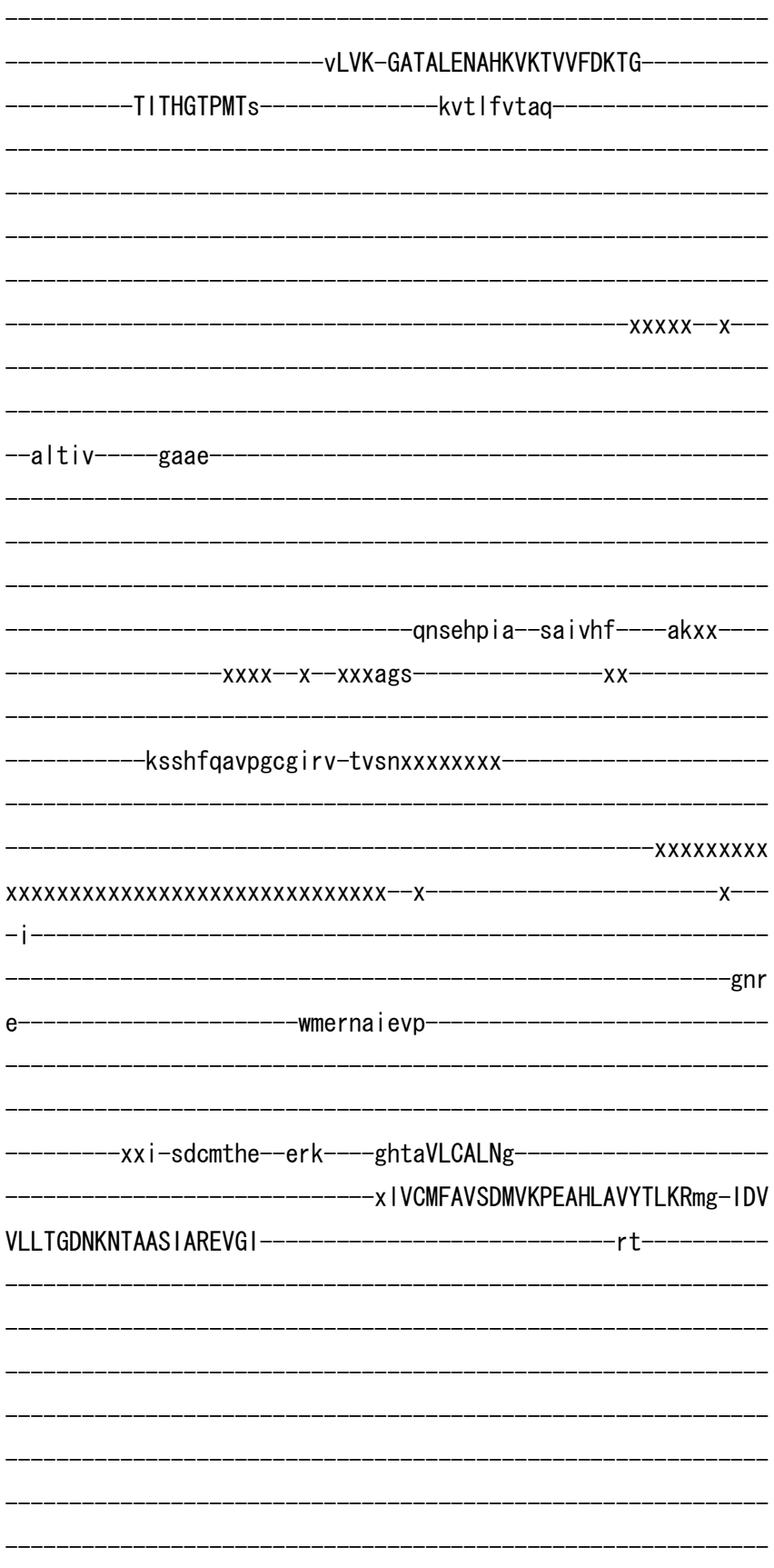

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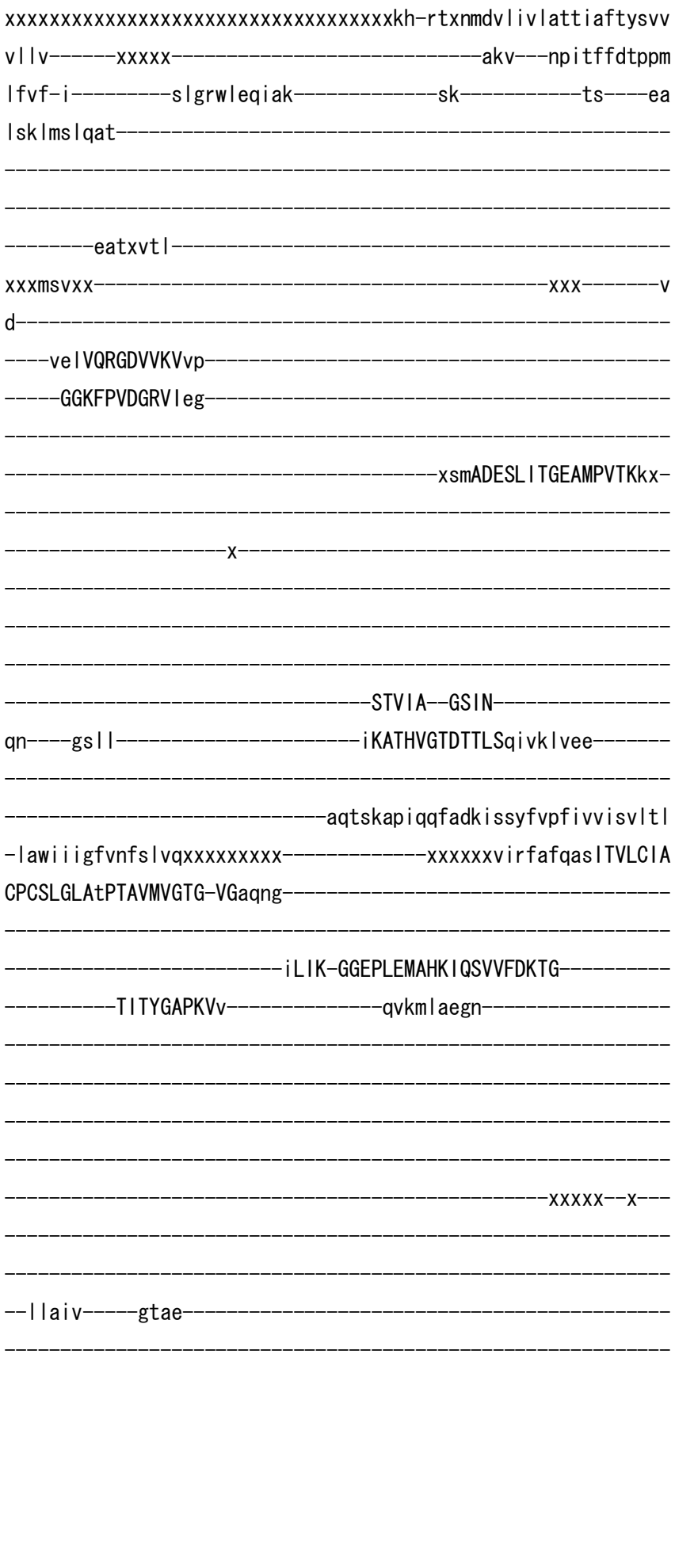

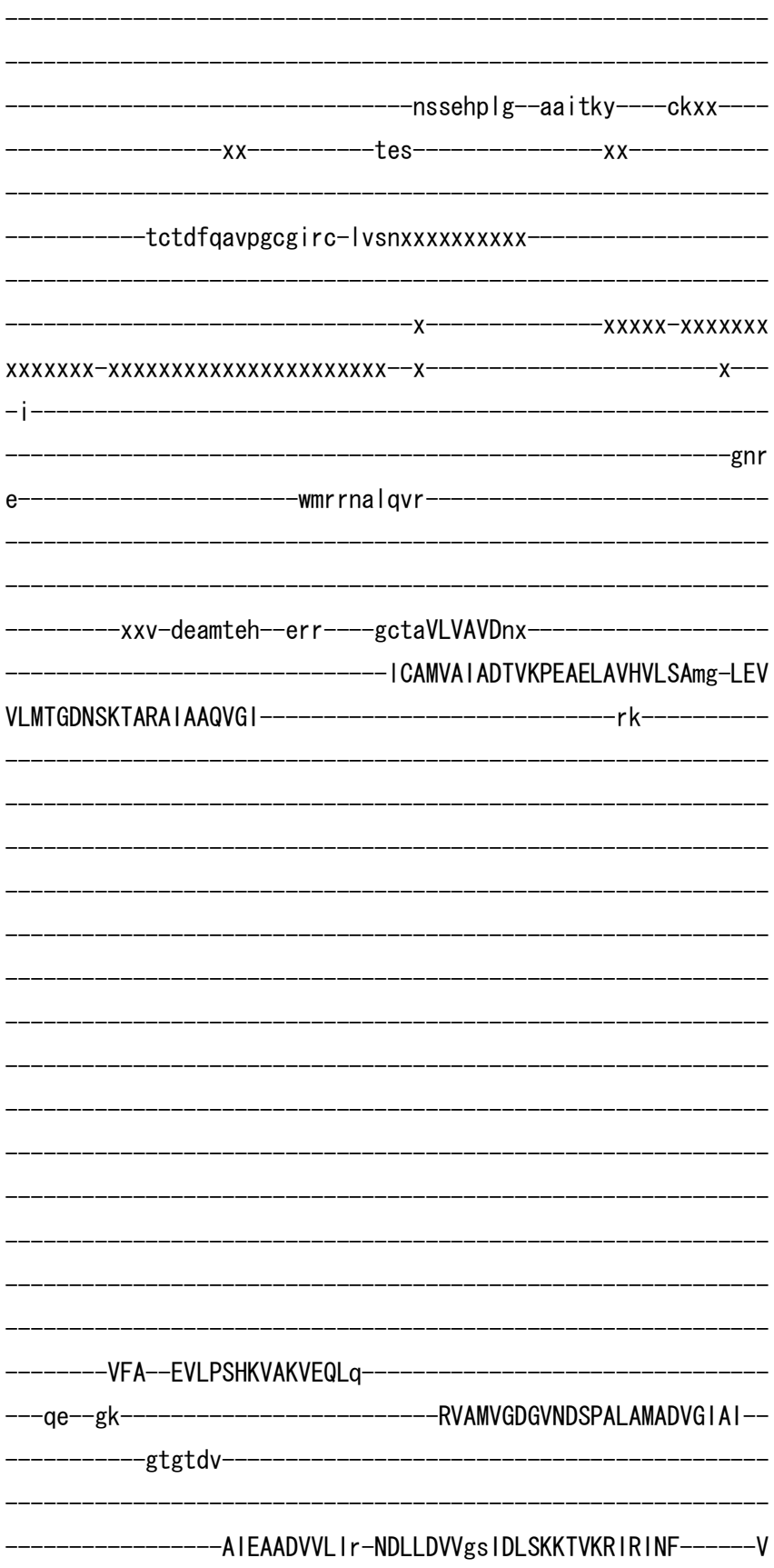

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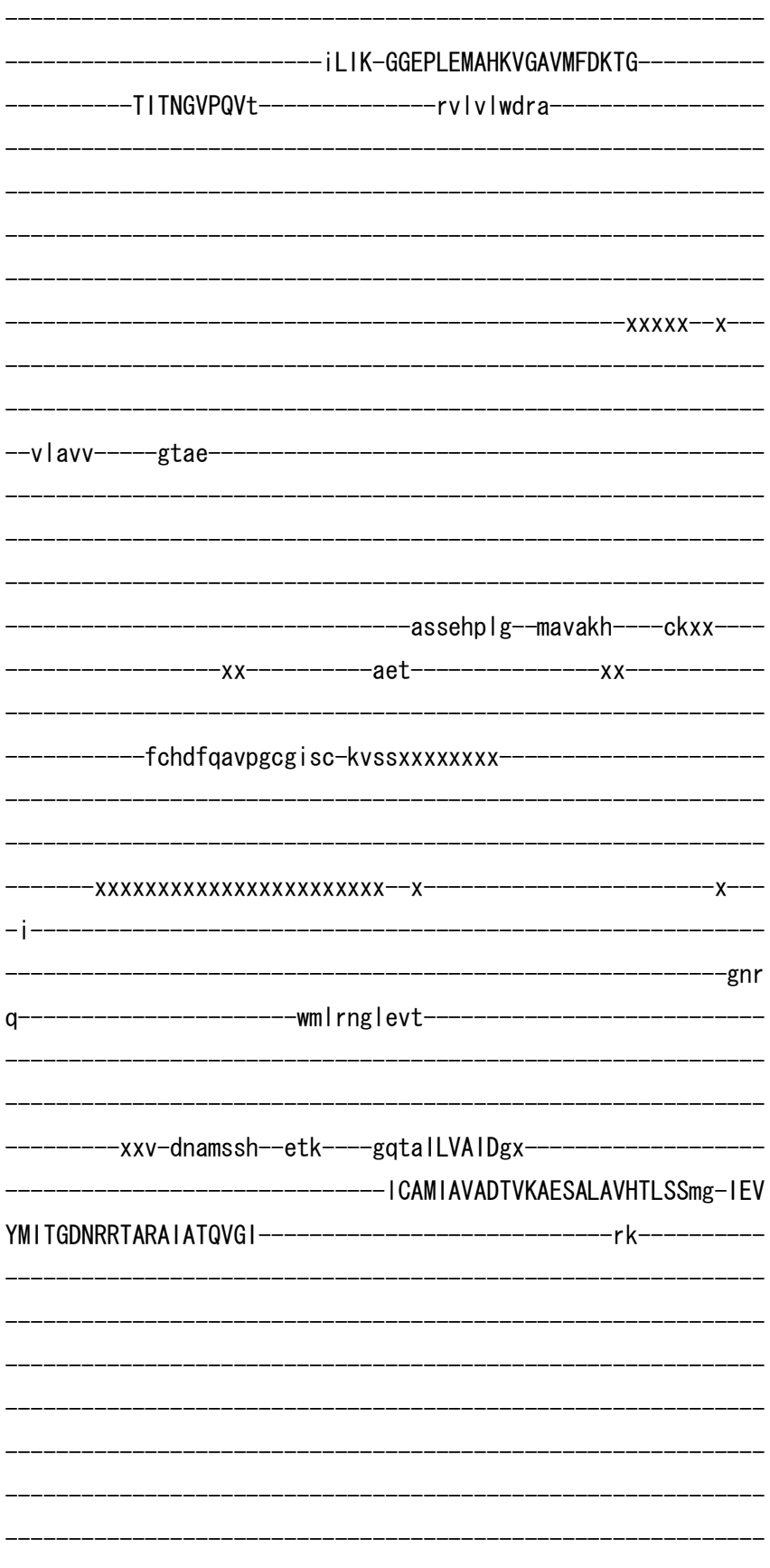

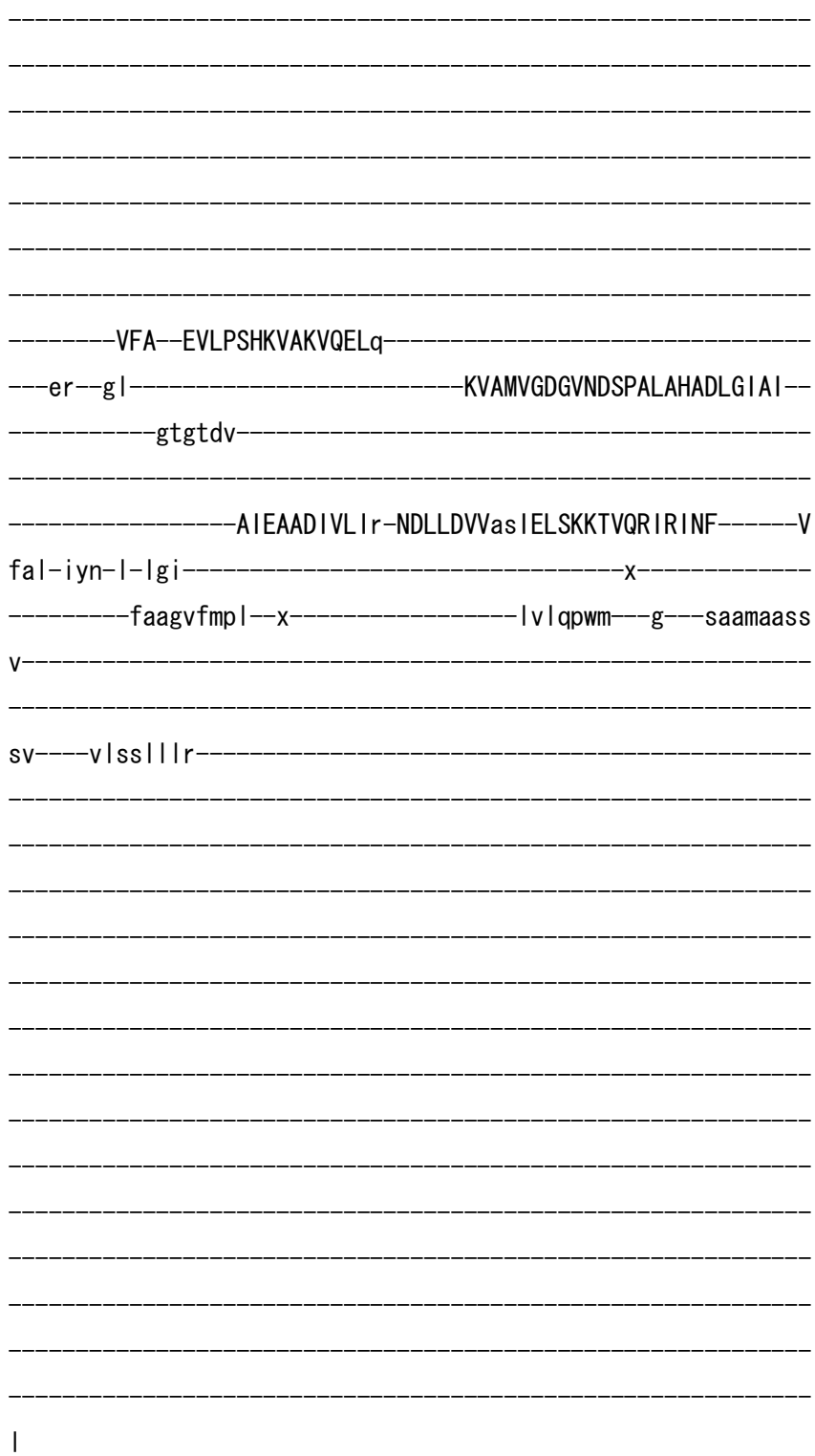

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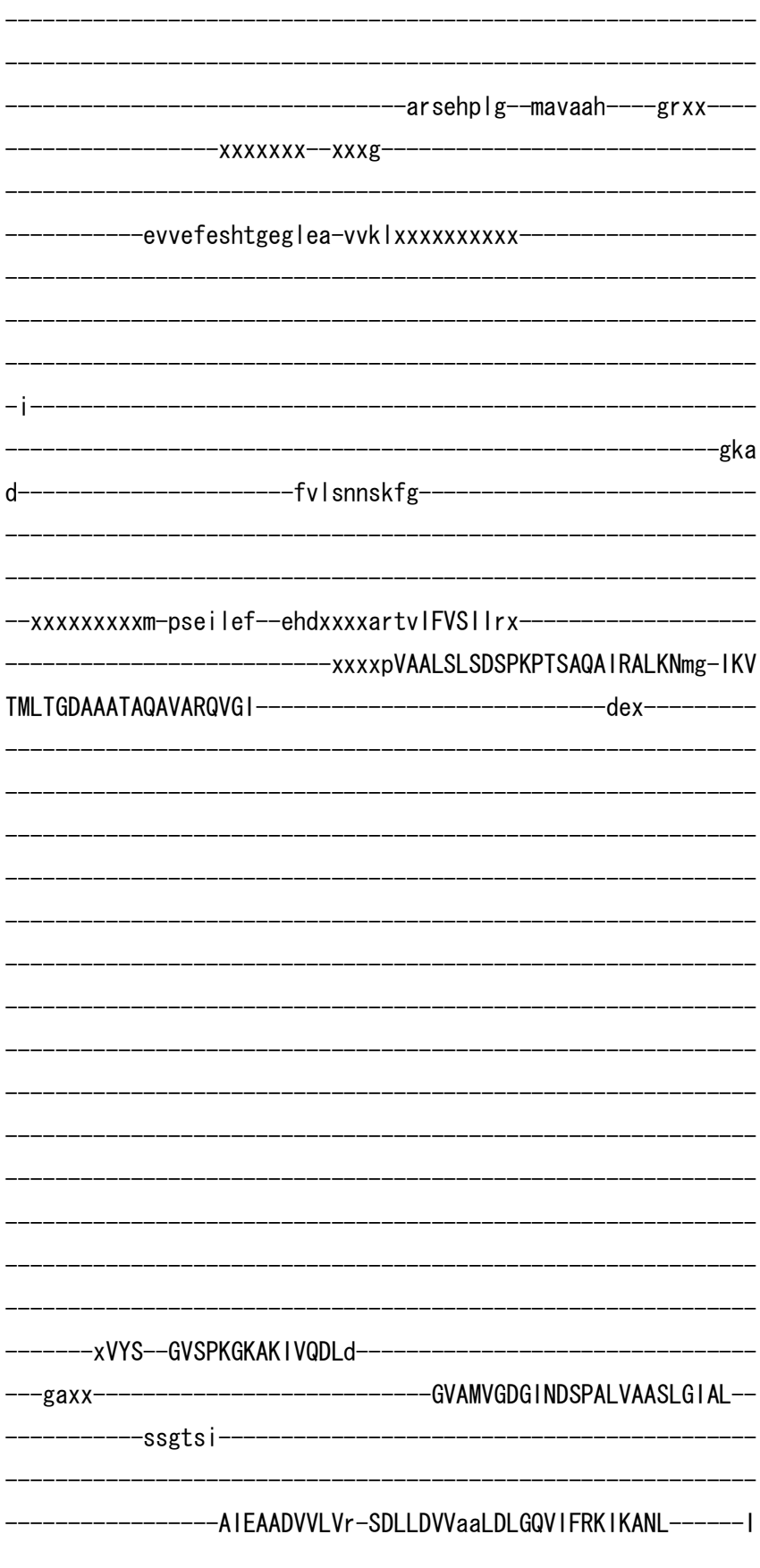

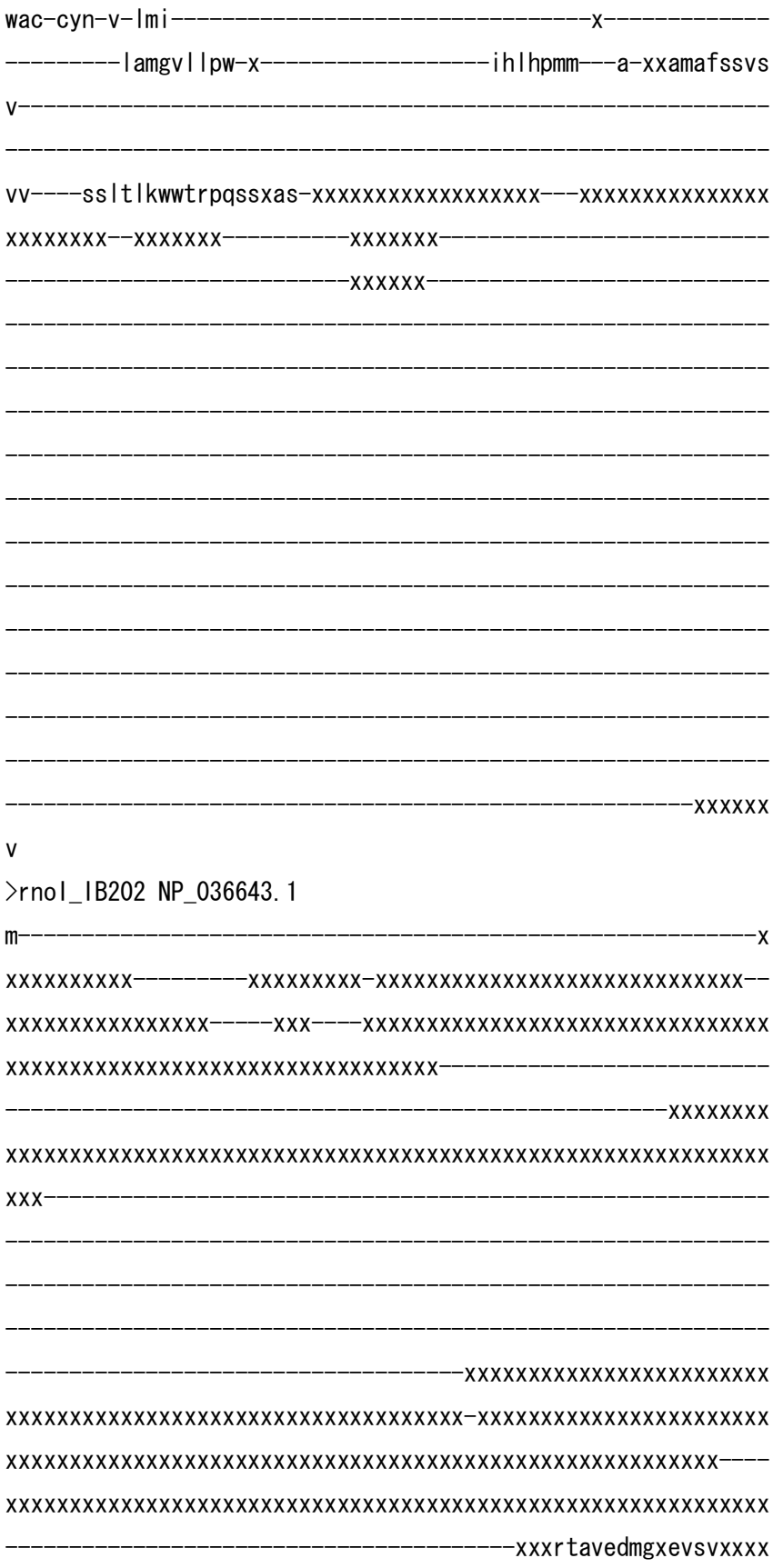

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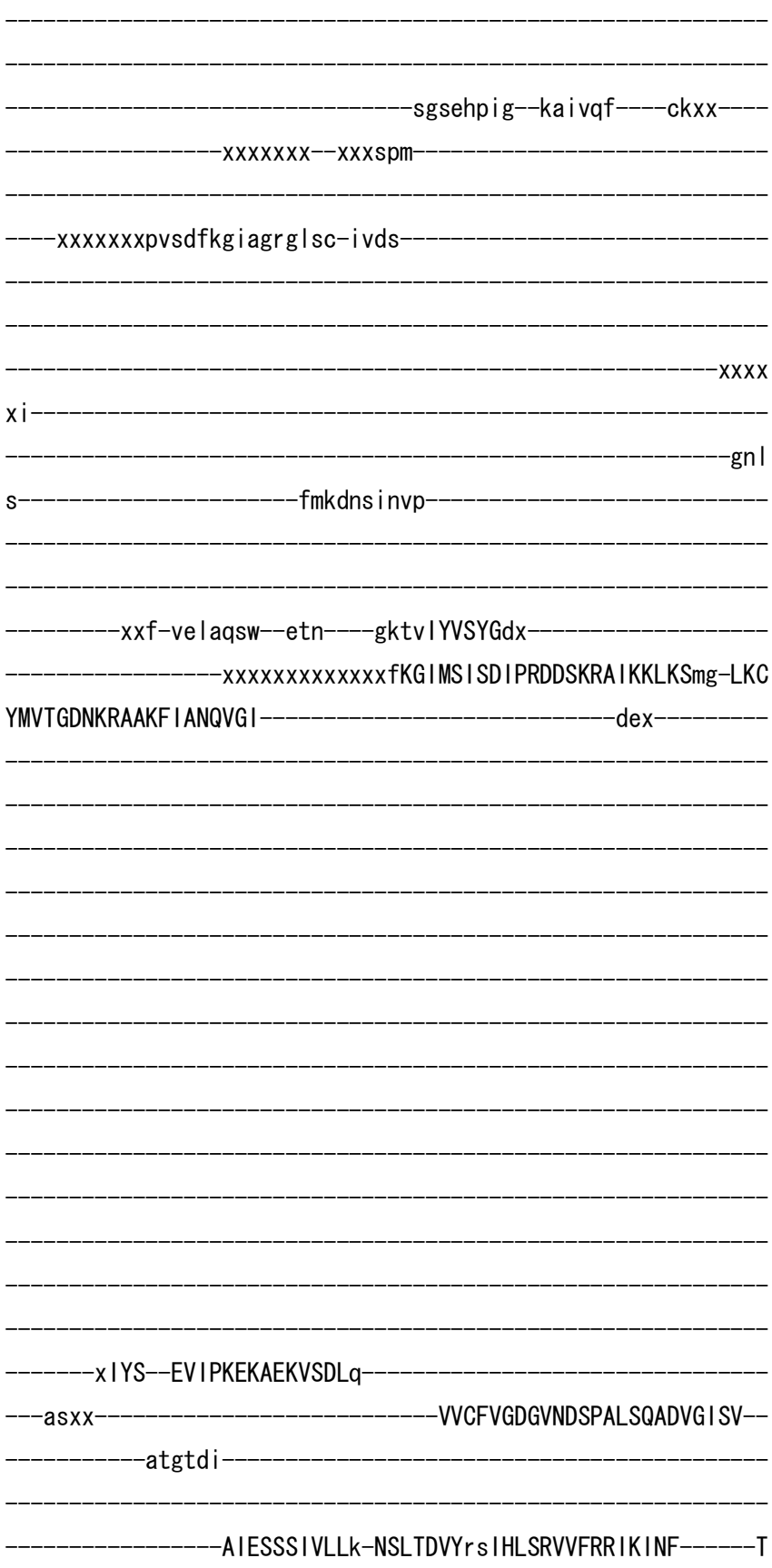

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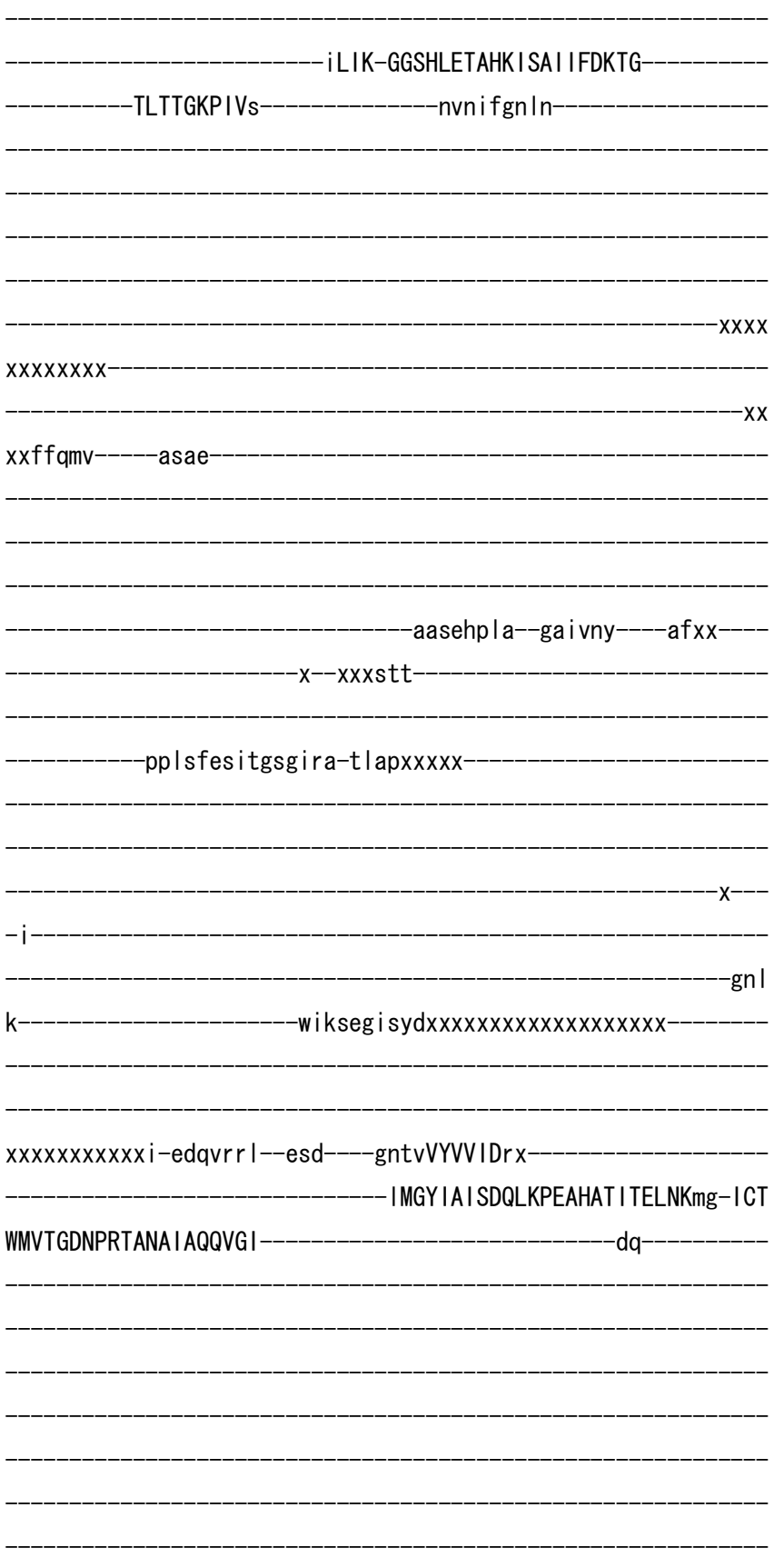

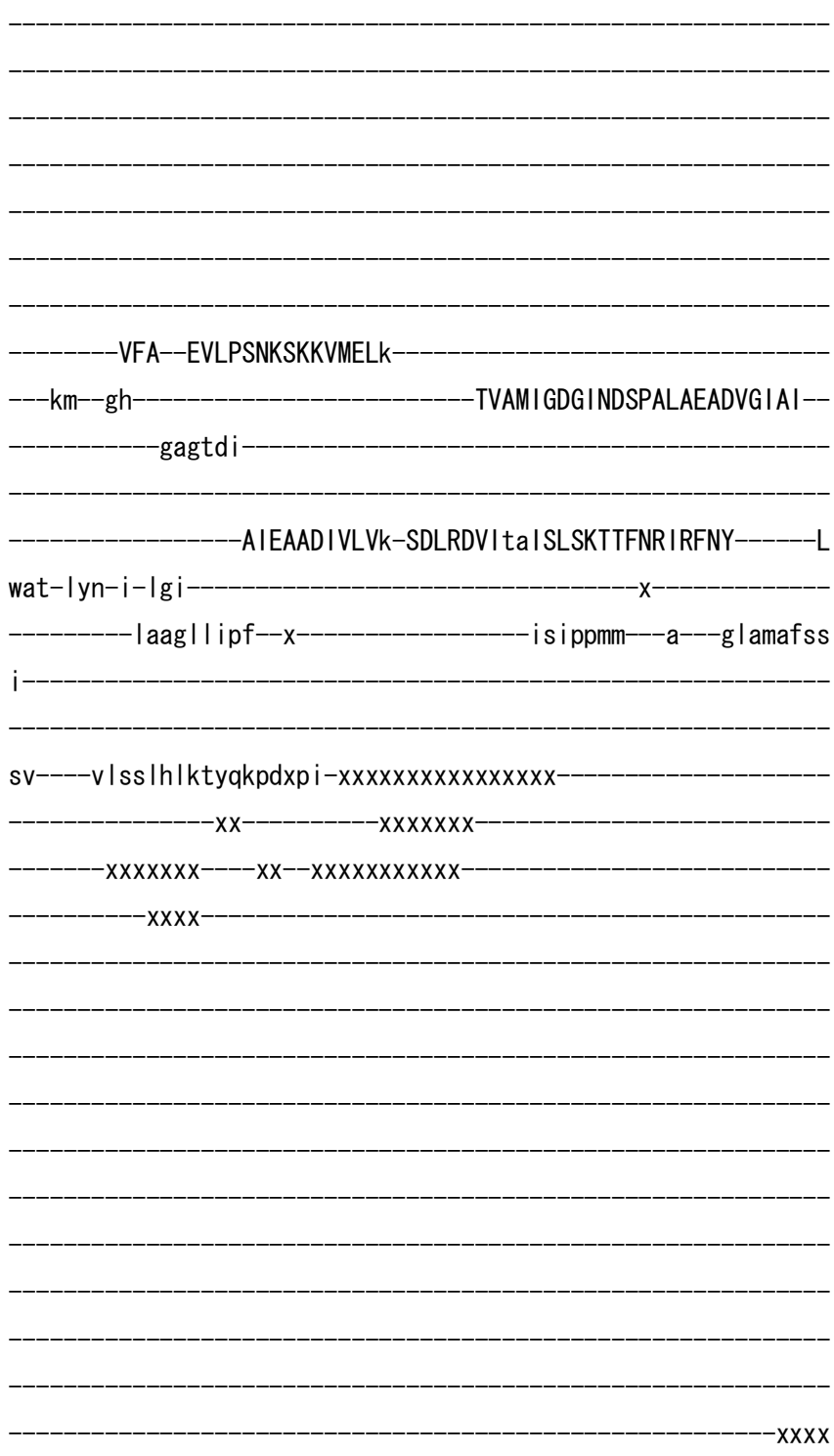

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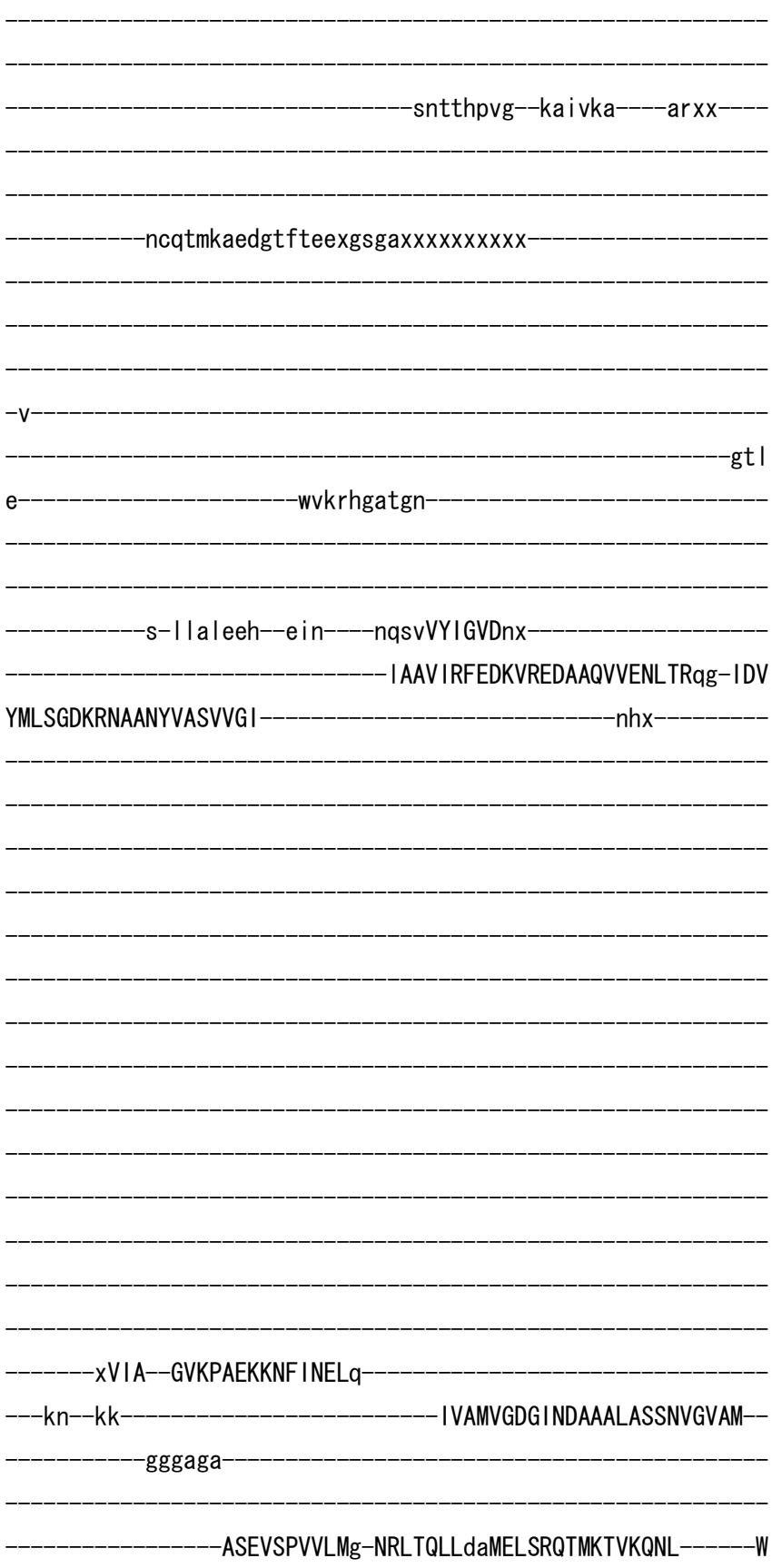

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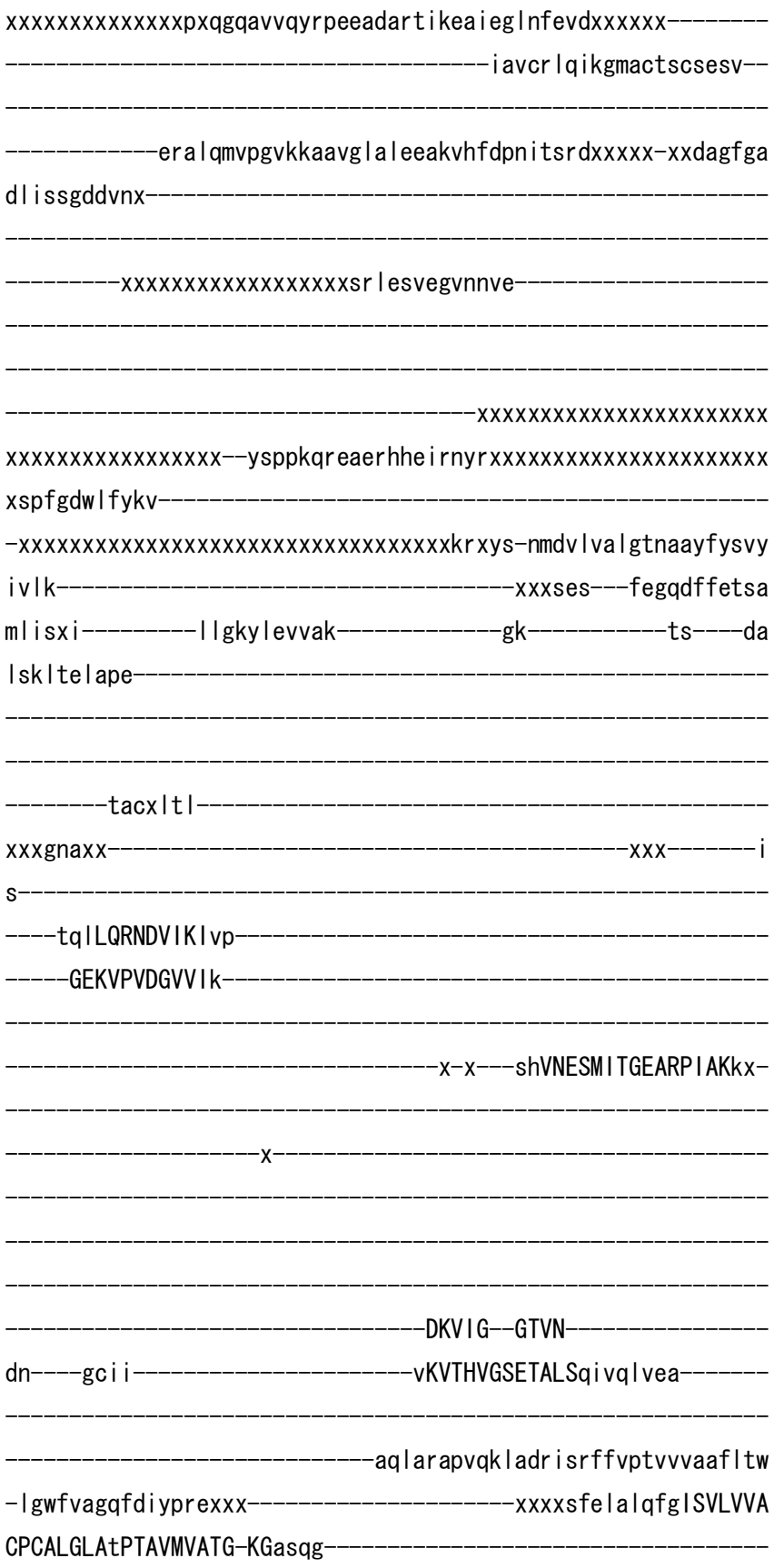

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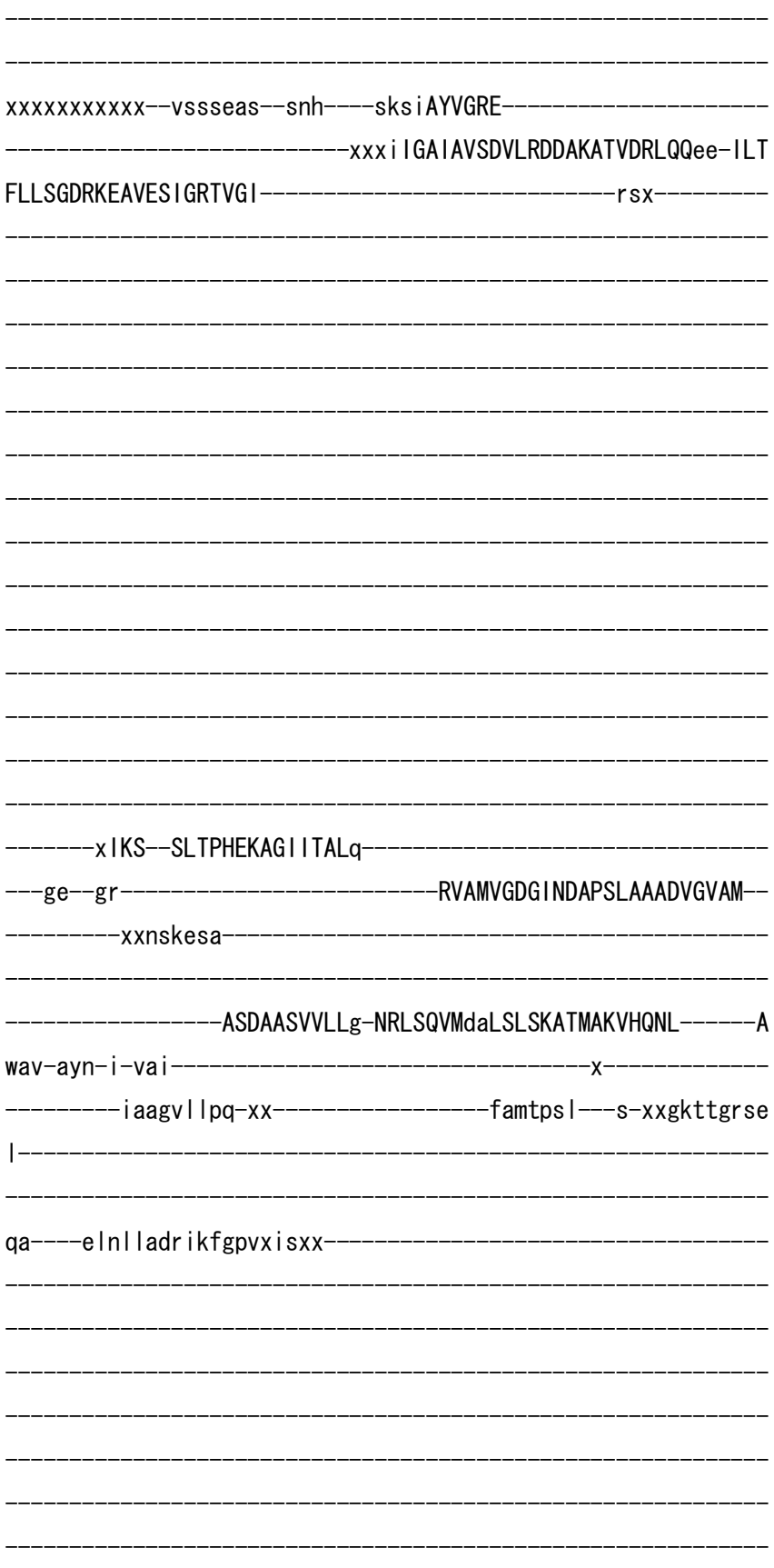

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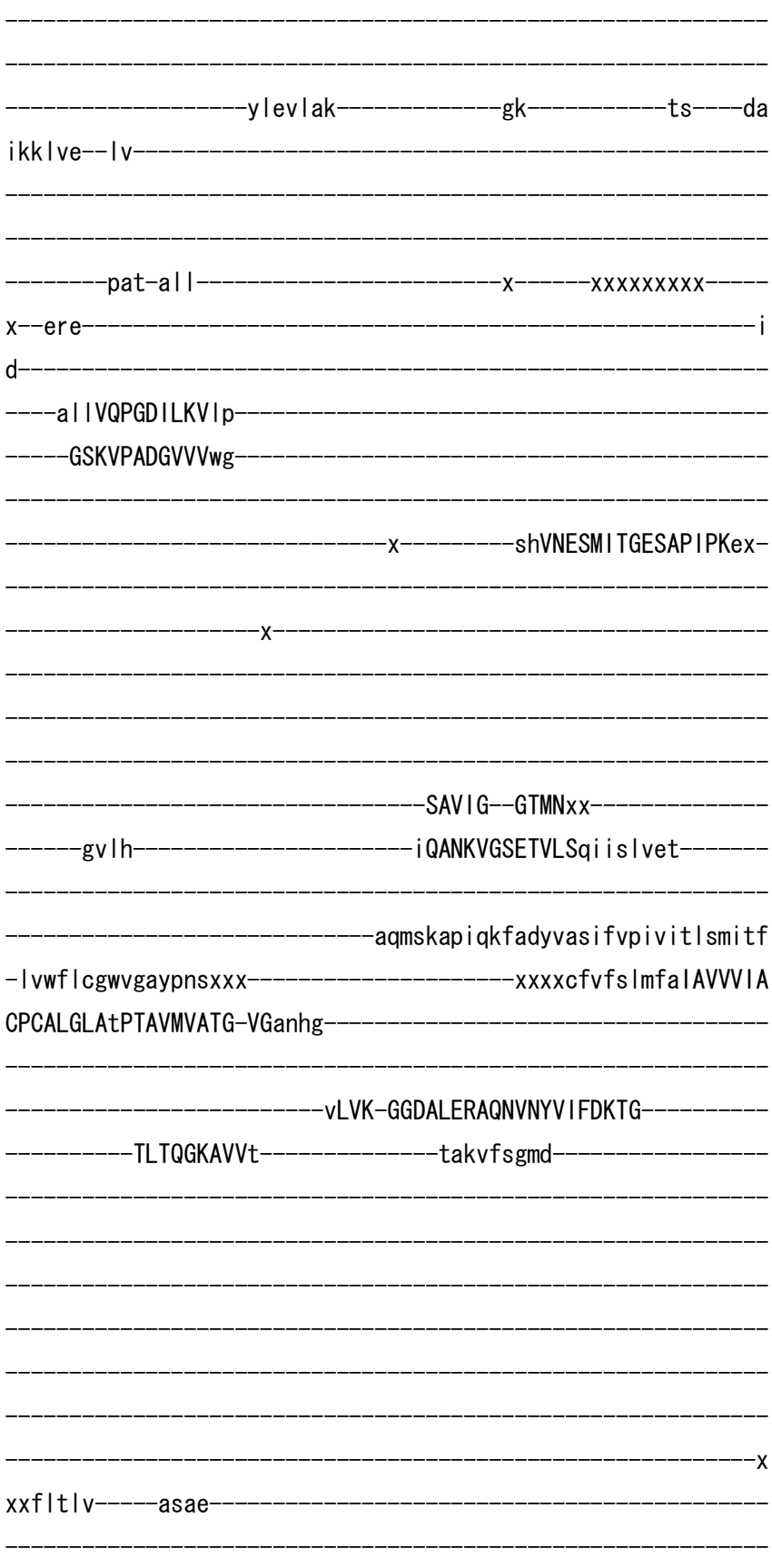

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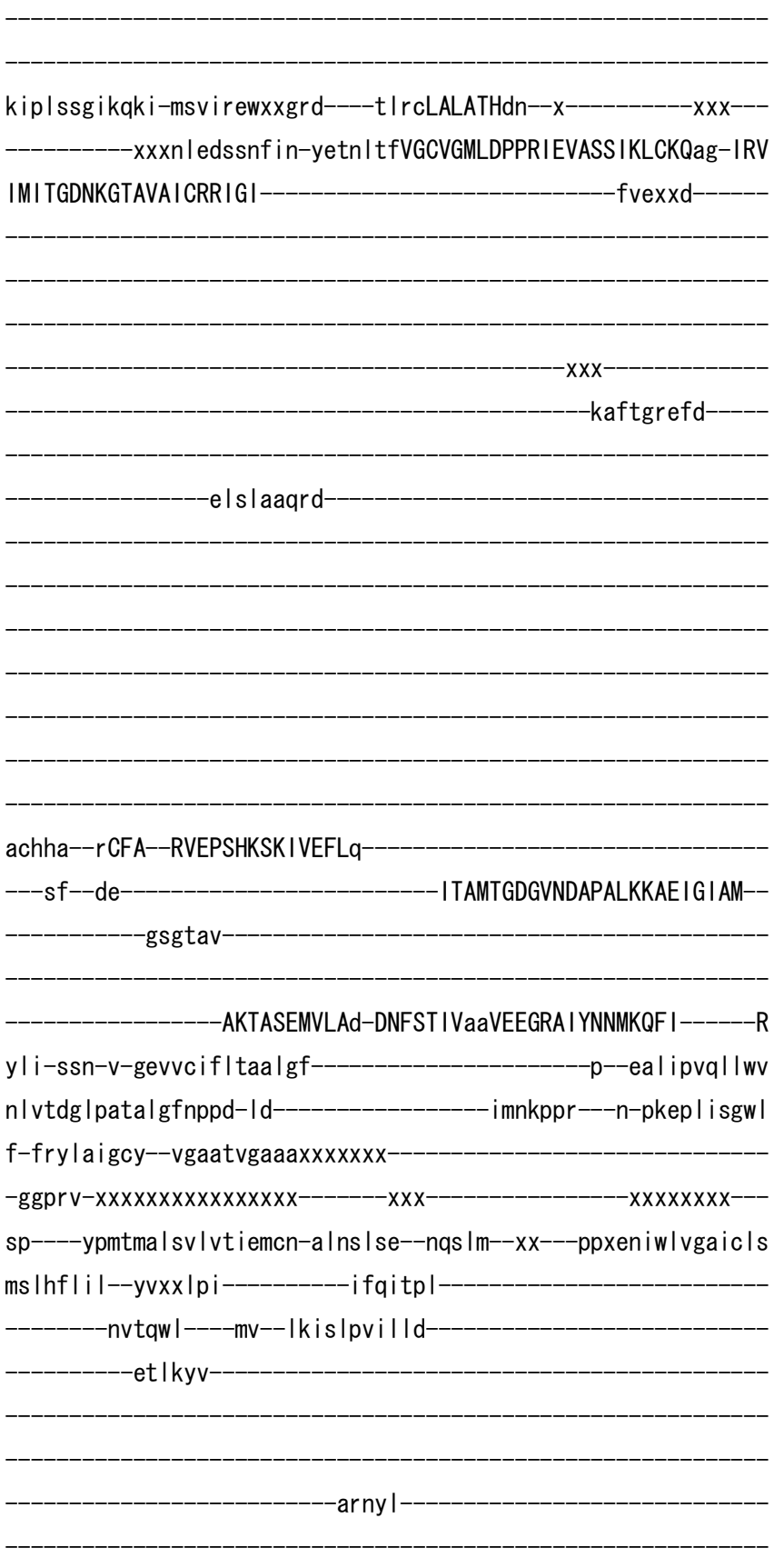

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iaalqe--ys----------

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k----------
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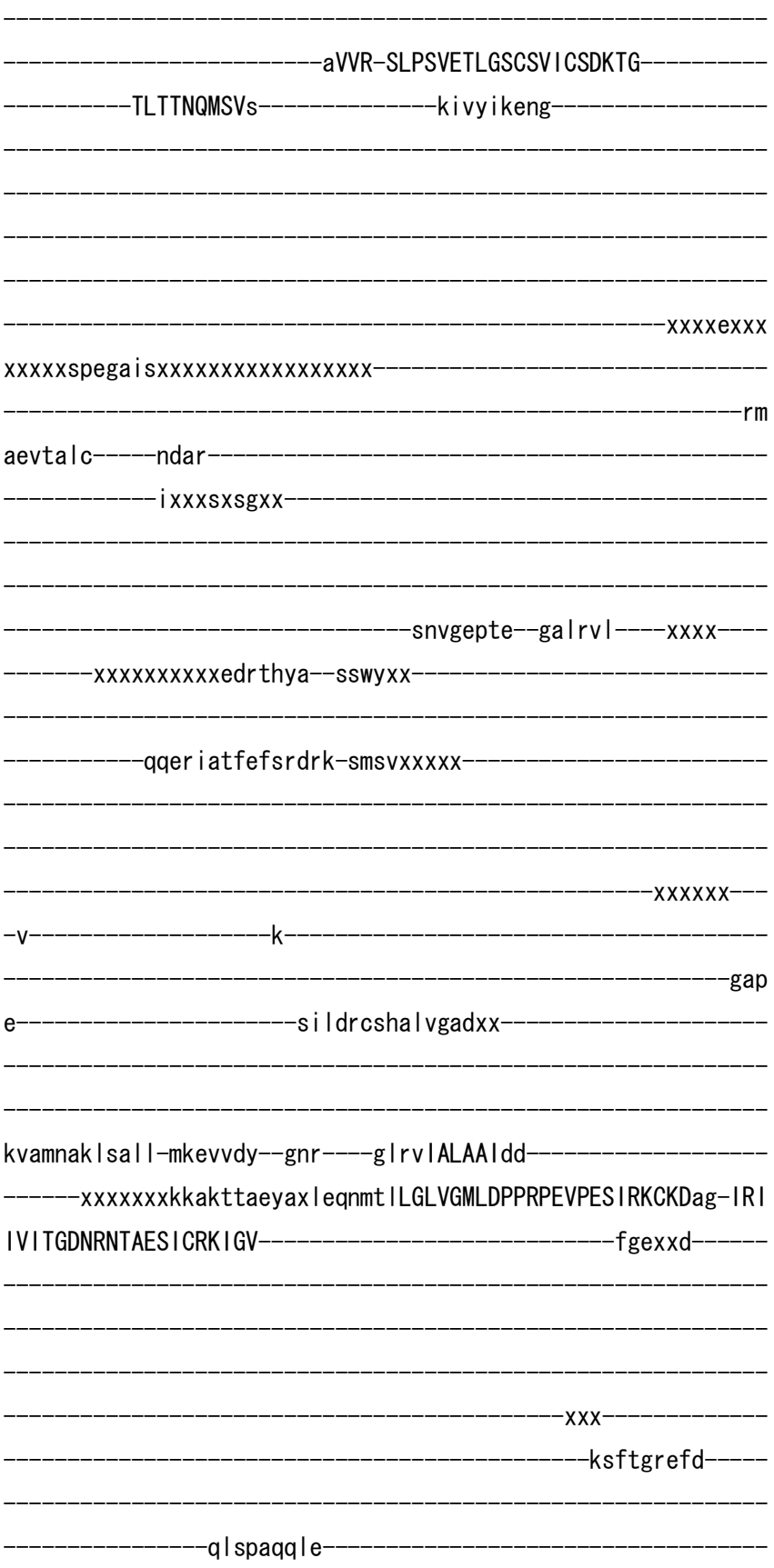

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ldalkk--lq----------

--------ptl-anc----------
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d----------
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l-lrylvigly--vglatcgifixxxxxxx---------------------------xx
xegntlxxxxxxxxxxxxxxx-x-------xxx-------xxx--xxxxxxxxxxxxxx-
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y
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m----------

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illi-l---------ianaivgvwqe----------rn----------ae----na
iealke--ye----------

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k----------
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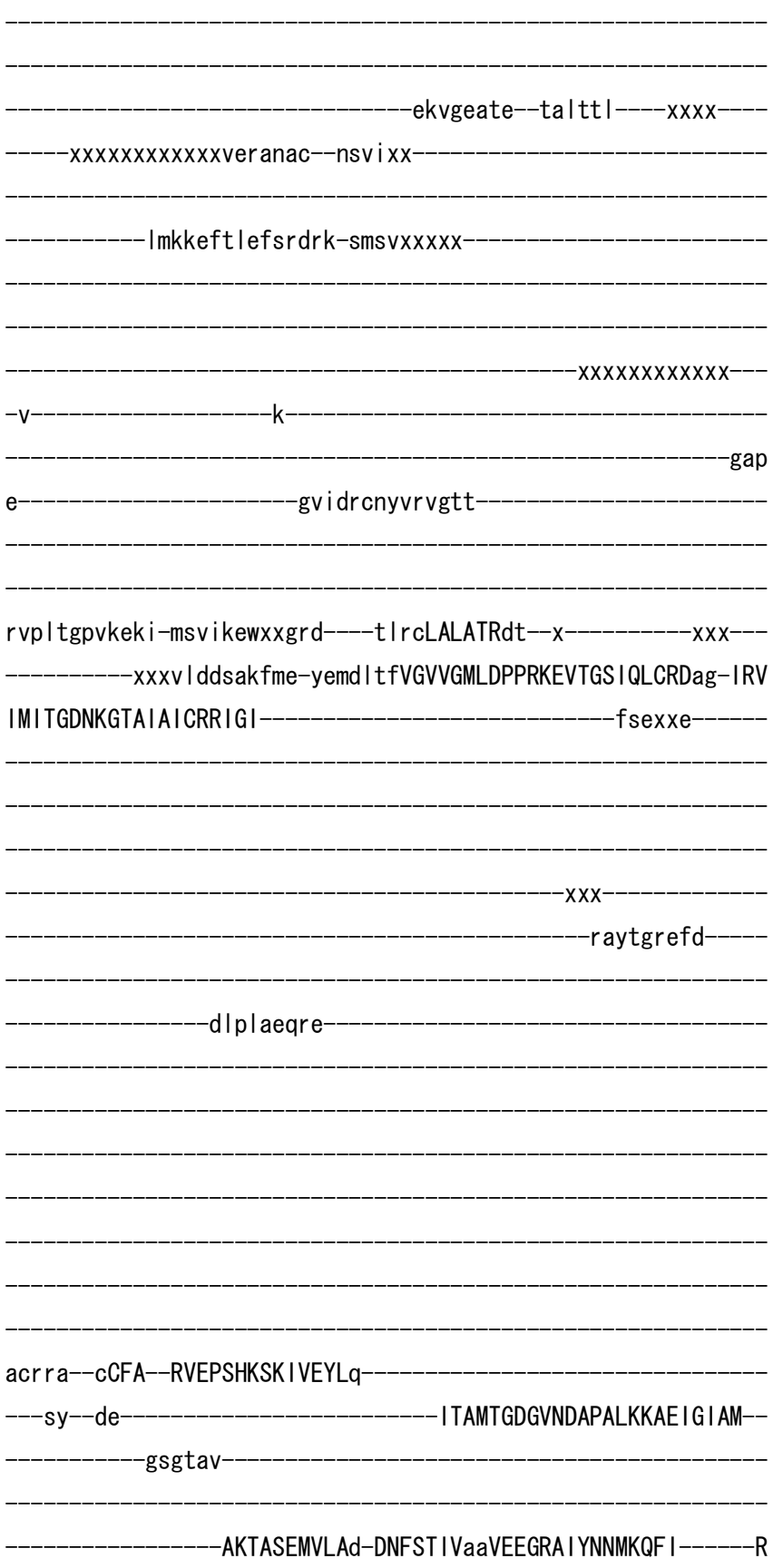

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----------ellkfi----------

-------------------arnyl----------

----------x----------

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g
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lawx----------xxge---etitafvepfv
illi-l---------vanaivgvwqe----------rn----------ae----na
iealke--ye----------

--------pem-gkv----------
-----yrq----------drxxvqr-------i
k----------
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----------elspsaqrd----------

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iealke--ye----------

--------pem-gkv----------
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r----------
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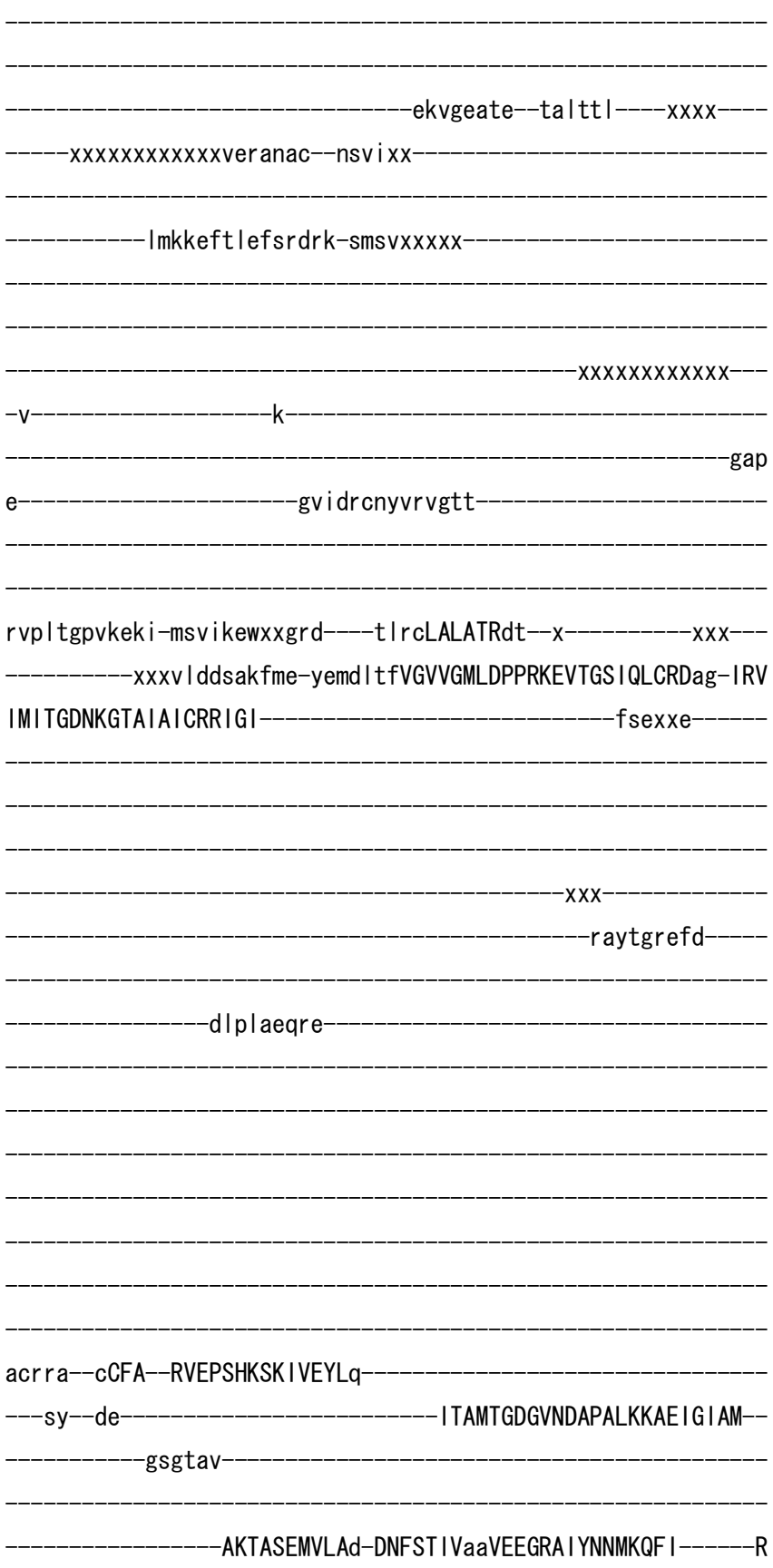

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lawx----------xxge---etttafveplv
imli-l--------vanaivgvwqe----------rn----------ae----sa
iealke--ye----------

--------pem-gkv----------
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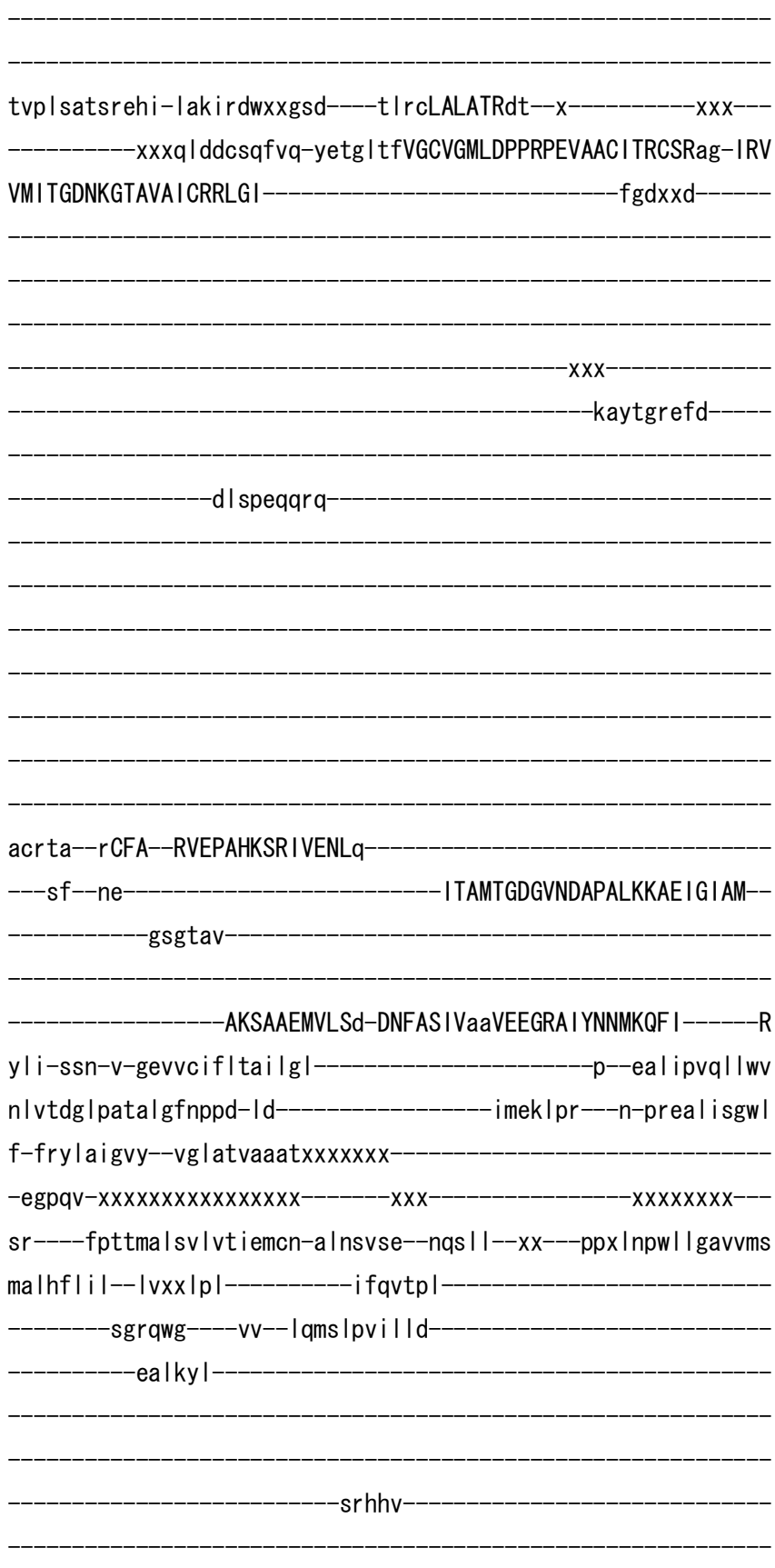

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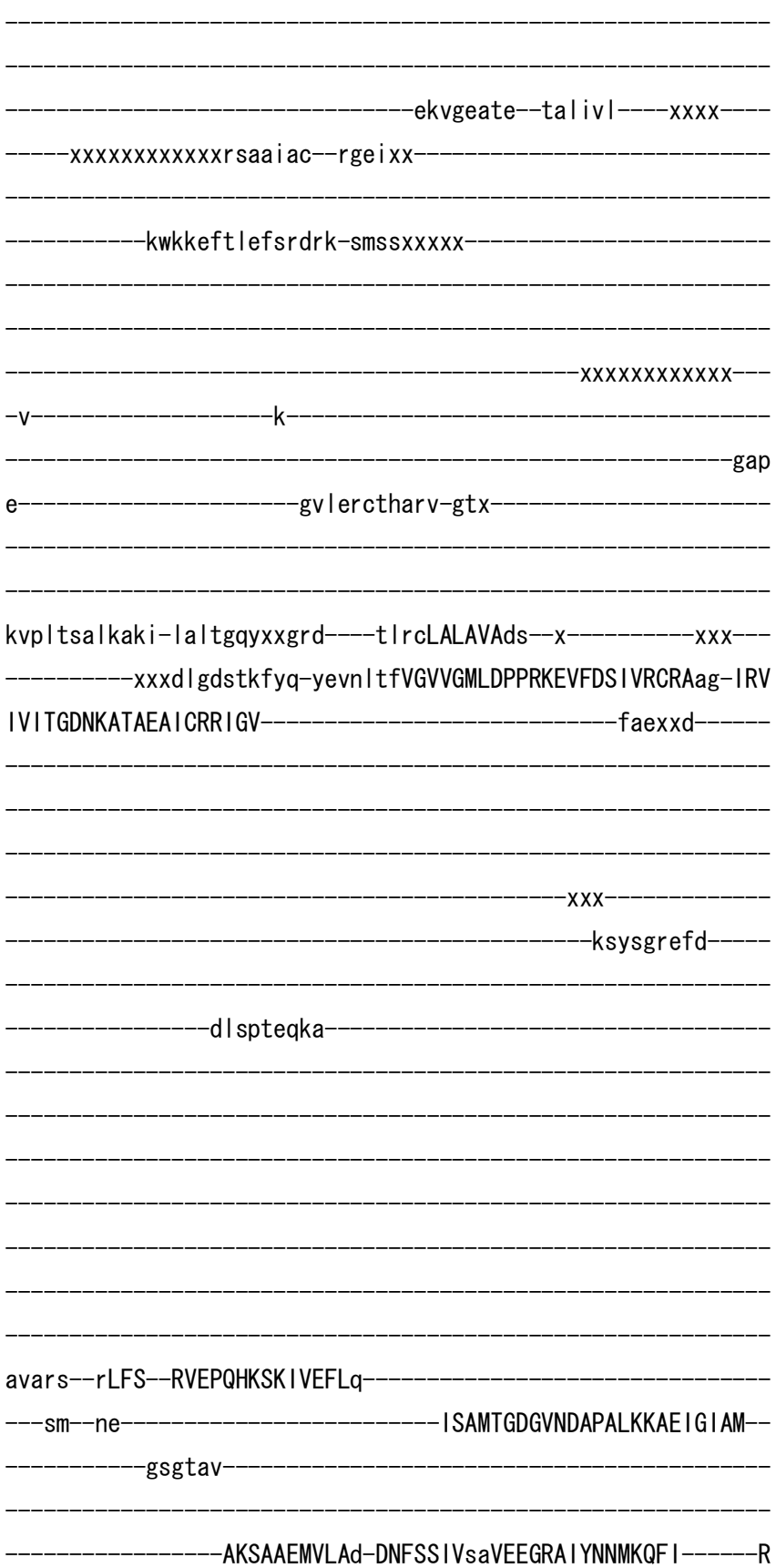

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iealke--ye----------

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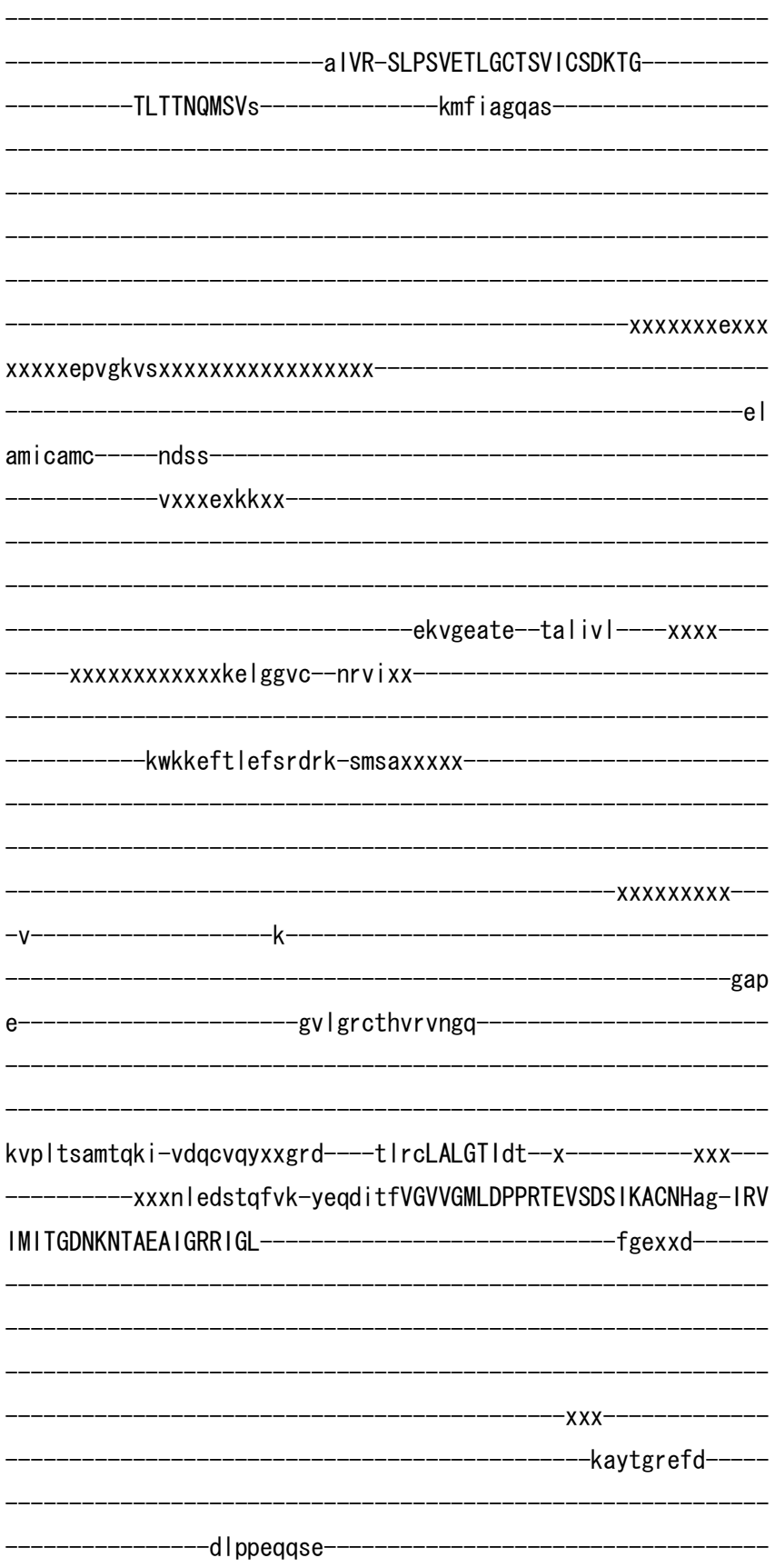

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lawx----------xxge---etitafvepfv
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--------pem-gkv----------
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k----------
----ardlVPGDIVEVav----------
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----------el
aticalc-----ndss----------
----------lxxxexkgxx----------

----------ekvgeate--talttl----xxxx----
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e----------gvidrcnyvrvgtt----------

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-------------------------------------------------raytgrefd-----
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----------eilkfv-------------------------------------------
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```

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k
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m----------

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ahtktveevlg----------

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lawx----------xxge---etitafvepfv
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iealke--ye----------

--------pem-gkv----------
-----yrq----------drxxvqr-------i
k----------
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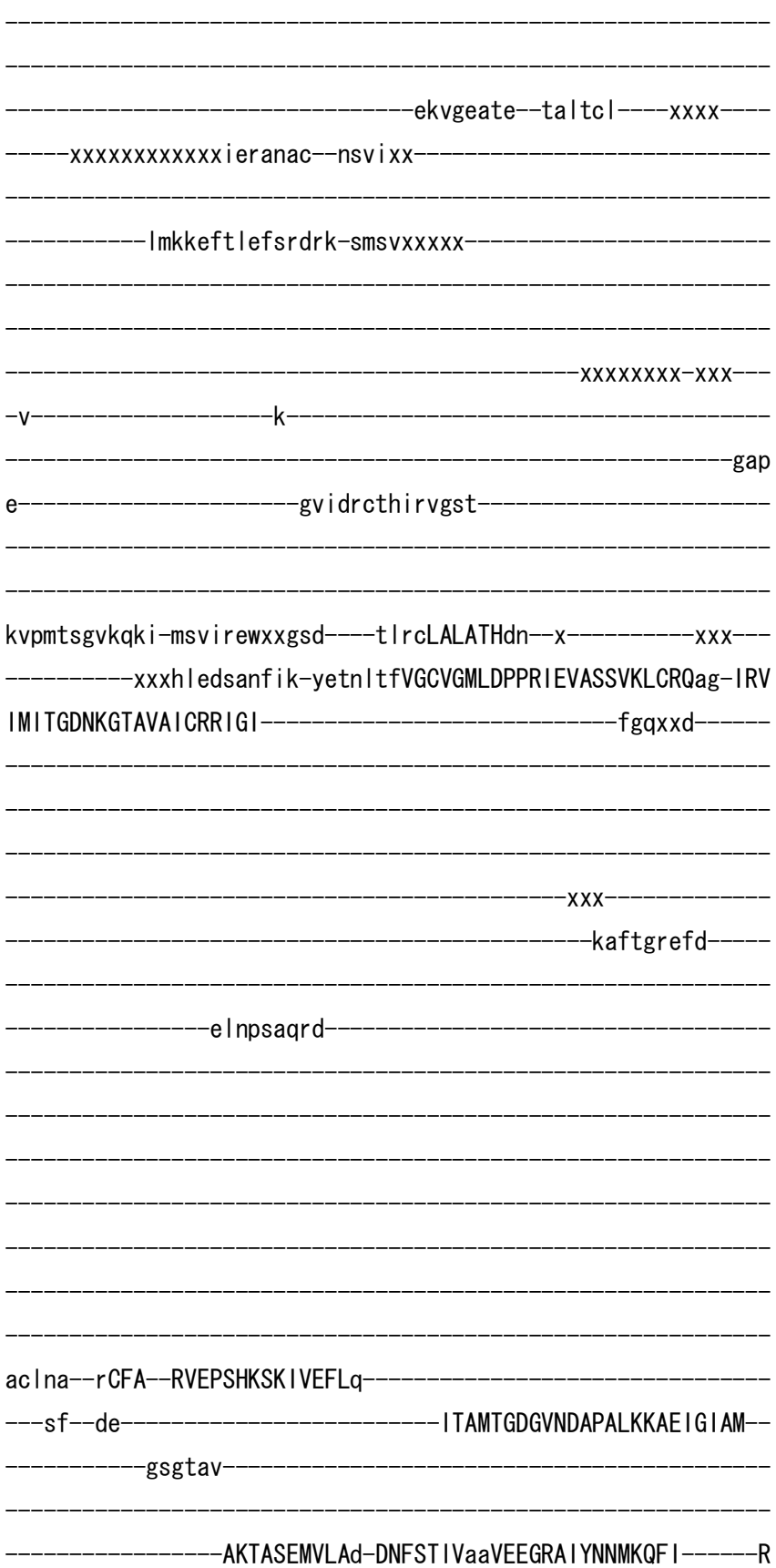

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-------------------------arnyl----------

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aticalc-----ndsa----------------------------------------------
------------lxxxexkgxx------------------------------------------
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-----xxxxxxxxxxxxveragac--ntvixx-------------------------------
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------------------------------------------------------------
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-----------------------------------------------xxxxxxxxxxxx---
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e---------------------sviercssvrvgsr-----------------------
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malhflil--lvxxlpl----------ifqvtpl-------------------------
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----------ealkyl---------------------------------------------
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k
>osall_IIA101 NP_001049744.1
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lealke--iq----------

--------seh-atv----------

-----krd----------grx-shg-------l

p----------

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akiaavc-----ndas----------
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----------xxxxxxxx---
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e----------nllersgyiqlldgx----------

-
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ivli-l---------ilnaavgvwqe----------cn----------ae----ks
lealke--lq----------

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d----------
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-----GNKTPADARIIki----------

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xxk----------
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----------ixxxdxsqxx----------

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------------------------------------------------------------
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xxxxxxxxxxxxxxxxxpvqssnk--kdksxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
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------------------------------------------------------------
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-c-----------------k-------------------------------------
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e---------------------niiknckyyltknd-----------------------
------------------------------------------------------------
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FMlTGDNlNTARAlAKElNl--------------------------lnkxxgxx----
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----------------------------------------xxxxxxccyngrefe-----
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---------------dfslekqkh---------------------------------
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ilkntxxiVFC--RTEPKHKKQlVKVLk---------------------------------
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l-lryiiigty--vgiatvsifvxxxxxxx----------x
xdmhtlxxxxxxxxxxxxxxxxxxxxxxxx----------xxxxxxxxxx-
ki----kastlslsvlvliemfn-alnalse--ynslf--xx---ppxrnmylvlatigs
lllhvlil--yixxlar----------ifgvvpl----------
--------saydwf----lv--flwsfpviild----------
----------eiikfy----------

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d
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lealke--iq----------

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akiaaic-----ndan-------------------------------------------
------------vxxxdxqf-------------------------------------
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xxxxxxx----------dgdvlrc--crlwxx----------------------------
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e---------------------nvlersthiqlldgx----------------------
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xdghslxxxxxxxxxxxxxxx-x-------xxxxxxxxxxxxx--xxxxxxxxxxxxxx-
ki----kastlslsvlvaiemfn-slnalse--dgslv--xx---ppxvnpwlllamavs
fglhfvil--yvxxlaq----------vfgivpl-------------------------
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----------evlkfv---

--------------------------grctsx---------x-----------------

---x---
------------xxxxxxxxxxx-----------------------------------

---x----
e
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awswsveqclk----------

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----------ddtlvkillgaa--fisfv
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ivli-l--------ilnavvgvwqe----------sn----------ae----ka
lealke--mq----------

--------ces-akv----------

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----------xxxxxxx---
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e----------silerssfaqladgx----------

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lawx----------xxge---etvtafvepfv
illi-l---------ianavvgvwqe----------rn----------ae----sa
iealke--ye----------

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-----yrs----------drxxvqr-------i
k----------
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xxk----------
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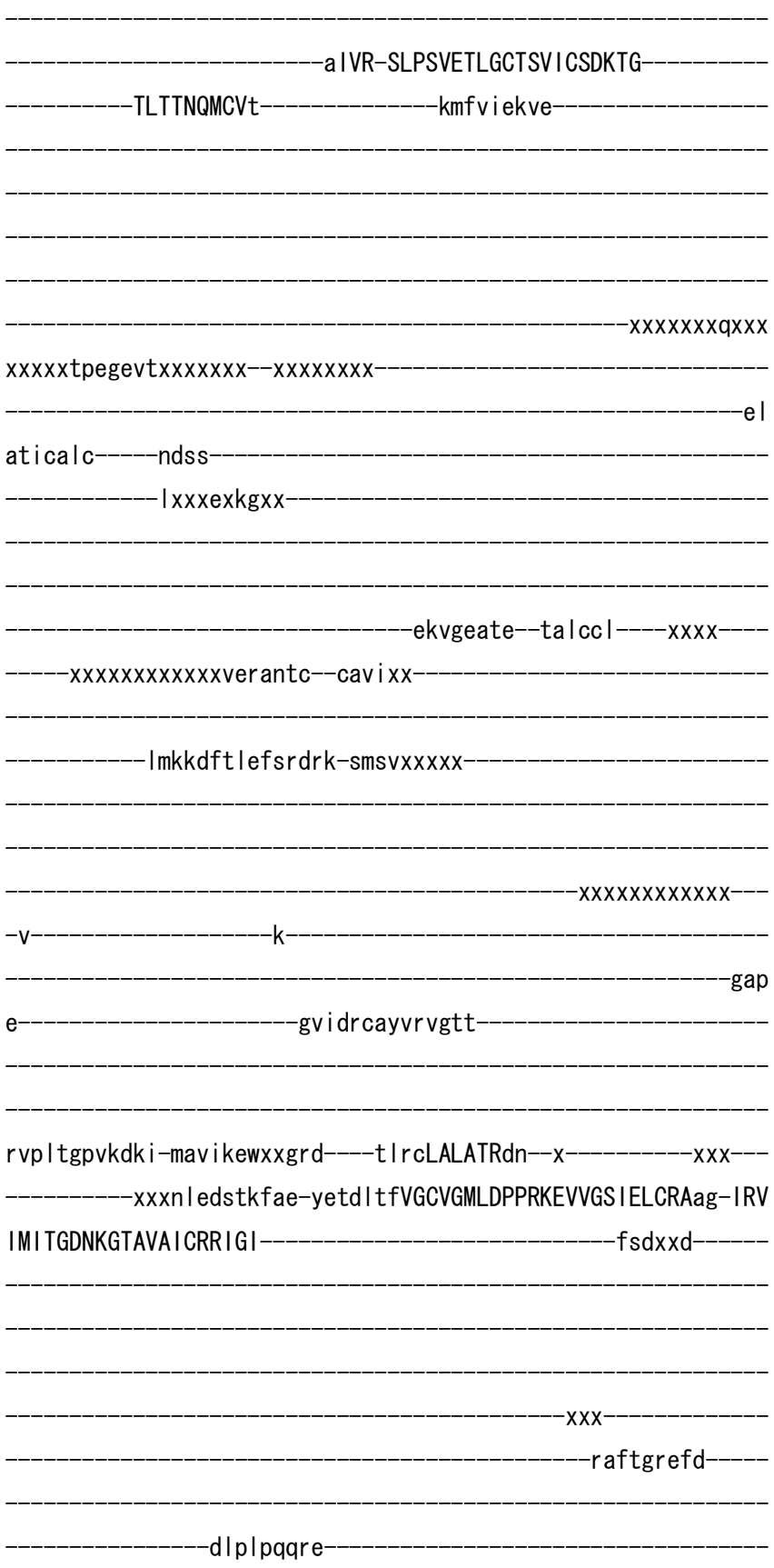

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----------arnyl----------

----------x----------

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a
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lawx----------xxge---etitafvepfv
illi-l--------ianavvgvwqe----------rn----------ae----sa
iealke--ye----------

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----------arnyv----------

----------x----------

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v

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m----------

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iealke--ye----------

--------pem-gkv----------
-----yrq----------drxxvqr-------i
k----------
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xxk----------
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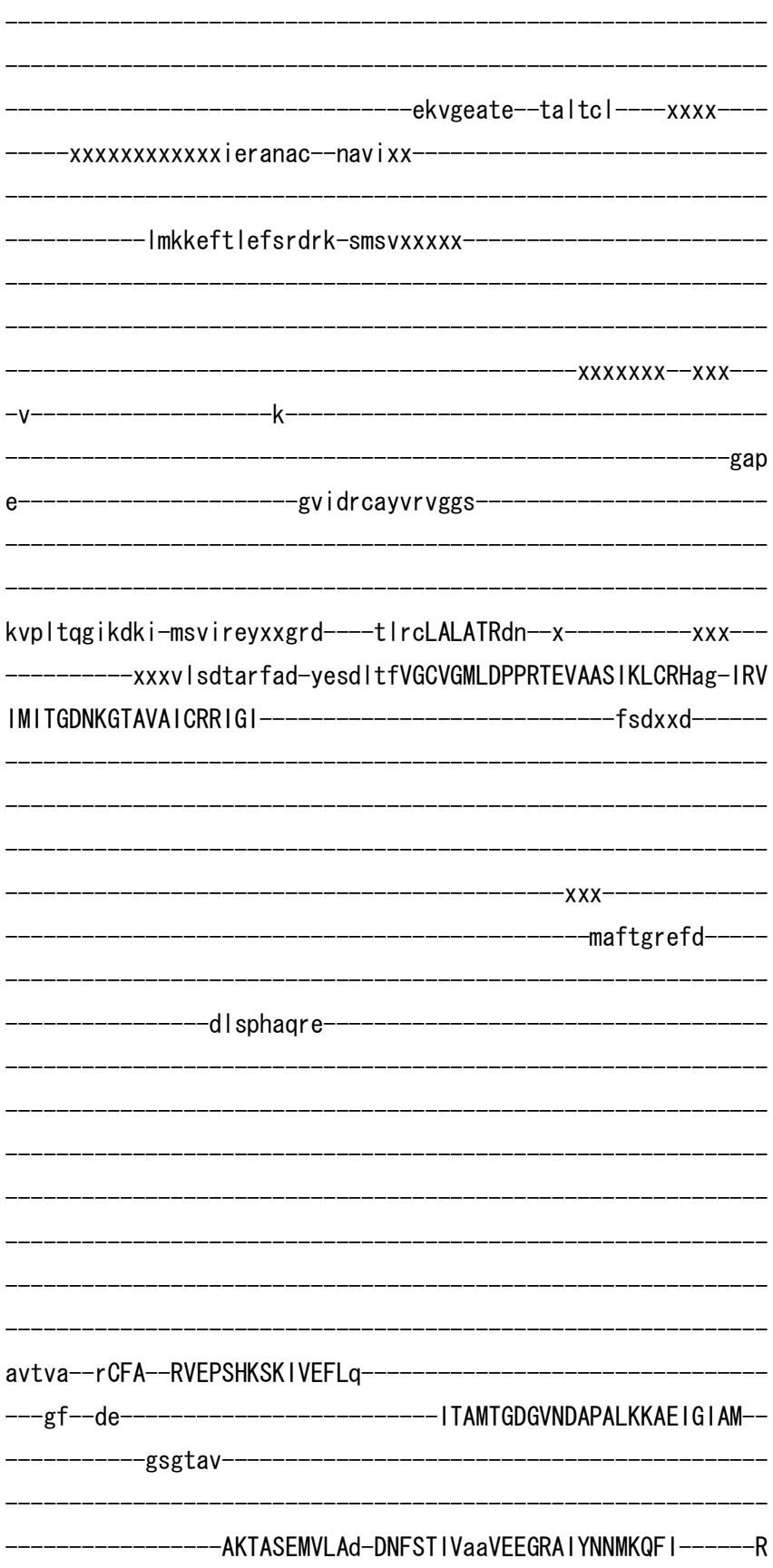

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iealke--ye----------

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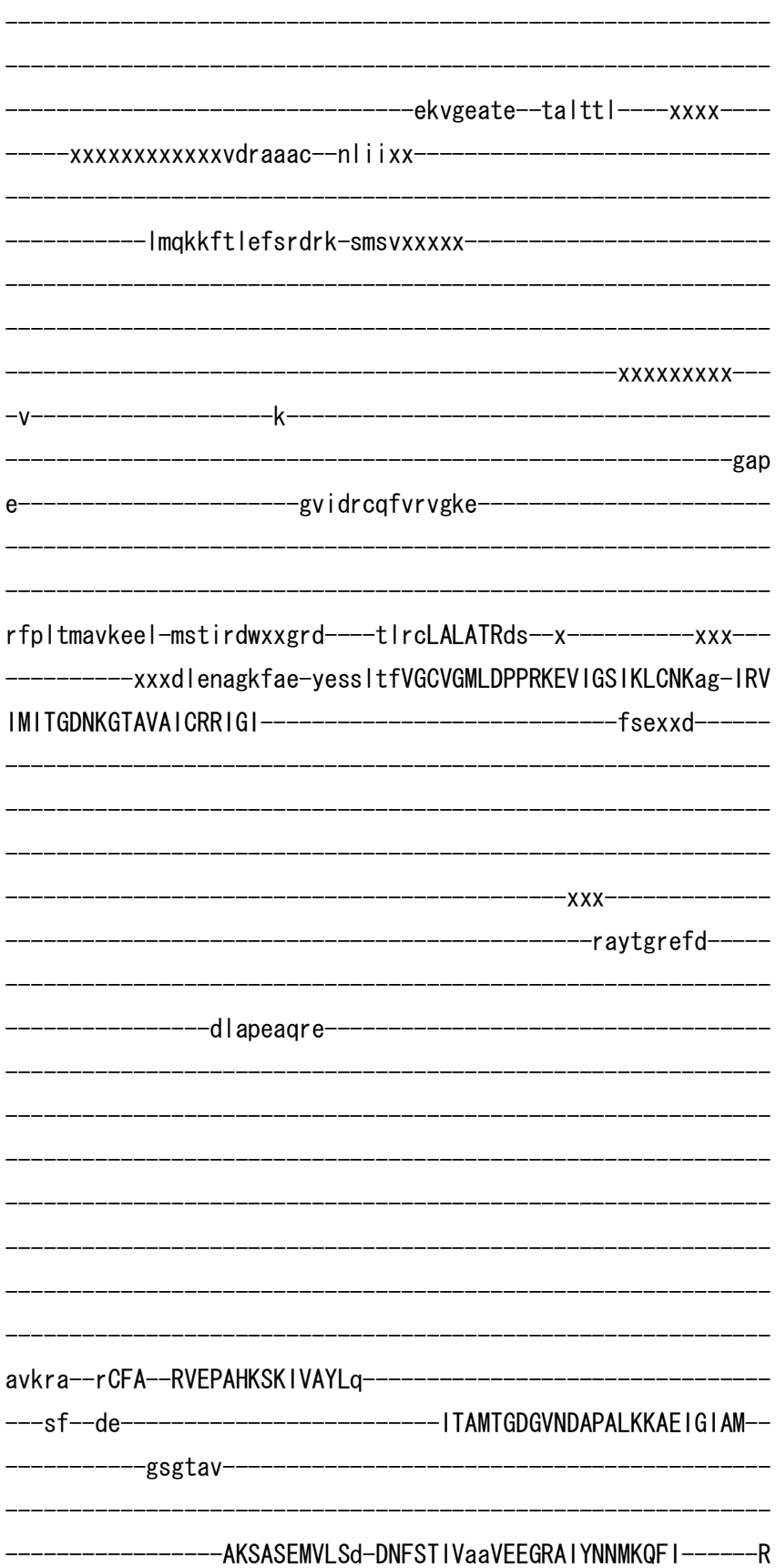

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idalke--ys----------

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iaalqe--ys----------

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k----------
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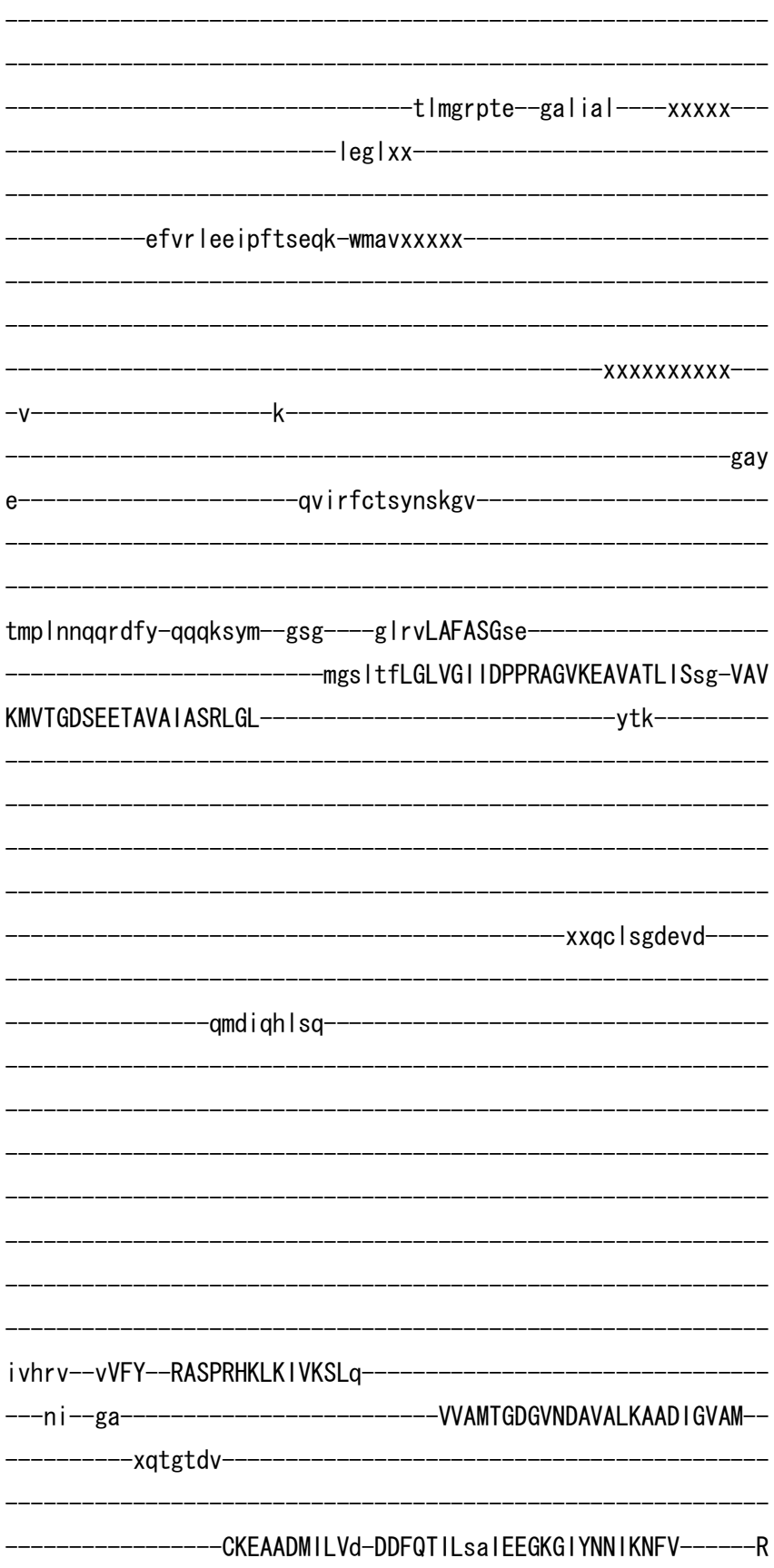

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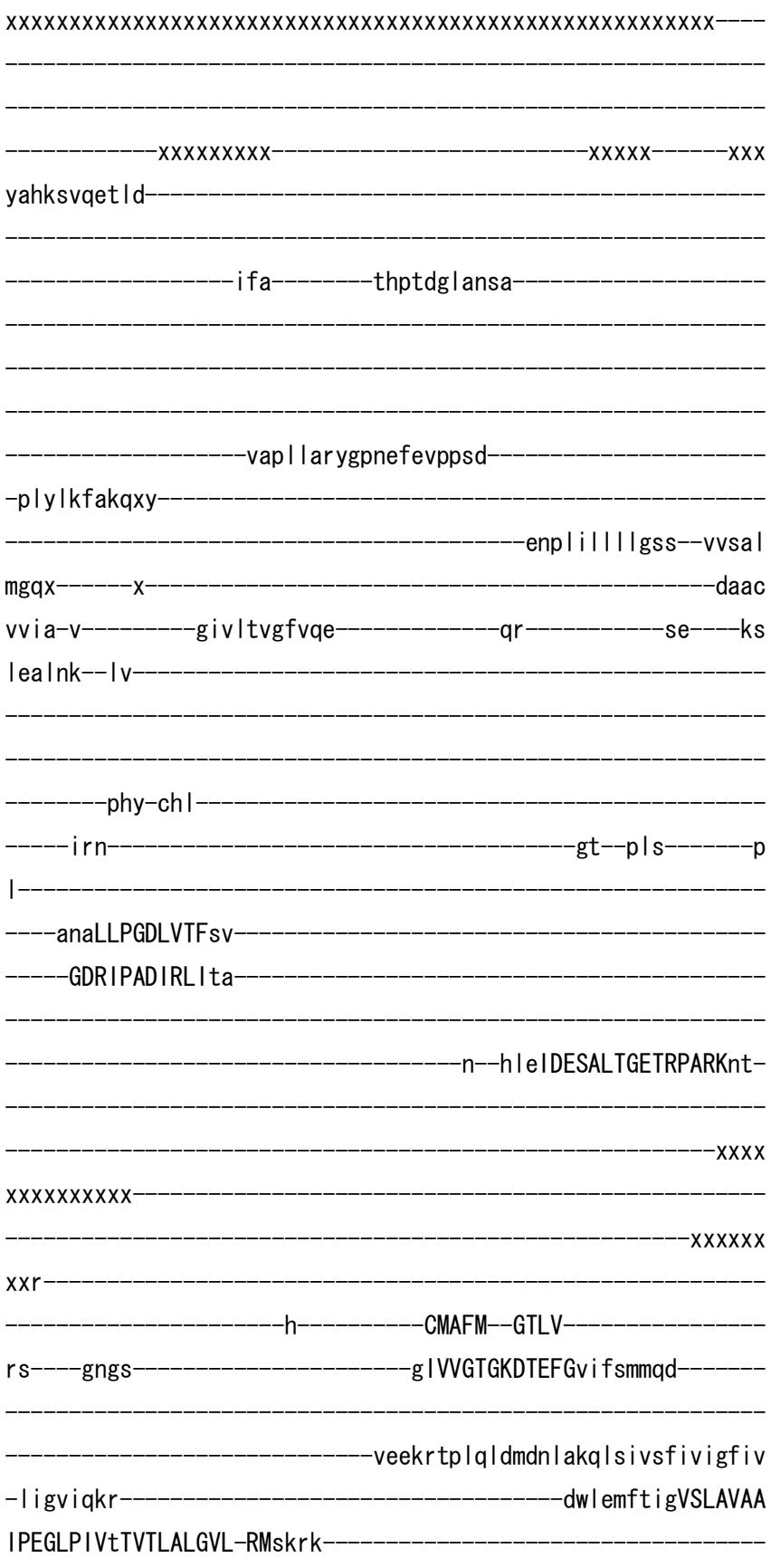

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leelsk--lv----------

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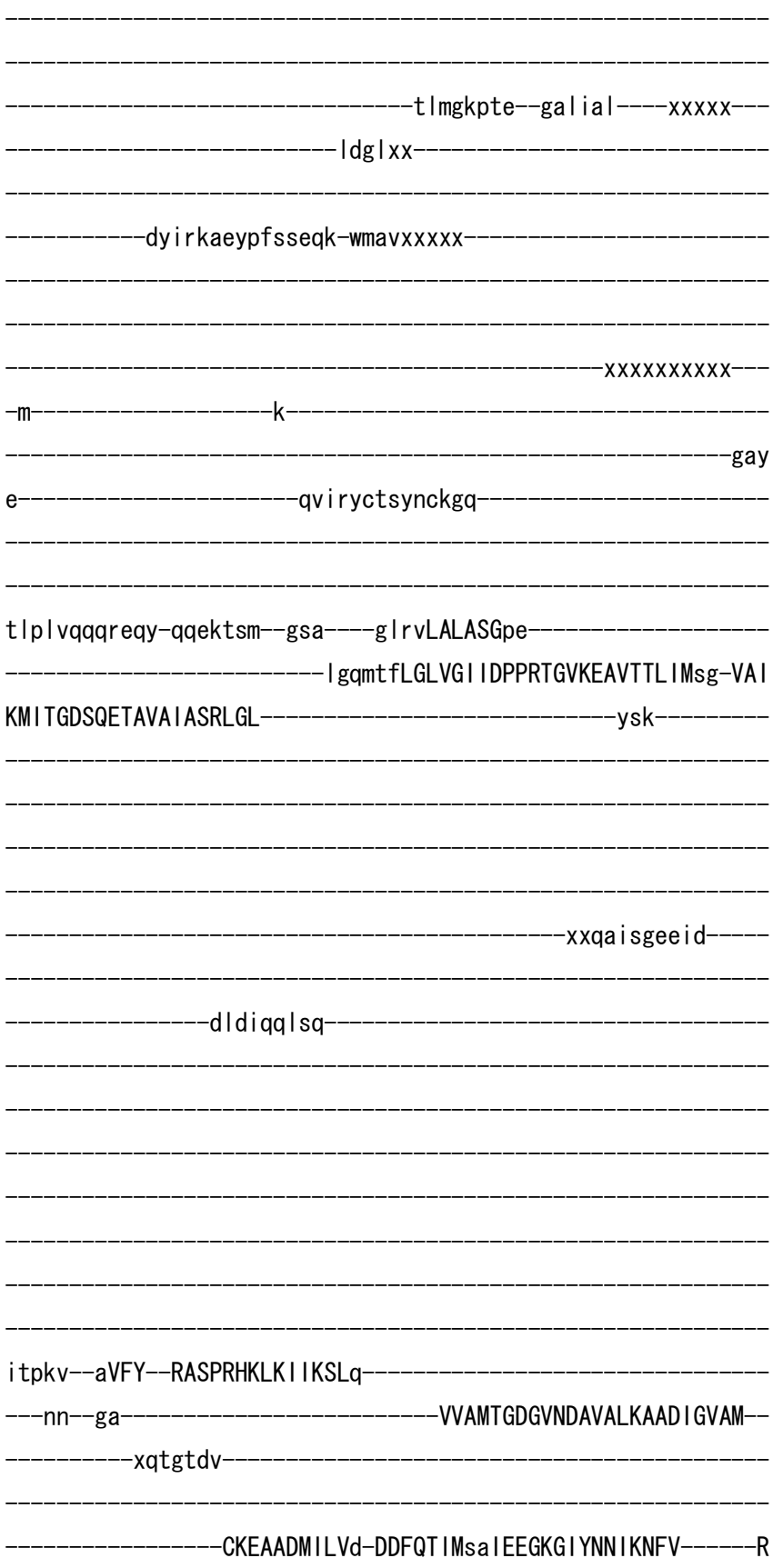

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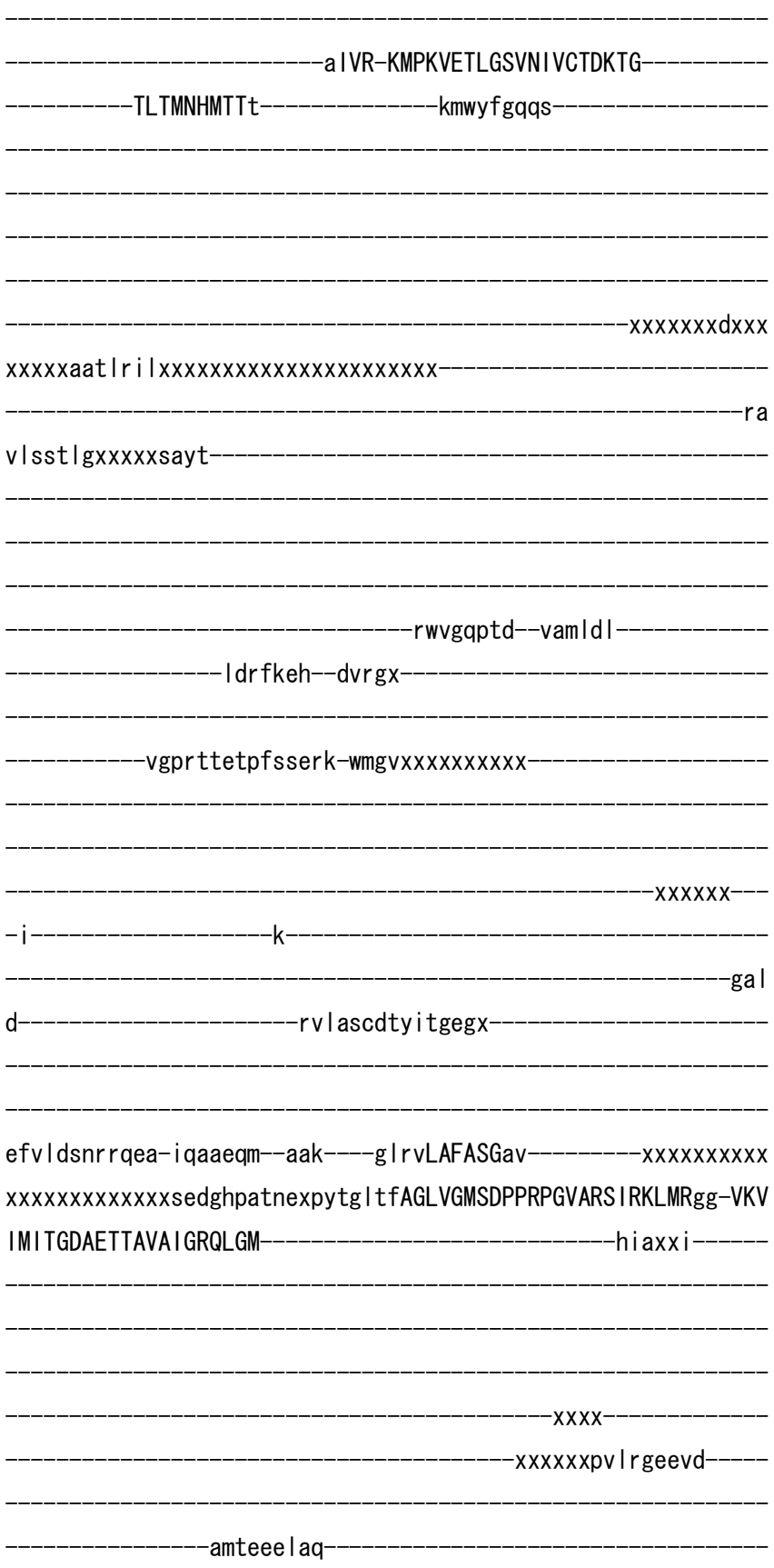

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v

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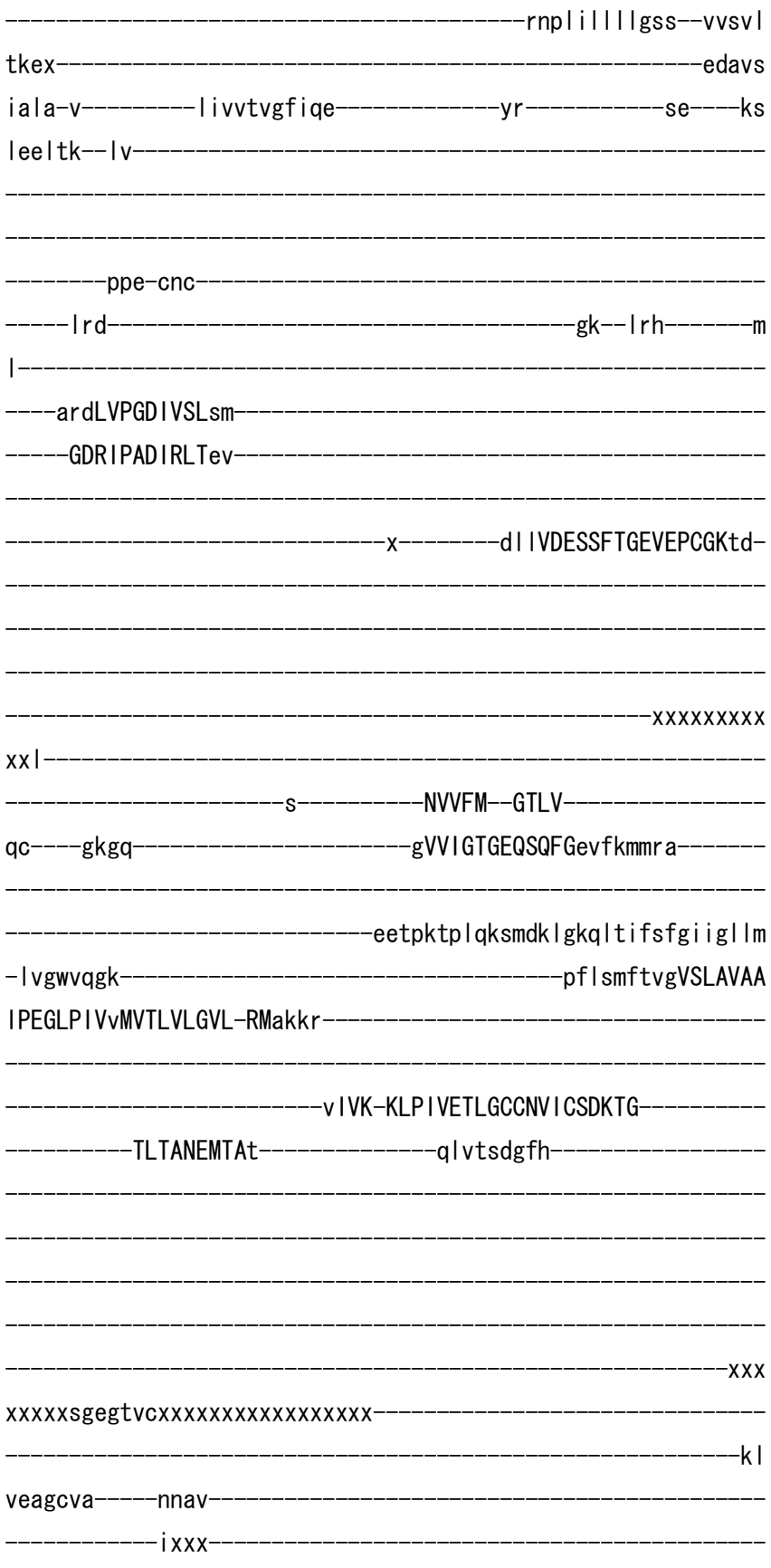

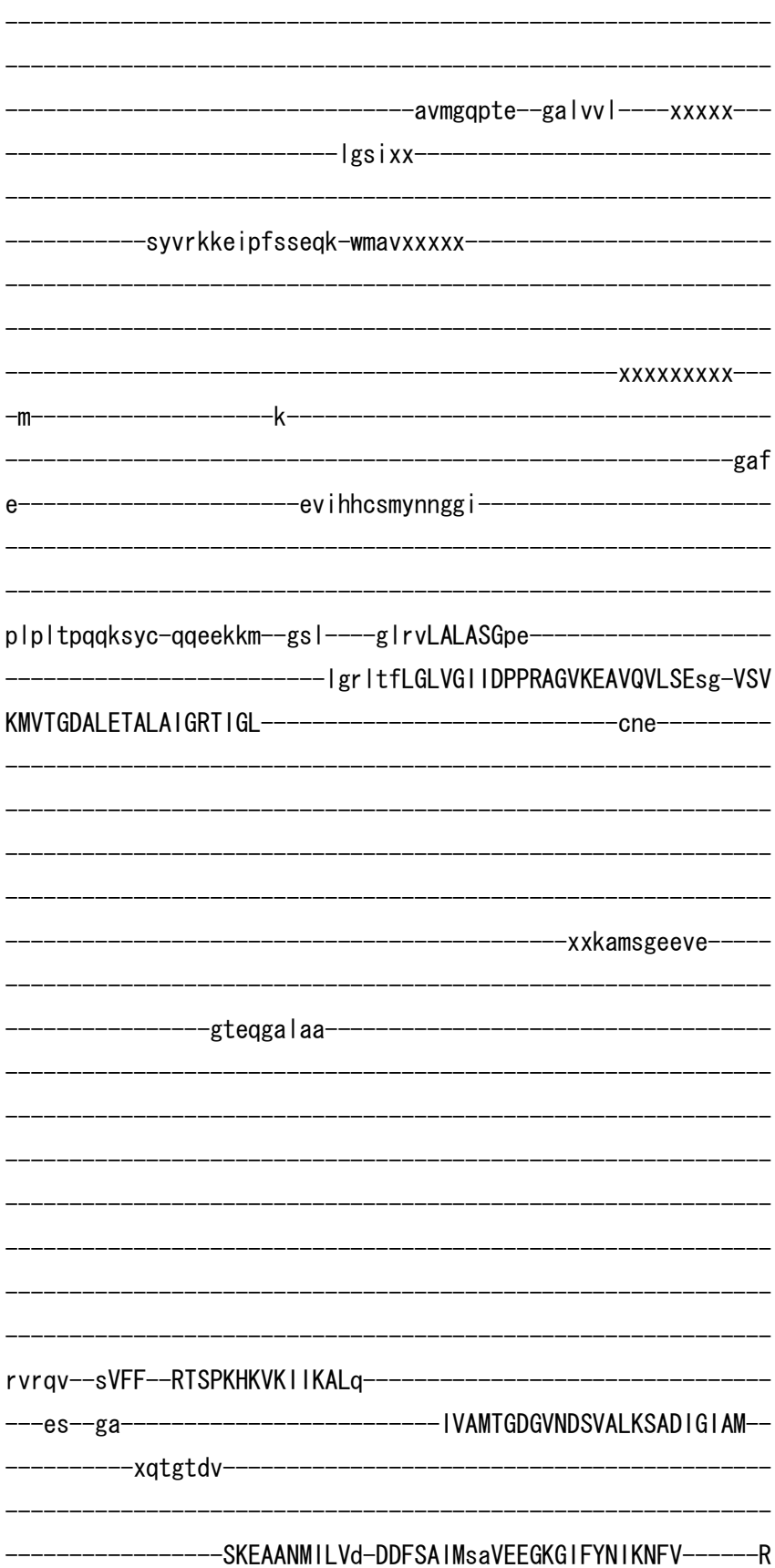

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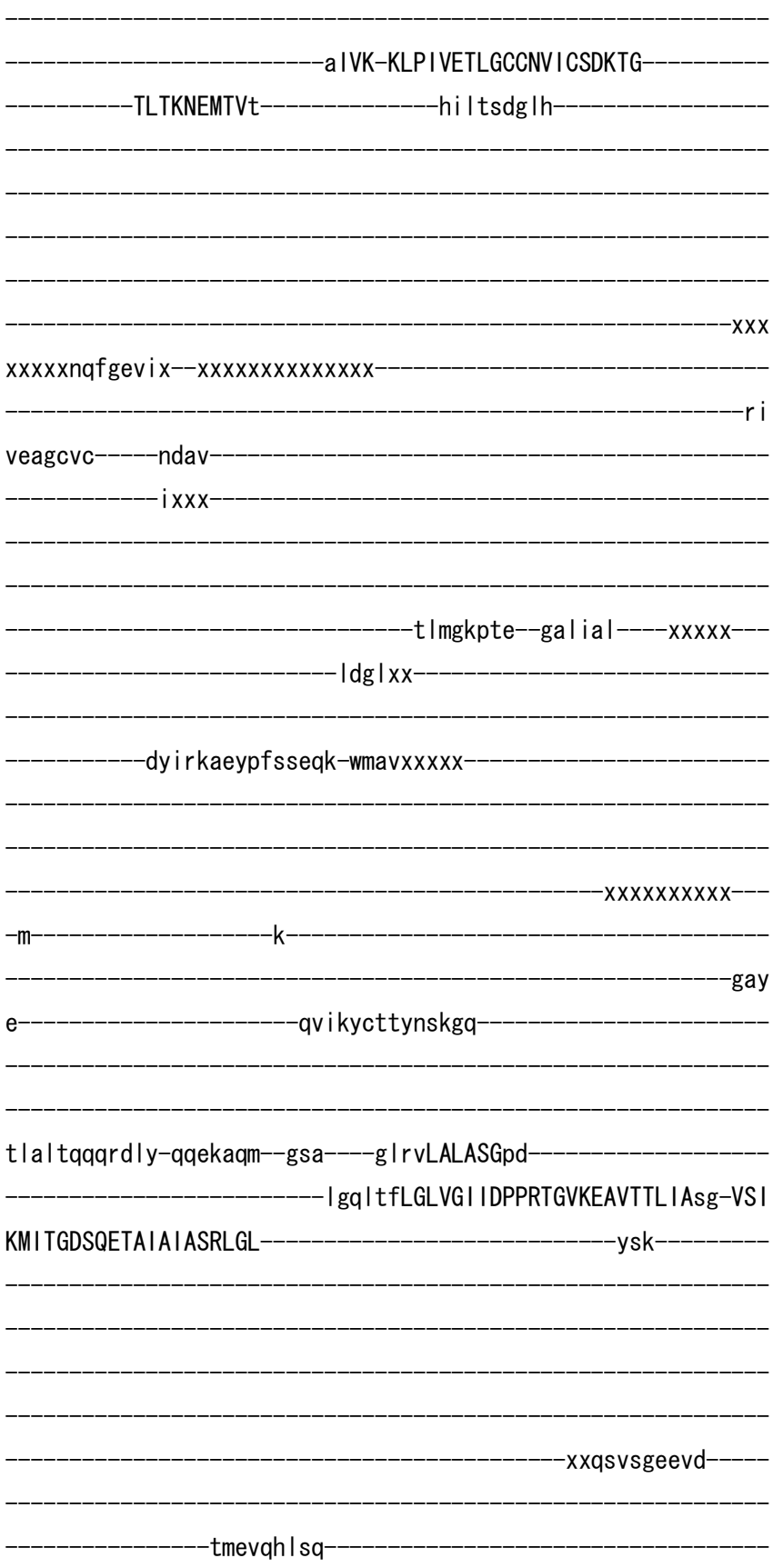

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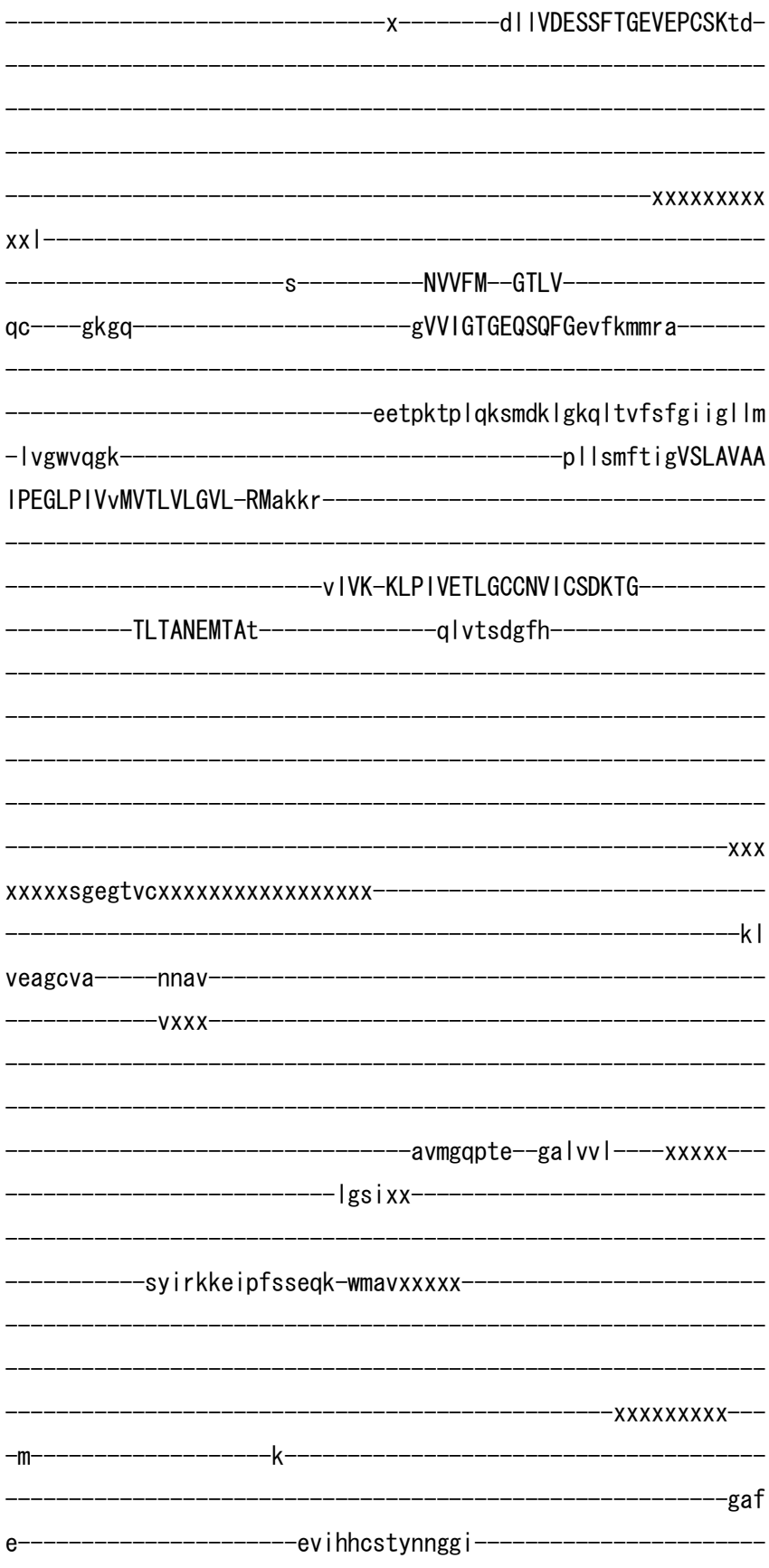

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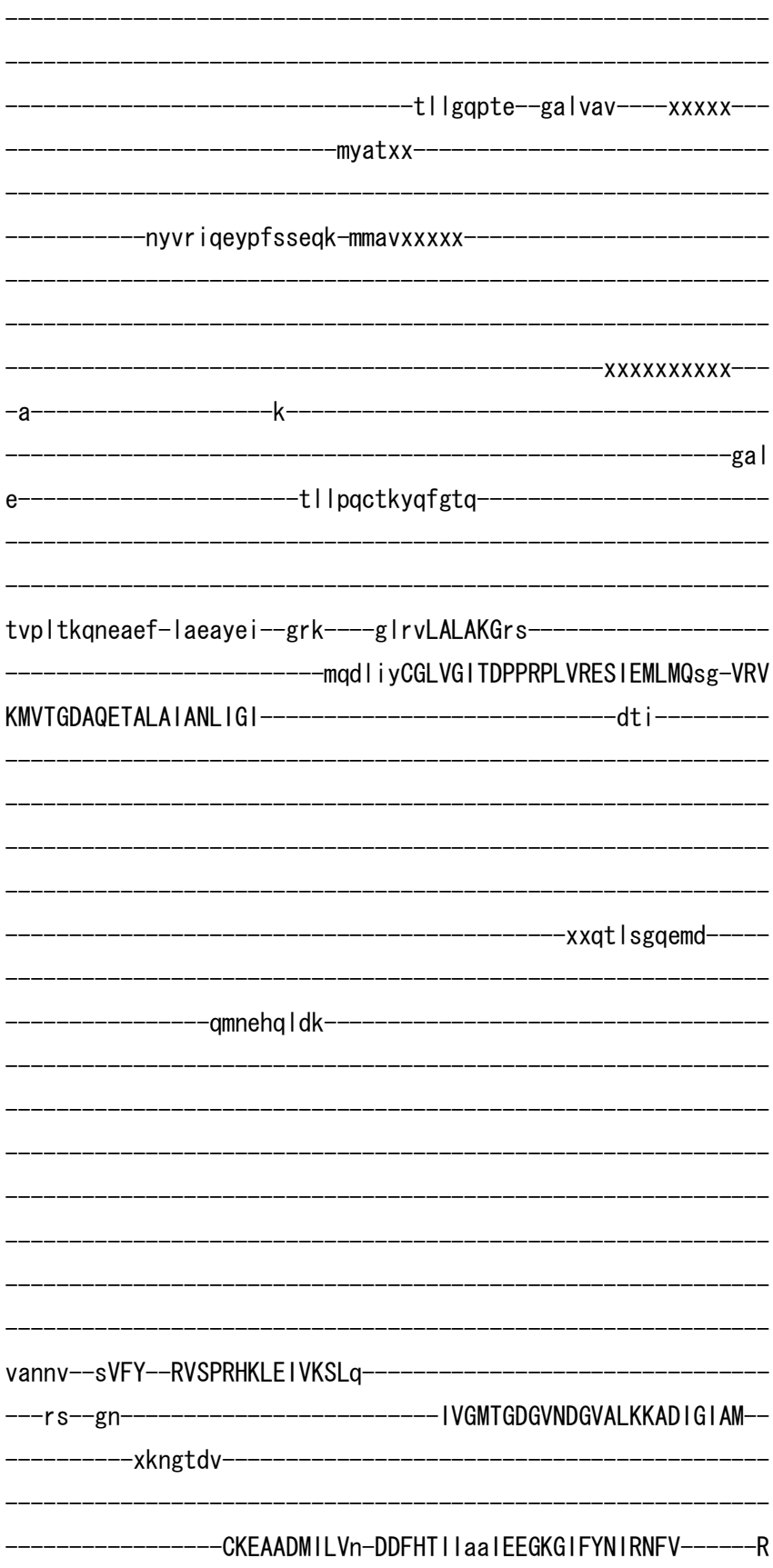

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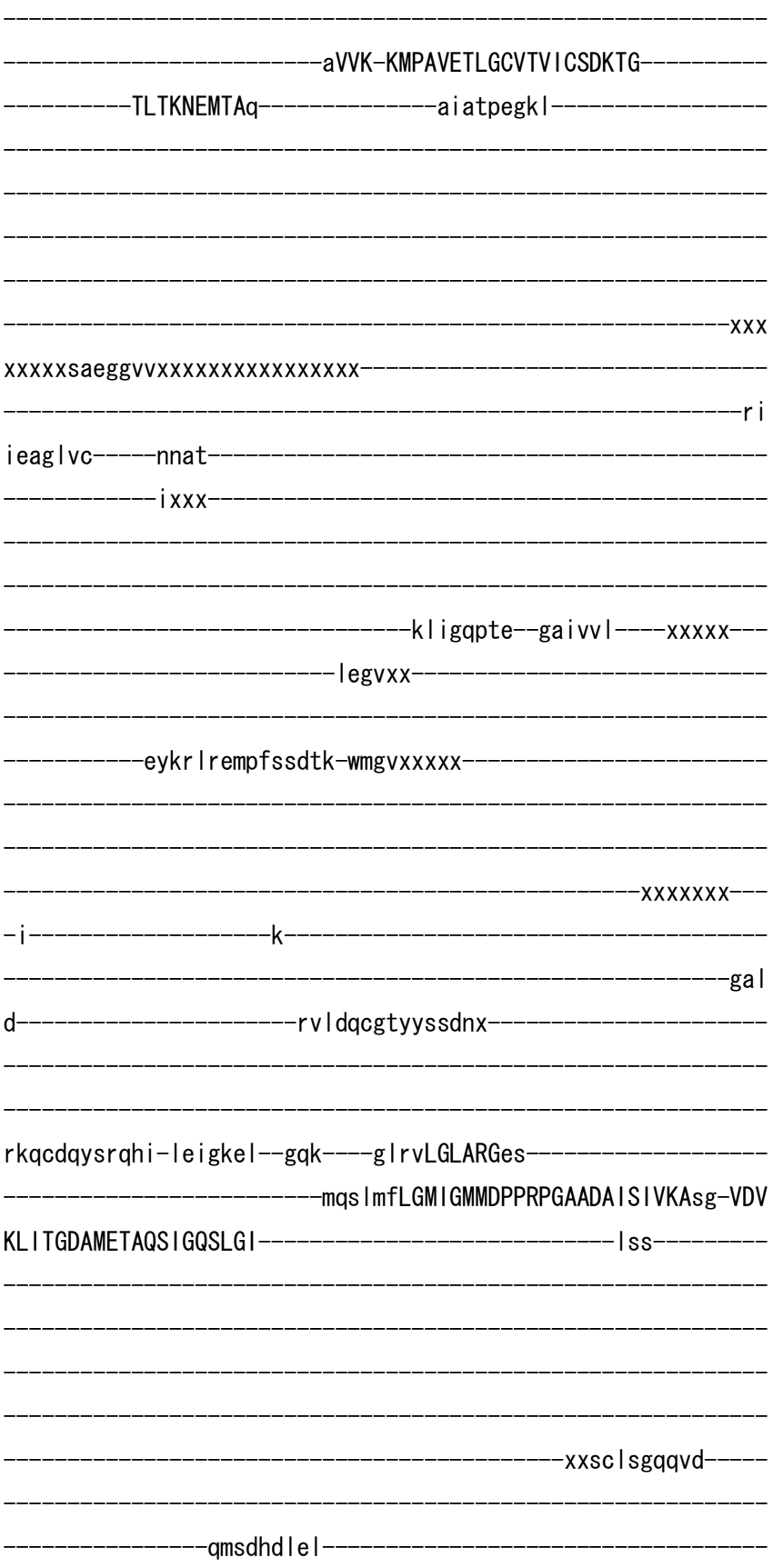

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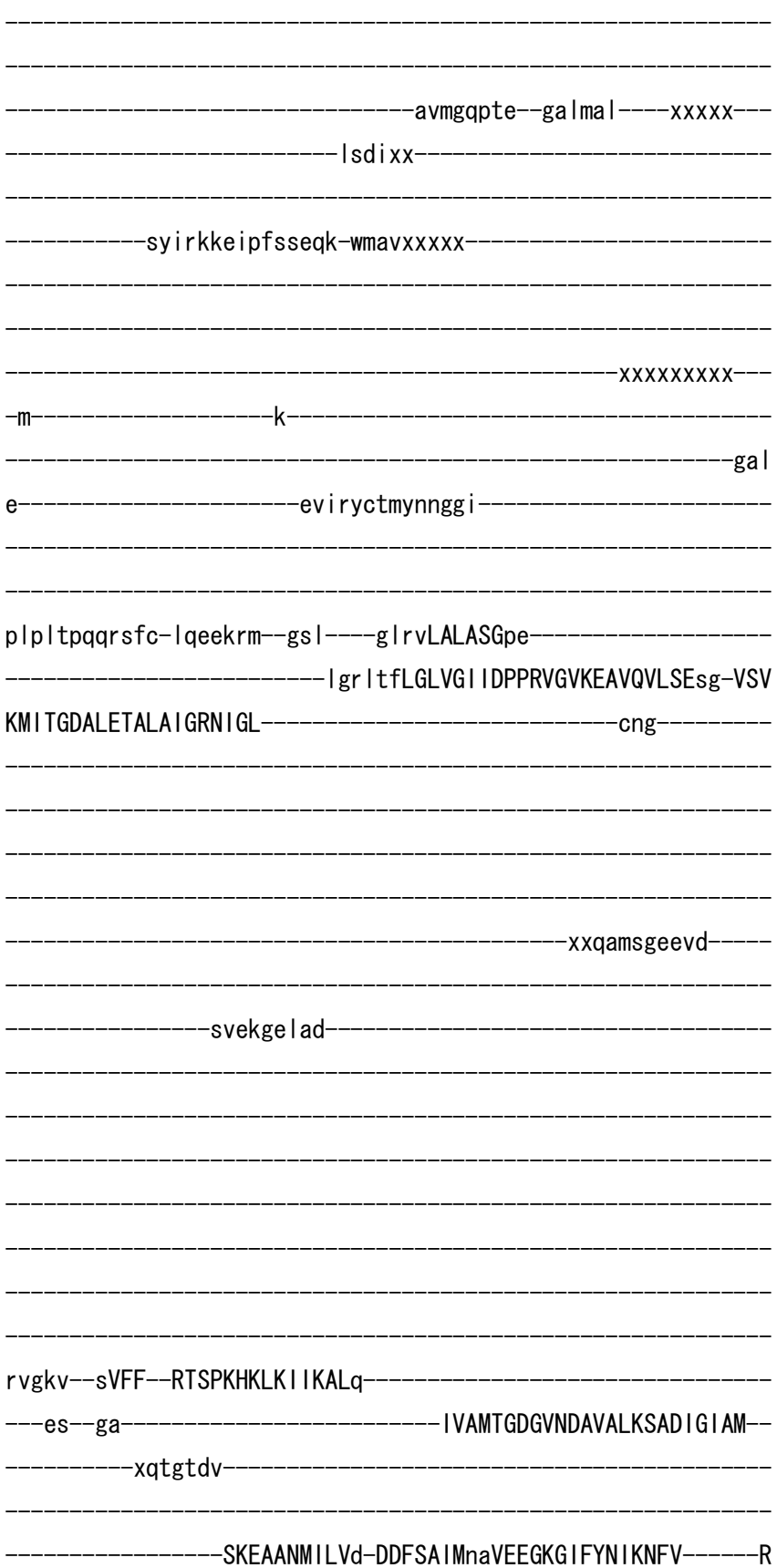

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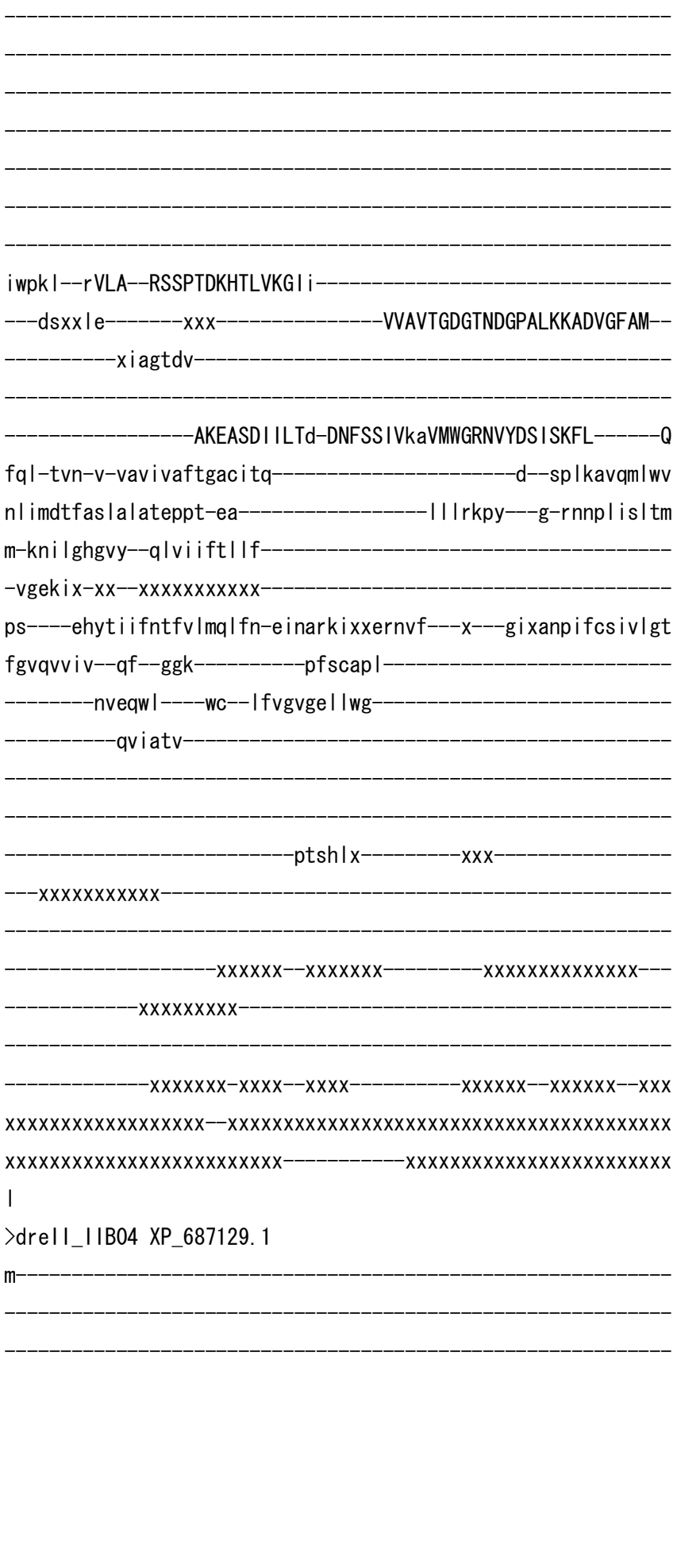

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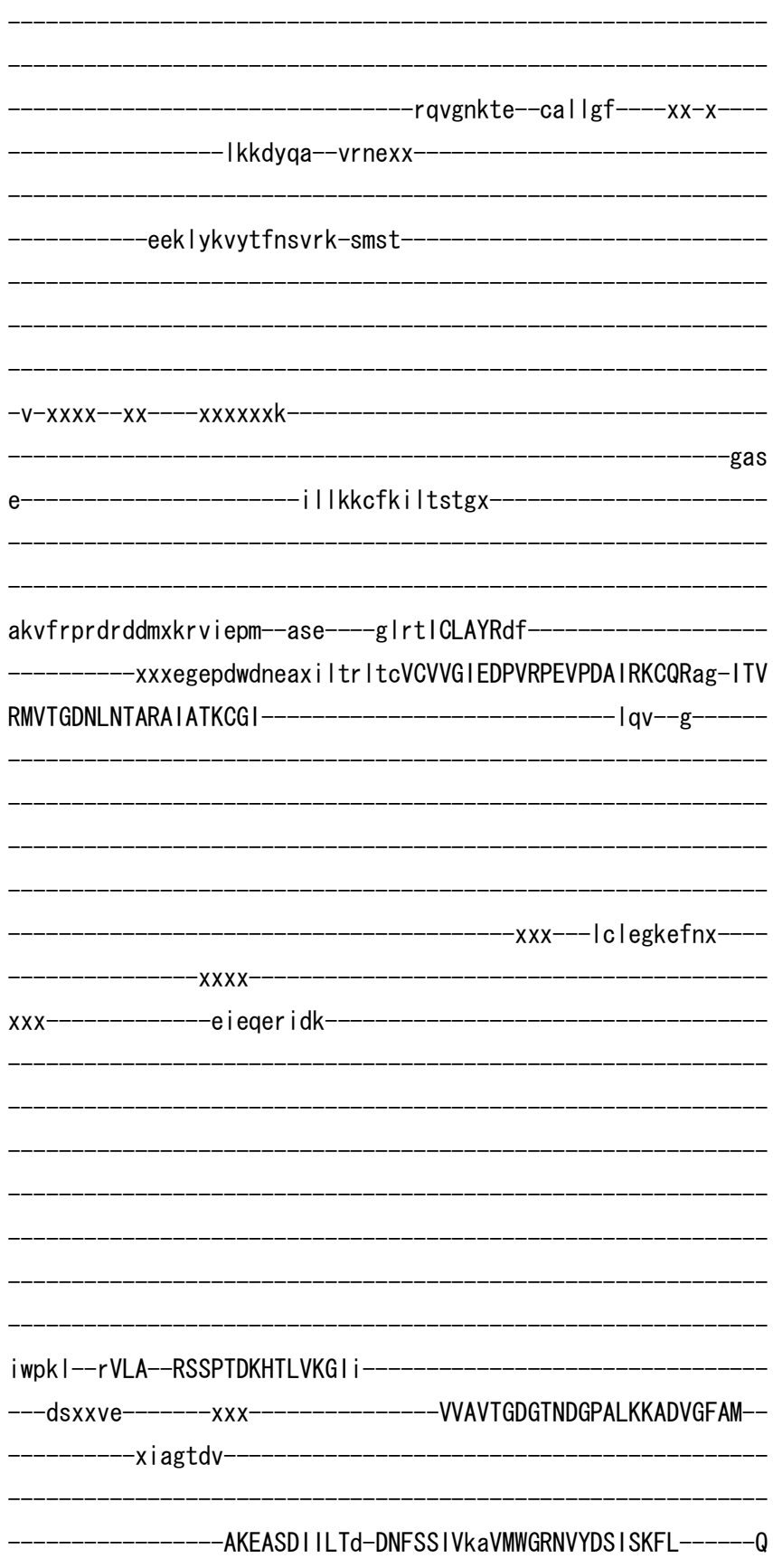

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--------------------------------eilgtpte--tallef----xx-x-----
-----------------lggdfqe--vrq-----------------------------
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e---------------------ivldscdkyinkdgx----------------------
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vgi----------xte---gwpkgshdglg
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frdldkx-kk----------

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----------x-xx--xnxxx
xxxxxipesavk----------
----------ll
iqsifnn---xxgevv----------
----------vxxxg-kt----------

----------ellgtpte--tailel----xx-x----
----------lggkfqe--erk----------

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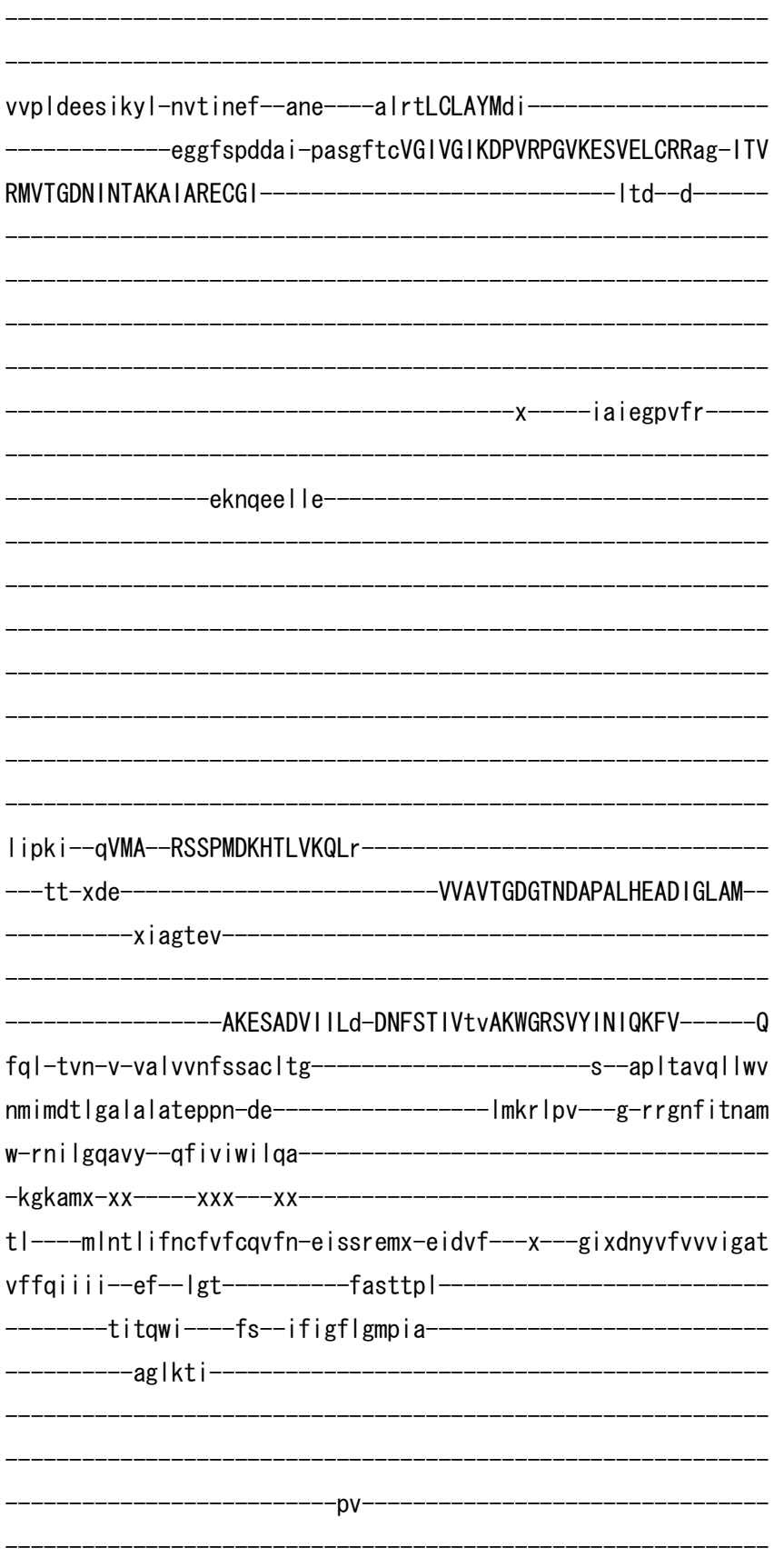

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--------kii-vqv----------
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s----------
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ta----vlntvifnsfvfcqvfn-einsreix-kinvf---x---gmxnswvftwvmtvt
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frdldkx-kk---

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--q---
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qd----gsck----------mLVTTVGMRTQWGklmatlse-------

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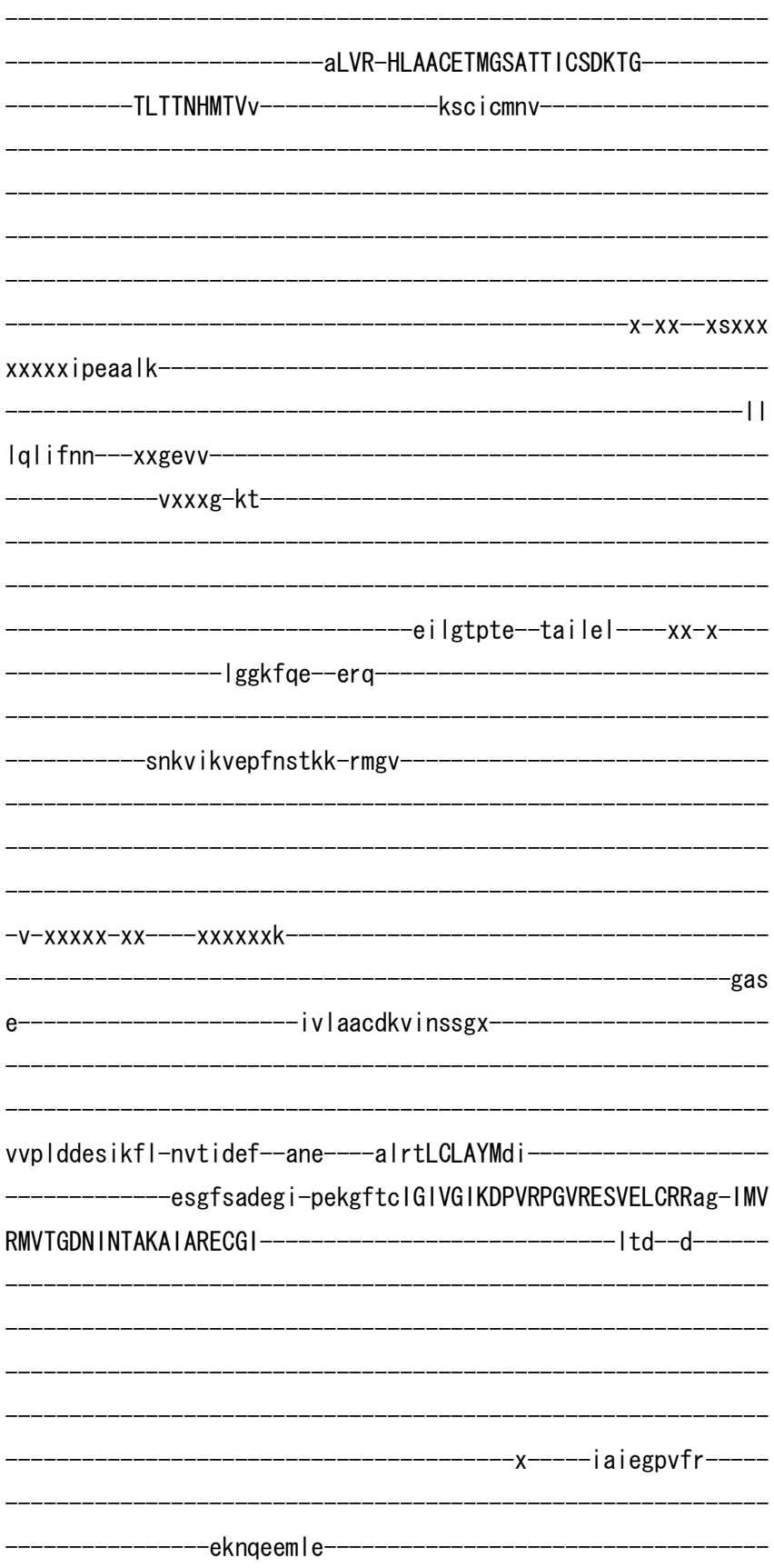

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w-rnilgqavy--qfiiiwilqa---------------------------------------
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tl----vlntlifncfvfcqvfn-evssremx-eidvf---x---gixdnyvfvvvigat
vffqiiii--ef--lgt----------fasttpl--------------------------
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----------aglkki-------------------------------------------
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--------------------------pv--------------------------------
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>athII_IIB05 NP_200521.3
m-----------------------------------------------------------
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-xk----------
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-villtryfxxxxxxxxxxxxxxx-------xxxxx--xxxxdvvkvltvaVTIVVVA
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----------TLTLNQMTVv----------esyaggkk----------

----
xxxxxlpatits----------
----------lv
vegisqn---xxgsif----------
----------vxxxgxdl----------

----------eysgspte--kailgw----xx-x----
----------lgmnfet--ars----------

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e----------ivlascrsyidedgx----------

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----------------------------------------xxxxxxtliegksfr-----
------------------------------------------------------------
----------------emtdaerdk-------------------------------------
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----------xiagtev---------------------------------------------
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w-rnlliqaiy--qvsvlltlnf-----------------------------------
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lvlqviiv--ef--lgk----------fasttkl-------------------------
--------nwkqwl----ic--vgigviswpla--------------------------
----------lvgkfi-------------------------------------------
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>athll_llBO6 NP_188755.2

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qqyggvkgvae----------

----------klk--------snmeqginede----------

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-nffmflwea-w----------

----------qdltliiliiaa--vtsla
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iafa-v--------llvivvtavsd----------yr----------qs----lq
fqnlndx-kr----------

--------niq-lev----------
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s----------
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segvaqn---xxgnif----------
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filqiiiv--tf--lgk---------fahtvrl----------
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----------ivgkli----------

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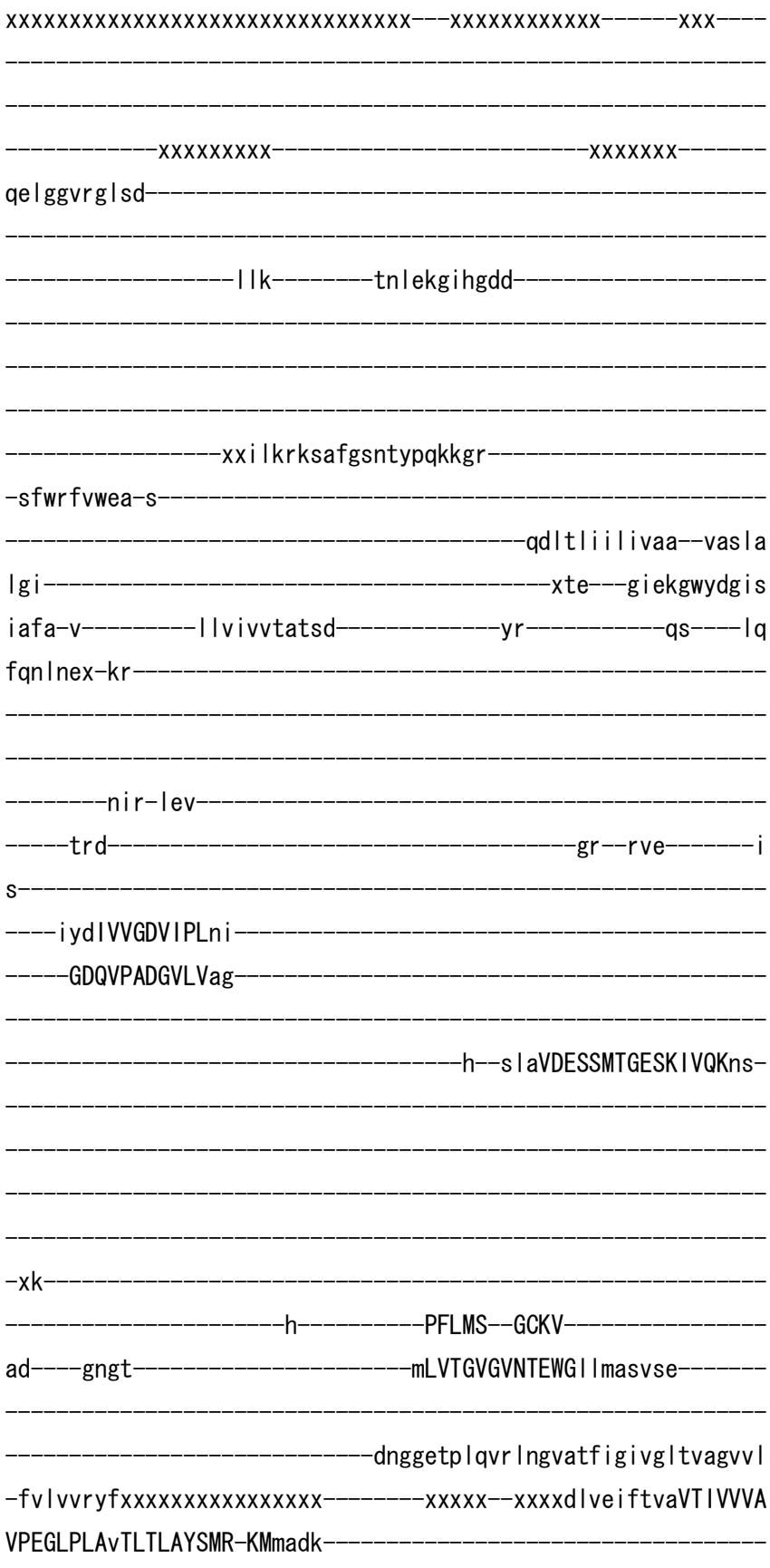

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----------essavqffpfnsekk-rggv----------

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e----------ivlgscthymdesex----------

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----------xxxxxxnliegkvfr-----

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ivlqvimv--ef--lkk---------fadtvrl----------
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----------fftkfi----------

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frglqsxxeq---

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-xr---
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-----------------lkrdyqd--vrnexx-------------------------------
------------------------------------------------------------
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e---------------------ivlkkcfkilsadgx----------------------
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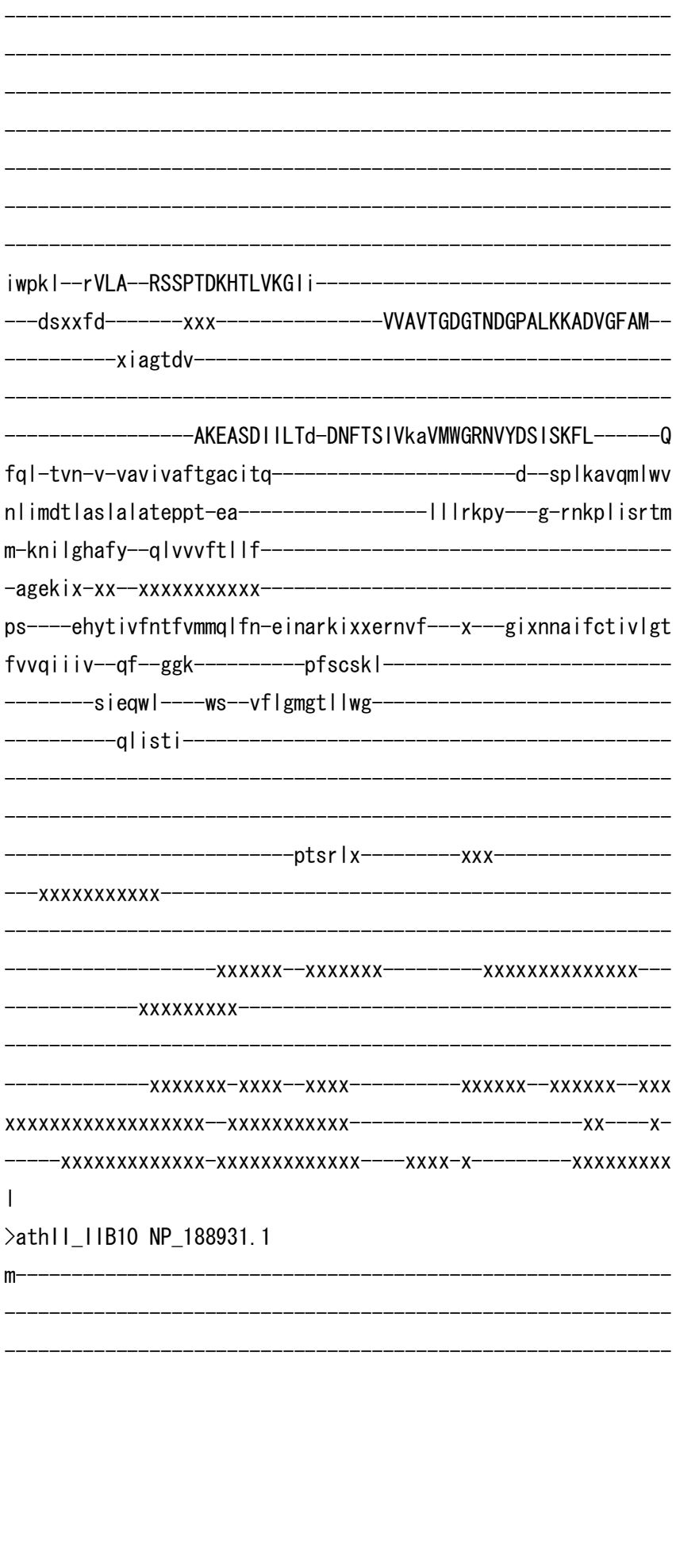

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----------kxxxgxey----------

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-l----xxxxxxxxxxxxxxk----------
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e----------kilamcstfcdgsgx----------

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KMITGDNIFTARAIAVECGI----------------------------ltp--e------
------------------------------------------------------------
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----------------------------------------xxxxxxavlegekfr-----
------------------------------------------------------------
----------------nytqeerle----------------------------------
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------------------------------------------------------------
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nlimdtlgalalatekpt-nd-----------------lmkkkpi---g-rvaplitnim
w-rnllaqafy--qisvllvlqf-------------------------------------
-rgrsixxxx---------------------------------------------------
ek----vkntlifntfvlcqvfn-efnarslx-kknvf---x---glxknrlfigiivvt
vvlqvvmv--ef--lkr----------fadterl--------------------------
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----------wlvksv--------------------------------------------
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----------xxxxxxx------

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s

>ggall_llB02 XP_001231642.1

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VPEGLPLAvTlSLAYSVK-KMmkdn----------

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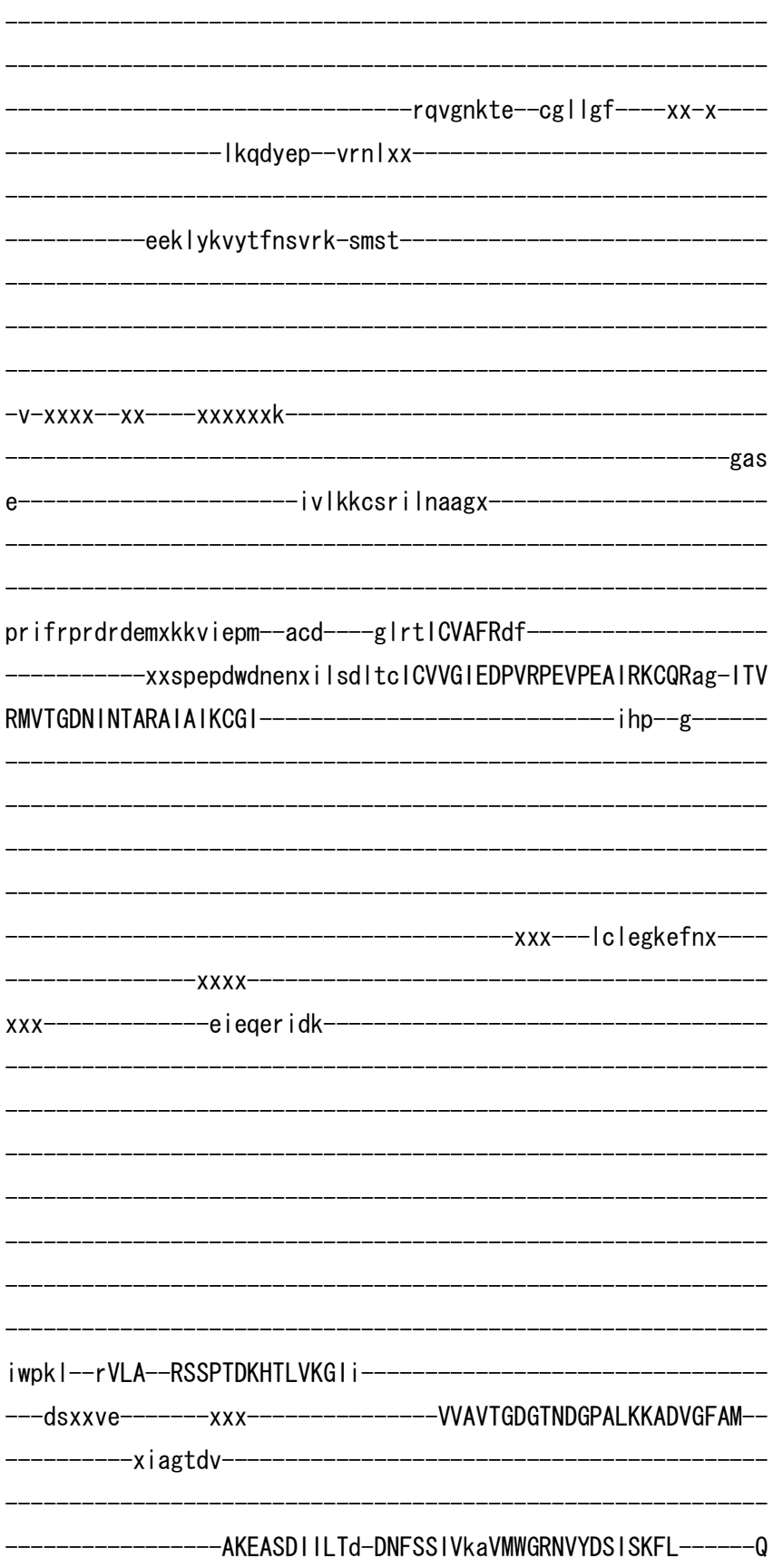

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ps----ehytiifntfvmmqlfn-einarkixxernvf---x---gixrnpifctivlgt
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----------qviati----------

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----------xxxxxxxxx----------

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-----xxxxxxxxxxxx-xxxxxxxxxxxx----xxxx-x---------xxxxxxxxx
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----------qdvtliileiaa--iislg
lsfx------xxxxxxxxxxxxxxxxx----------xeg---eaqagwiegaa
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frglqsxxeq---

--------eqk-ftv---
-----irk----------gq--viq------i
p---
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-----GDLLPADGILIqg---

----------n--dlkIDESSLTGESDQVKKsl-

-xk---
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-----xxxxx----------xxxx-xxxx-xxxxxxxxx
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VPEGLPLAvTISLAYSVK-KMmkdn----------

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-------------------------nLVR-HLDACETMGNATAICSDKTG----------
----------TLTMNRMTVv-------------qayvgdthy-----------------
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-------------------------------------------------x-xxxxxe--x
-----ilpkvld-------------------------------------------------
-----------------------------------------------------------li
vngvainxxxxxkilp----------------------------------------------
------------pxxxgxlp----------------------------------------
------------------------------------------------------------
------------------------------------------------------------
--------------------------------rqvgnkte--callgf----xx-x-----
-----------------lkqdyqa--vrnexx-------------------------------
------------------------------------------------------------
-----------eeklykvytfnsvrk-smst-------------------------------
------------------------------------------------------------
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------------------------------------------------------------
-v-xxxx--xx----xxxxxxk----------------------------------------
-----------------------------------------------------------gas
e---------------------iilrkctkildkngx-----------------------
------------------------------------------------------------
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prmfkvkdrdemxkkviepm--ach----glrtlCLAFRdf--------------------
-----------xxdaepdwdsenxilsdltclAVVGIEDPVRPEVPDAILKCQRag-ITV
RMVTGDNINTARAIATKCGI-------------------------llp--g------
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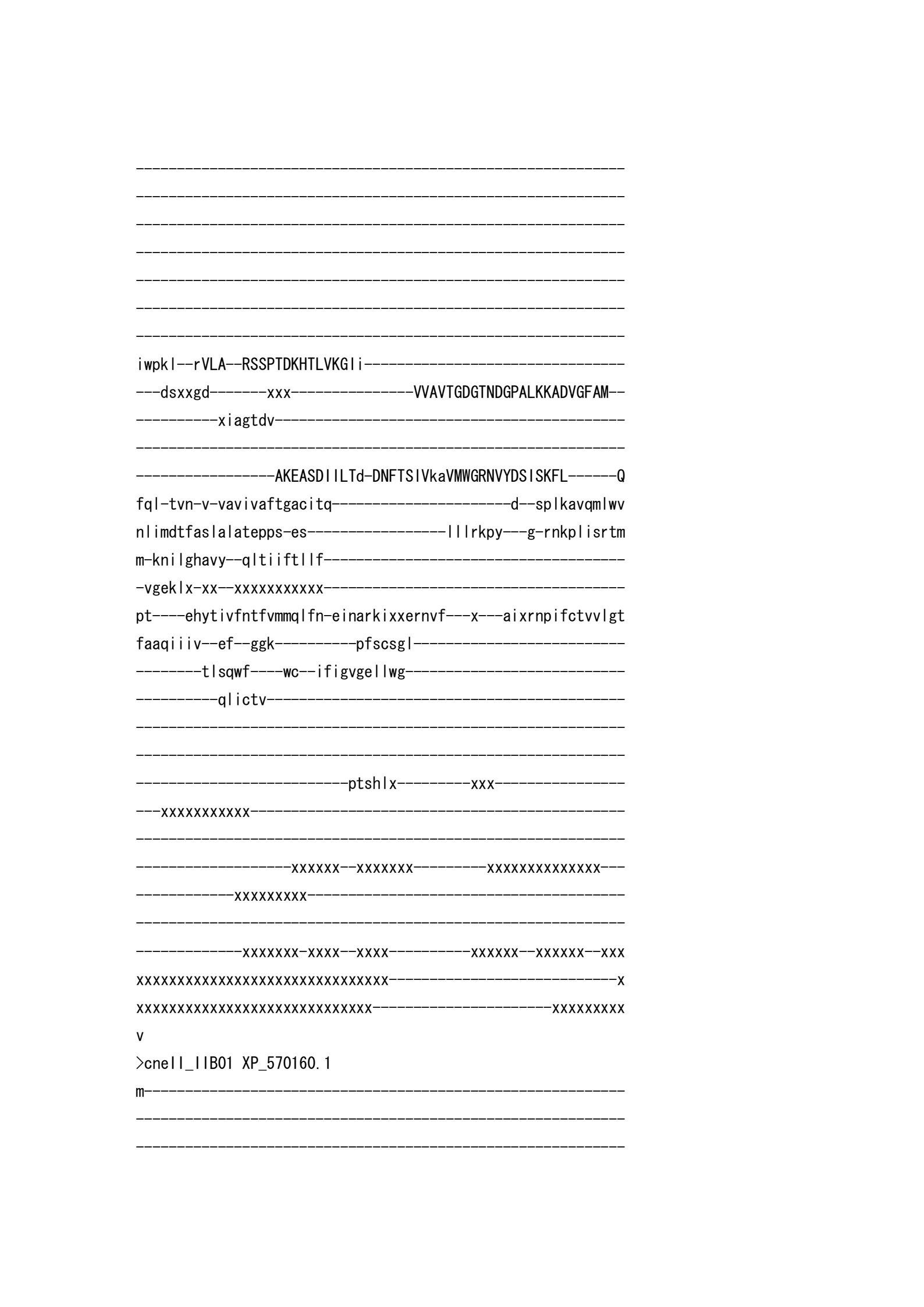

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----------xxxxxxxx
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----------kdkvlillsiaa--vvsla
lgixxxxxxxxxxxxxxxxxx----------xce---eaqvdwvegva
ivva-i--------iivvlvgsind----------wq----------ke---rq
fkklne--kr----------

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n----------
----vkdVVVGDVCLLep----------
-----GEllPVDGlFLrg----------

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xxk---
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-------------------------ILVR-VLGSCETMANATVVCTDKTG----------
----------TLTQNEMTVv-------------ag-------------------------

--x
xxxxxkfvkdlsxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx-------------
--lf
neaicin-----staf--
------------exxxexgkx---

-------------------------------nfvgskte--tallrf----xxxx----
-----------------ewpdyrq--vre-------------------------------

-----------saeivqmipfsselk-amgv-----------------------------

-v-------xxxxxxxxxxxk---------------------------------------
--gas
e--------------------vlsnnctkhvvvhqxxxxxxxxx--------------

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------------------------------------------------------------
------------------------------------------------------------
ttefdddamsni-sktiify--anq----slrtlALCYRdf-------------------
x--xxxxxx--xxkdeadevpyexiakdmtllAlTGlEDPLRPGVKEAVEKCQLag-VAV
KMCTGDNVLTARSlASQCGl----------------------------fta--g------
------------------------------------------------------------
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----------------------------------------x-----vvmegpvfr-----
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----------------klsdsdrle--------------------------------
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iaprl--qlLA--RSSPEDKRLLVKTLk-------------------------------
---sm--ge-------------------------VVGVTGDGTNDGPALKLANVGFAM--
----------xiagtev-------------------------------------------
------------------------------------------------------------
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nlimdtfaalalatdpat-es-----------------sldrkpd---r-knaplitvem
f-kmimvqaiy--qiivclvlhf-------------------------------------
-aglkixx--------xxxxxxx-------------------------------------
nt----elgalvfncfvfcq-----------------------------------il
vggqiliv--ev--gga----------afqvtrl-------------------------
--------ggrdwg----it--lvigalslpig---------------------------
----------alvrlt-------------------------------------------
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--------------------------ptaqfx---------xxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxx----------------------------------------------
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------------xxxxxxxxxxxxxxxxxx------------xxxxxxxxxxx------
------------xxxxxxxxxxx----------xx----------------------
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-----xxxxxxxxxxxxxxxxxxxxxxxxx------------xxxxxxxxxxxxxxxxxx
xxxxxxxxxx-xxxxxxxxxxxxxxxxxxxxxxxxxx----------------------
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v
>mmull_llB01 NP_080758.1
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esygdvygict------------------------------------------------
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------------------klk--------tspneglsgnp--------------------
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-----------------xxlerreavfgknfippkkpk----------------------
-tflqlvwea-l-----------------------------------------------
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ills-v---------vcvvlvtafnd-------------ws-----------ke----kq
frglqsxxeq----------

--------eqk-ftv----------
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p----------
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-iilvlyfvxxxxxxxxxxxxxxx--------xxxxx------yfvkffiigVTVLVVA
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----------yl
vtgisvnxxxxxkilp----------
----------pxxxgxlp----------

--------------------------------rhvgnkte--callgf----xx-x----

----------------lkrdyqd--vrnexx---------------------------

----------eealykvytfnsvrk-smst---------------------------

-v-xxxx--xx----xxxxxxk--------------------------------------

---gas

e---------------------iilkkcfkilsangx----------------------

----

akvfrprdrddixktviepm--ase----glrtlCLAFRdf-----------------

----------xxxepepewdnenxvvtgltclAVVGIEDPVRPEVPEAIKKCQRag-ITV

RMVTGDNINTARAIATKCGI---------------------------lhp--g------

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---------------xxxx--

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-------------------------nLVR-HLDACETMGNATAICSDKTG----------
----------TLTTNRMTVv-------------qayvgdvhy-----------------
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-----------------------------------------------x-xxxxxs--x
-----inaktle-------------------------------------------------
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vnaiainxxxxxkilp----------------------------------------------
------------pxxxgxlp----------------------------------------
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--------------------------------rqvgnkte--cgllgf----xx-x-----
-----------------lrqdyep--vrsqxx-------------------------------
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-----------eeklykvytfnsvrk-smst-----------------------------
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-v-xxxx--xx----xxxxxxk----------------------------------------
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e---------------------ivlkkcckilsgagx----------------------
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arvfrprdrdemxkkviepm--acd----glrtlCVAYRdf--------------------
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RMVTGDNINTARAIAIKCGI-------------------------ihp--g------
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-------------------------------------xxx---lclegkefnx-----
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xxx------------eieqeridk-----------------------------------
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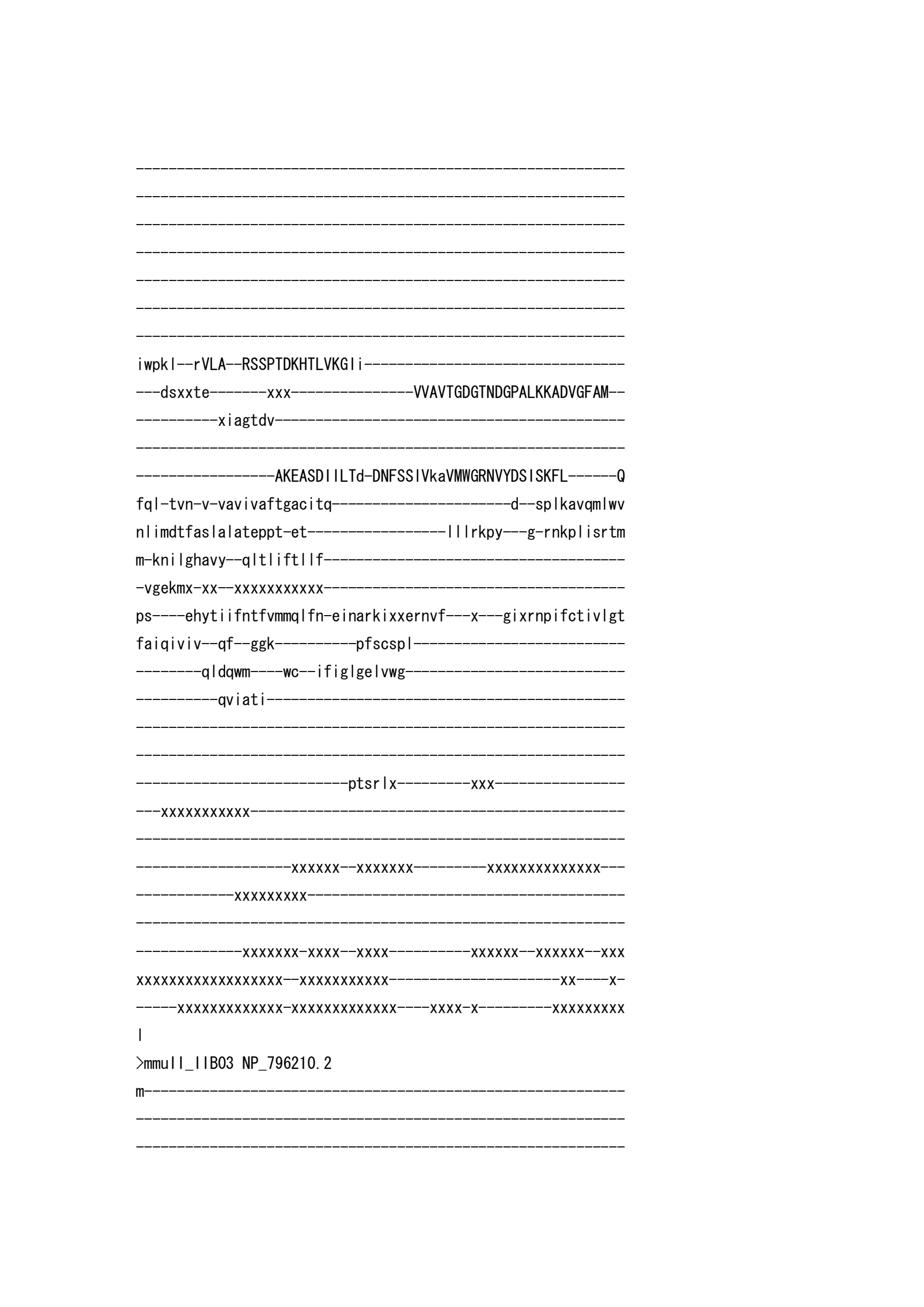

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ills-v--------icvvlvtafnd----------ws----------ke----kq
frglqsxxeq----------

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p----------
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-------------------------nLVR-HLDACETMGNATAICSDKTG----------
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----------------------------------------xxx---lclegkefnx-----
---------------xxxx-------------------------------------------
xxx-------------eieqerldk-----------------------------------
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--------steqwl----wc--lfvgvgelvwg--------------------------
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--------------------xxxxxx--xxxxxxx---------xxxxxxxxxxxxxx---
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xxxxxxxxxxxxxxxxxx--xxxxxxxxxxx---------------------xx------
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|
>mmull_llBO4 NP_998781.1
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------------xxxxxxxxx-------------------------xxxxxxxx---xxx
ahyggvqeict-----------------------------------------------------
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------------------rlk--------tspieglsgnp--------------------
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-----------------xxlekrrlvfgknvippkrpk----------------------
-tflelvwea-l-----------------------------------------------
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----------qdvtliileiaa--iislv
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ilas-v---------iivvlvtafnd----------ws----------ke----kq
frglqsxxel----------

--------eqk-fsi----------
-----irn----------gq--liq-------l
p----------
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-----GDLLPADGILIqg----------

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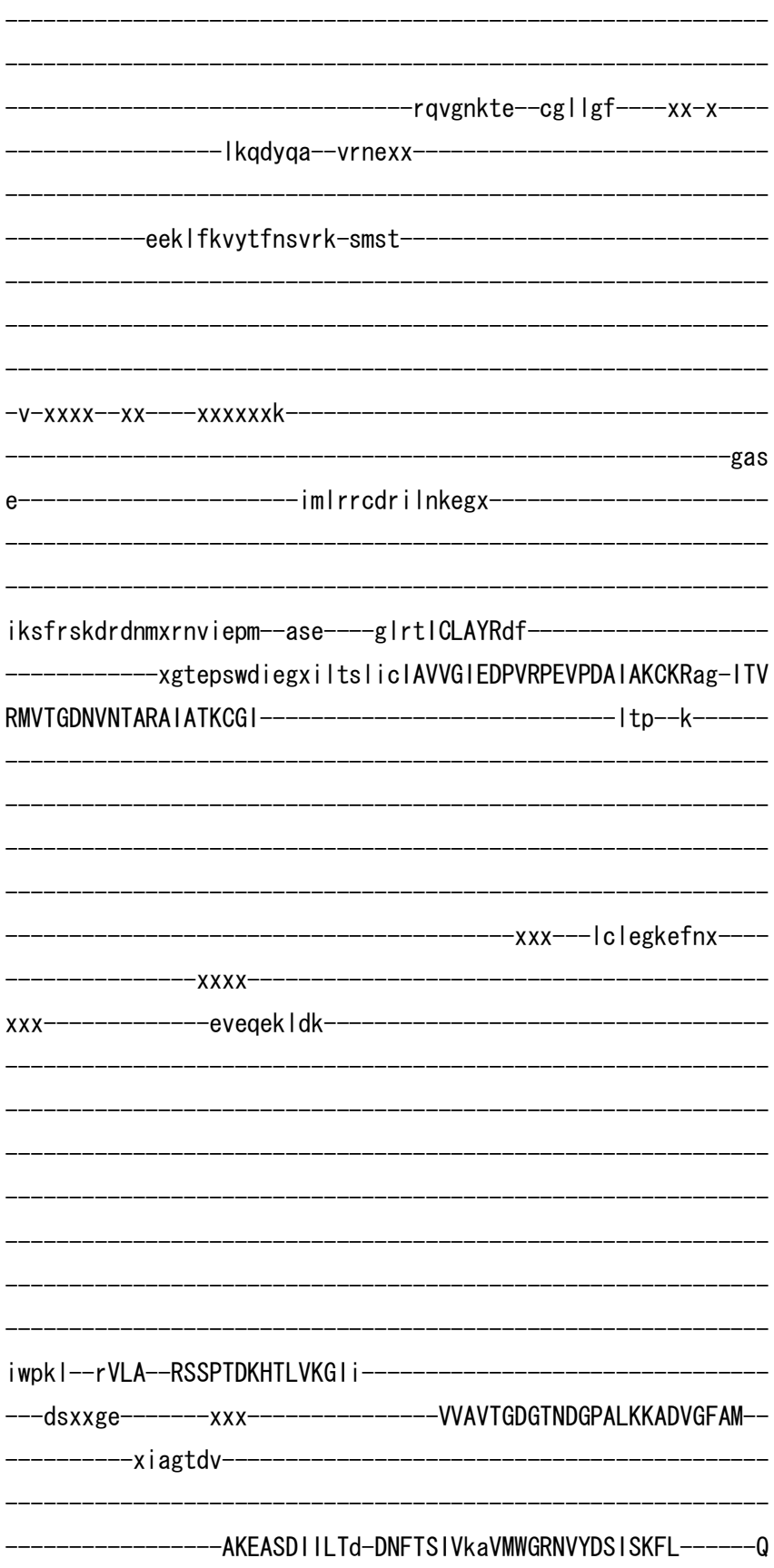

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--------tmeqwm----wc--lfigigellwg----------
----------qvisai----------

----------ptkslx---------xxx----------
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v
>anill_IIB01 EAA66307.1
m----------

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----------ndkvlilltvaa--iisla
lgix------xxxxx----------xpg---eprvqwvegva
iiva-i---------livvvvgaand----------wq----------ke----rq
fvklnkx-ke----------

--------drl-vkv----------
-----irs----------gk--mie------i
s----------
----ihdILVGDVMHLep----------
-----GDLVPVDGlYlgg----------

----------h--nvkCDESSATGESDVLRKtp-

----------xxxxxxxx----------

----------xxxxxx
xxm----------
----------d----------PFIVS--GAKV----------
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----------egqttplqtklnvlaeyiaklglaagllf
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ldsivln-----staf--------------------------------------------
------------exxxextm------------------------------------------
------------------------------------------------------------
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-----------------lglgsls--eard--------------------------------
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-----------nasivqmvpfdsgrk-cmav-----------------------------
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-v------xxxxxxxxxxxxxk-------------------------------------
------------------------------------------------------------gas
e---------------------vllakstrivrnptxxxx--------------------
------------------------------------------------------------
------------------------------------------------------------
egplddkdrskl-detinky--atq----slrtlGLVYRdf--------------------
x--xxxxxxxxxxeedrslaafdxifkdmvmFGVFGIQDPLRAGVTESVQQCQRag-VFV
RMVTGDNIVTAKAIARECGI-------------------------ftp--g------
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-----------------------------------------x-----vaiegpkfr-----
------------------------------------------------------------
----------------klssrqmtq-----------------------------------
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w-kmmigqsiy--qlvvtlvlnf----------
-sgrsixxxx----xxxxxxxxx----------
nn----vlttvvfntfvwmqifn-qwnsrrlxxglnif---x---glxrnrwfigiqfii
vggqilii--fv--ggh----------afsvtrl----------
--------tgaqwa----vc--lilgvisipvg----------
----------viirli----------

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-----irs----------gk--avr-------l

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----------xxxxxxxxxxxxxxxxxxxxxxx----------
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iesvain-----staf----------
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----------gfvgskte--tallgf----xxxx----
----------lgmgpla--evra----------

----------natvvqlmpfdsgrk-cmga----------

-v------xxxxxxxxxxxxk----------
----------gas
e----------illryssfvwrpsg----------

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pvdlvssererl-eqvildy--akq----slrtlALVSRef-------------------
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RMVTGDNMVTAKAlATDCGl----------------------------yt---g------
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----------------------------------------x-----ivmegphfr------
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----------------tlsdaefde----------------------------------
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nlimdslaalalatdppt-ee-----------------ilnrkpi---k-ggaplisitm
w-kmiigqsif--qlivtltlhf--------------------------------------
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vgcqivia--fy--gga----------afsivqi--------------------------
--------hdeqwa----ic--ilvaaislpwa---------------------------
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v
>anill_llBO3 EAA60998.1
m---------------------------------------------------------
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xxxx-------------------------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
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qalgglsglaq-----------------------------------------------
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------------------alr--------tdlksglstde--------------------
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--------dre-vka----------
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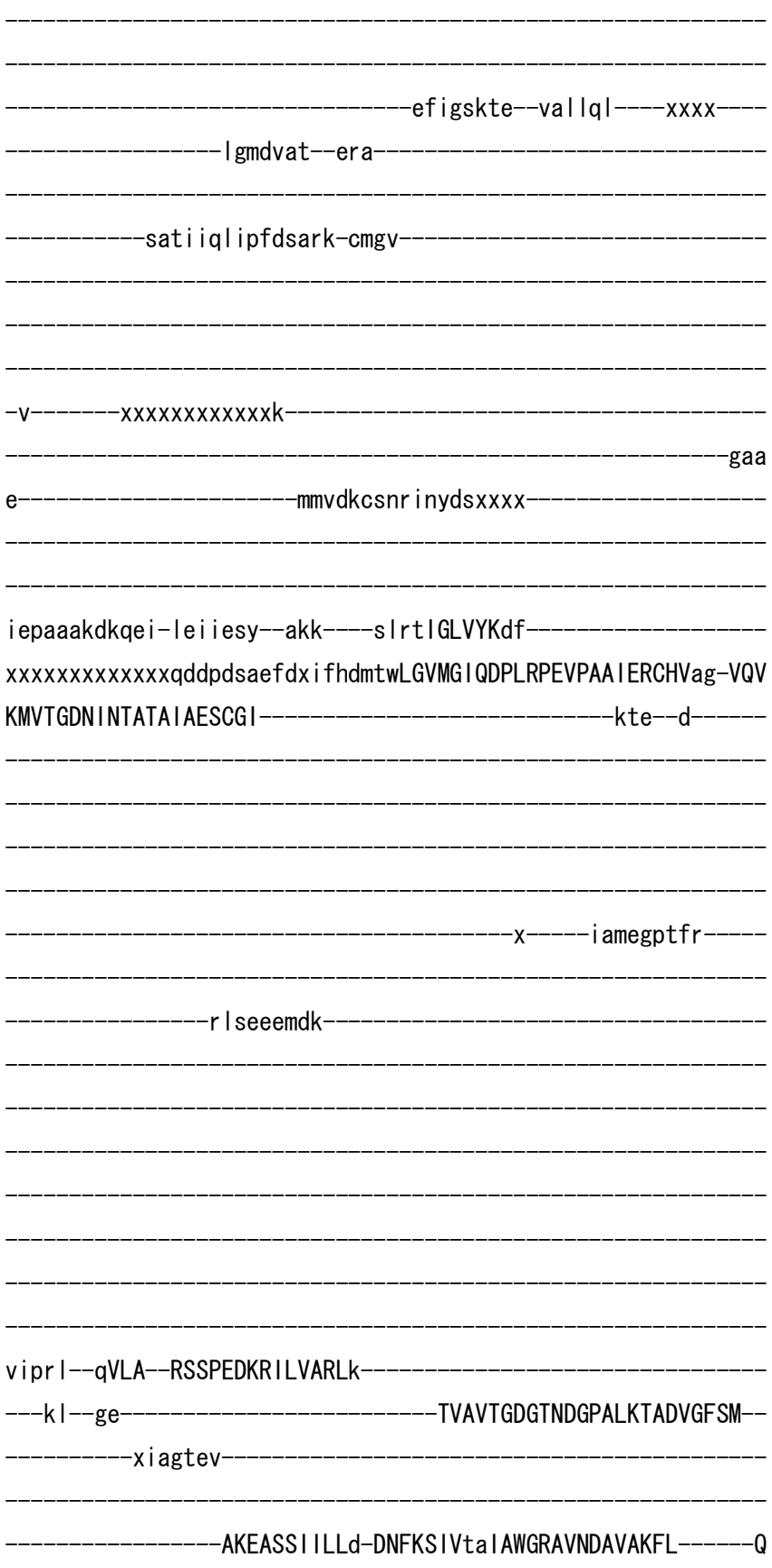

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r
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avplseeakitl-dtiitdy--asr----slrclALVHRdf----------
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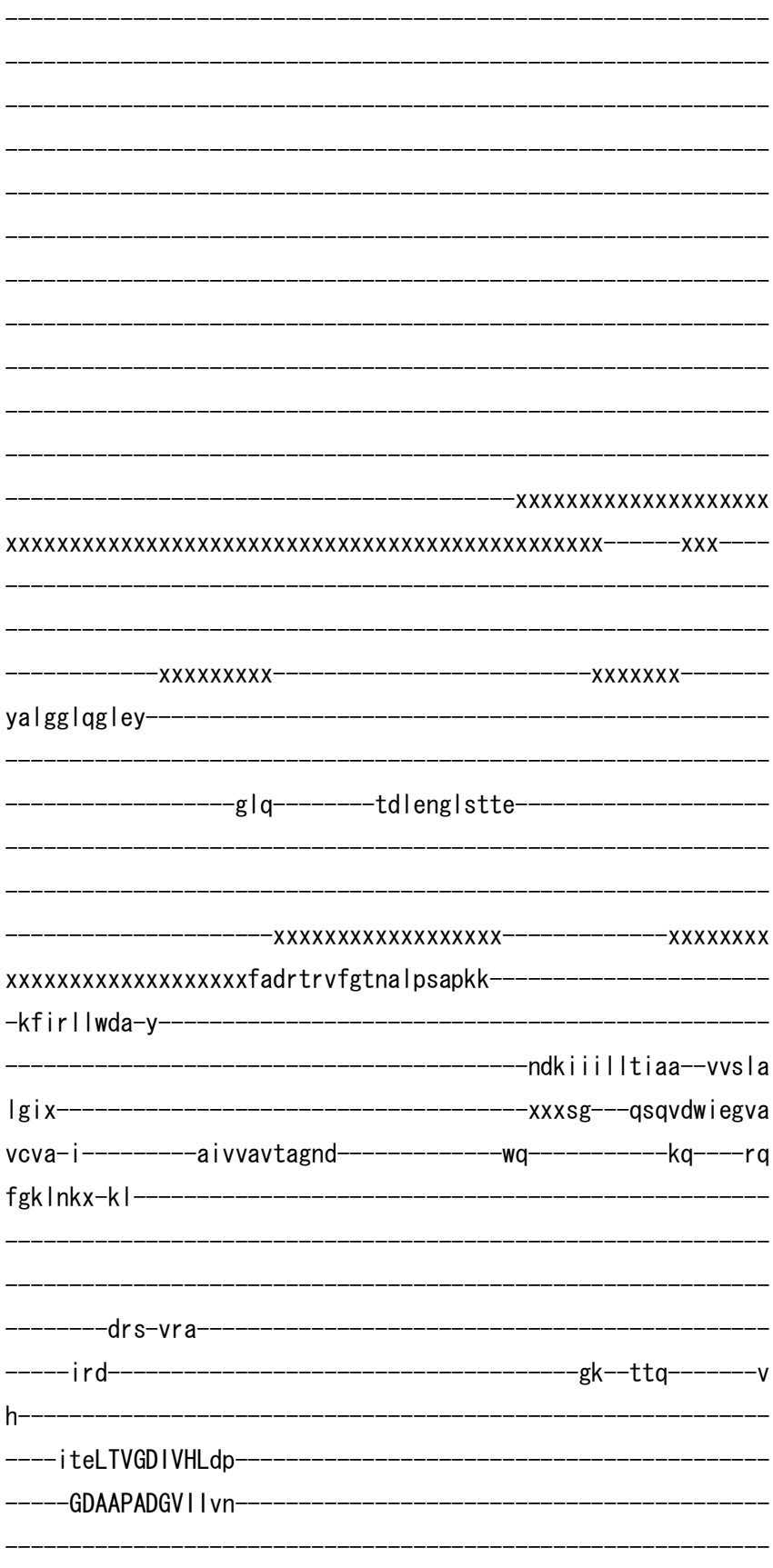

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frelndxxnd----------

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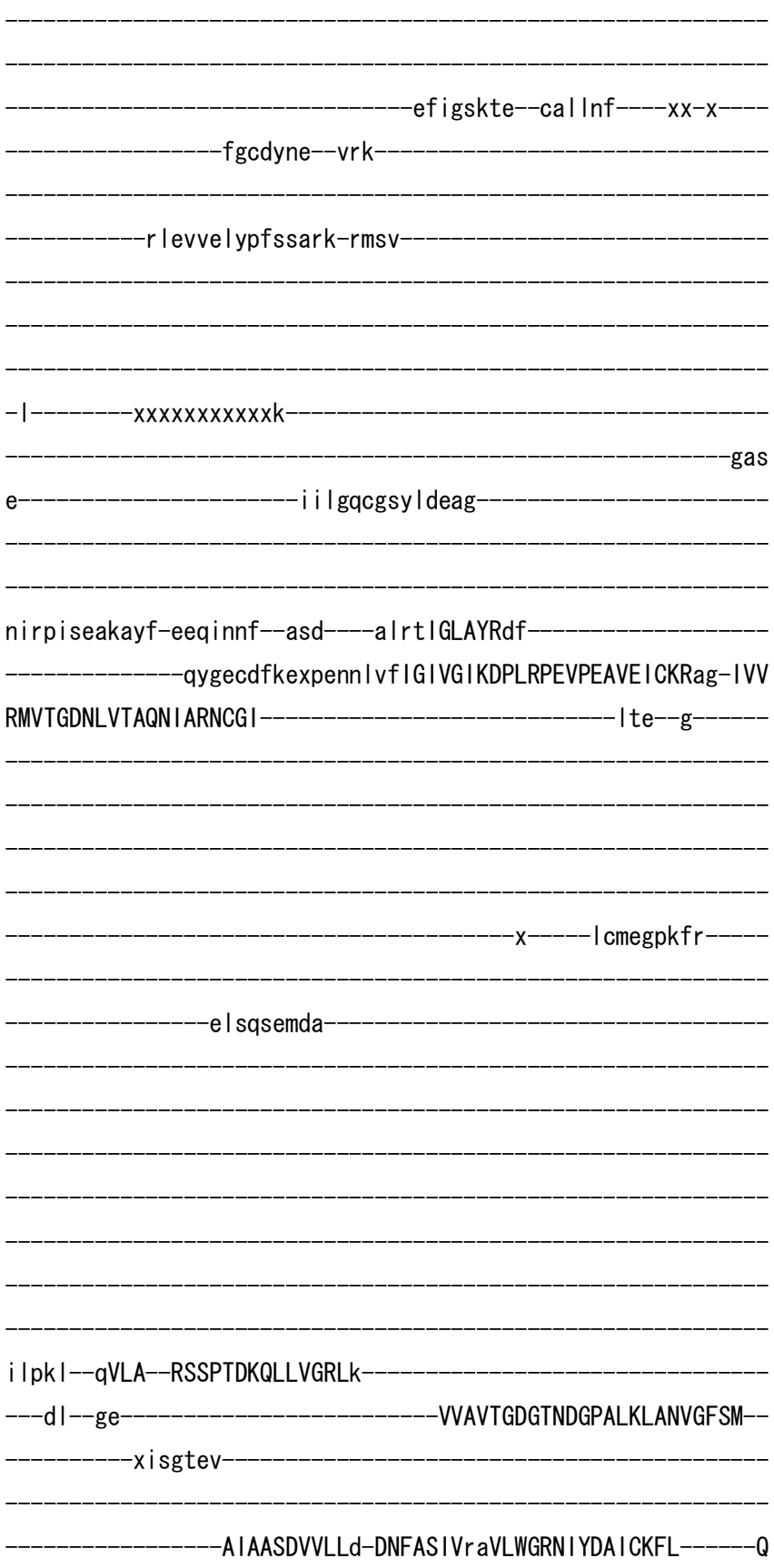

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lgvqiifv--tf--ggs---------atstdsl----------
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frklntx-rn---

--------ern-vsv---
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s---
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-xd---
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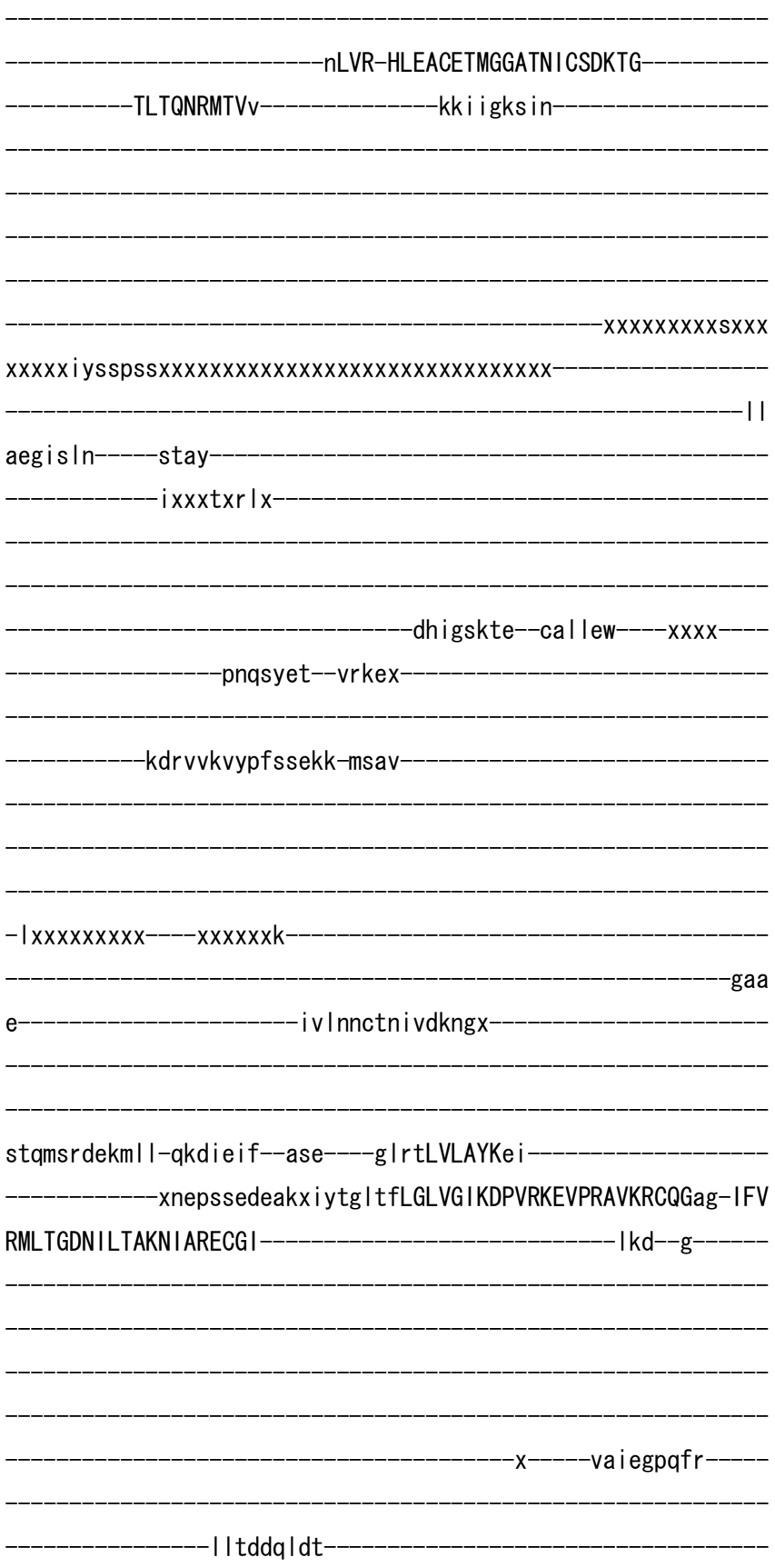

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w-rniigqsiy--qiaflfsimy----------
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ifiqvilv--ef--gge----------ffgtrhl----------
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lsfx----------gyaewfegvg
iasa-v--------flatfvstyse----------yk----------ne---ns
fqelqexxsr----------

----------vkc----------
--xxxrng----------sh--ise------v
y----------
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-----GDKIPADGRLVag----------

----------elhVNQSTLNGEPHLEKKiv-

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d

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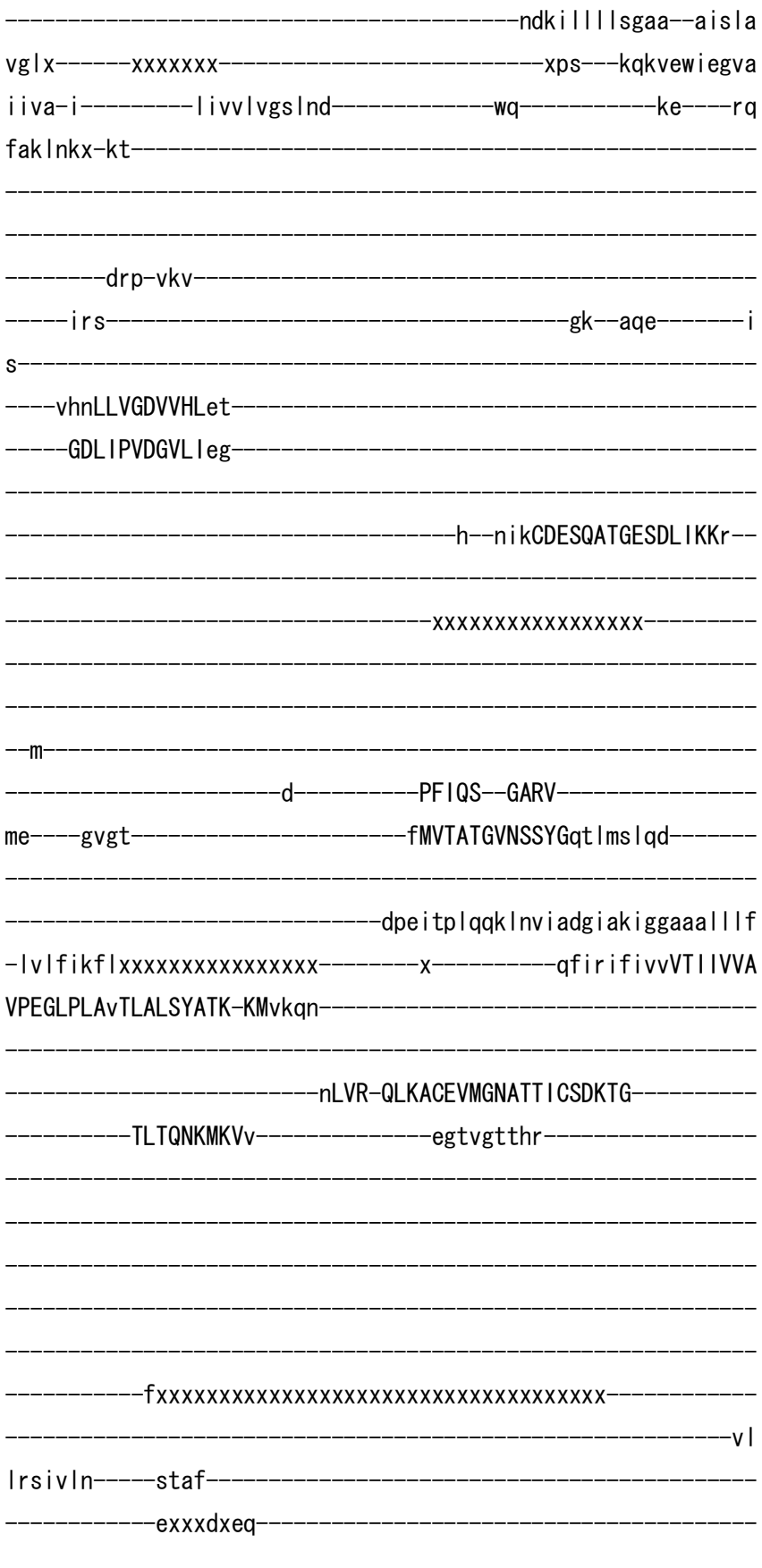

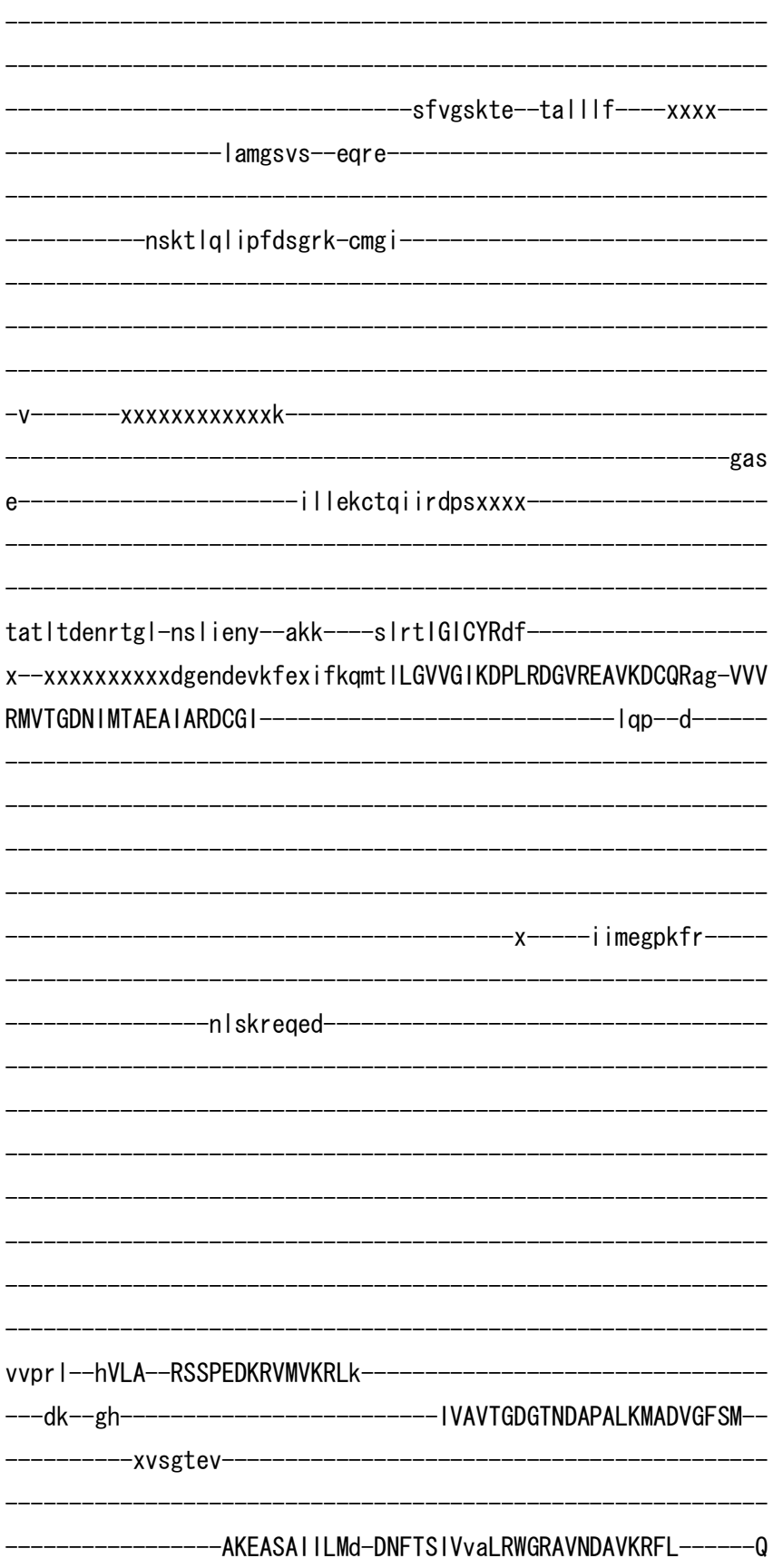

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------------exxxexeh------------------------------------------
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------------------------------------------------------------gas
e---------------------illkqctrvlsdpexxxxxxx----------------
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s----------

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frslqexxet----------

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p----------
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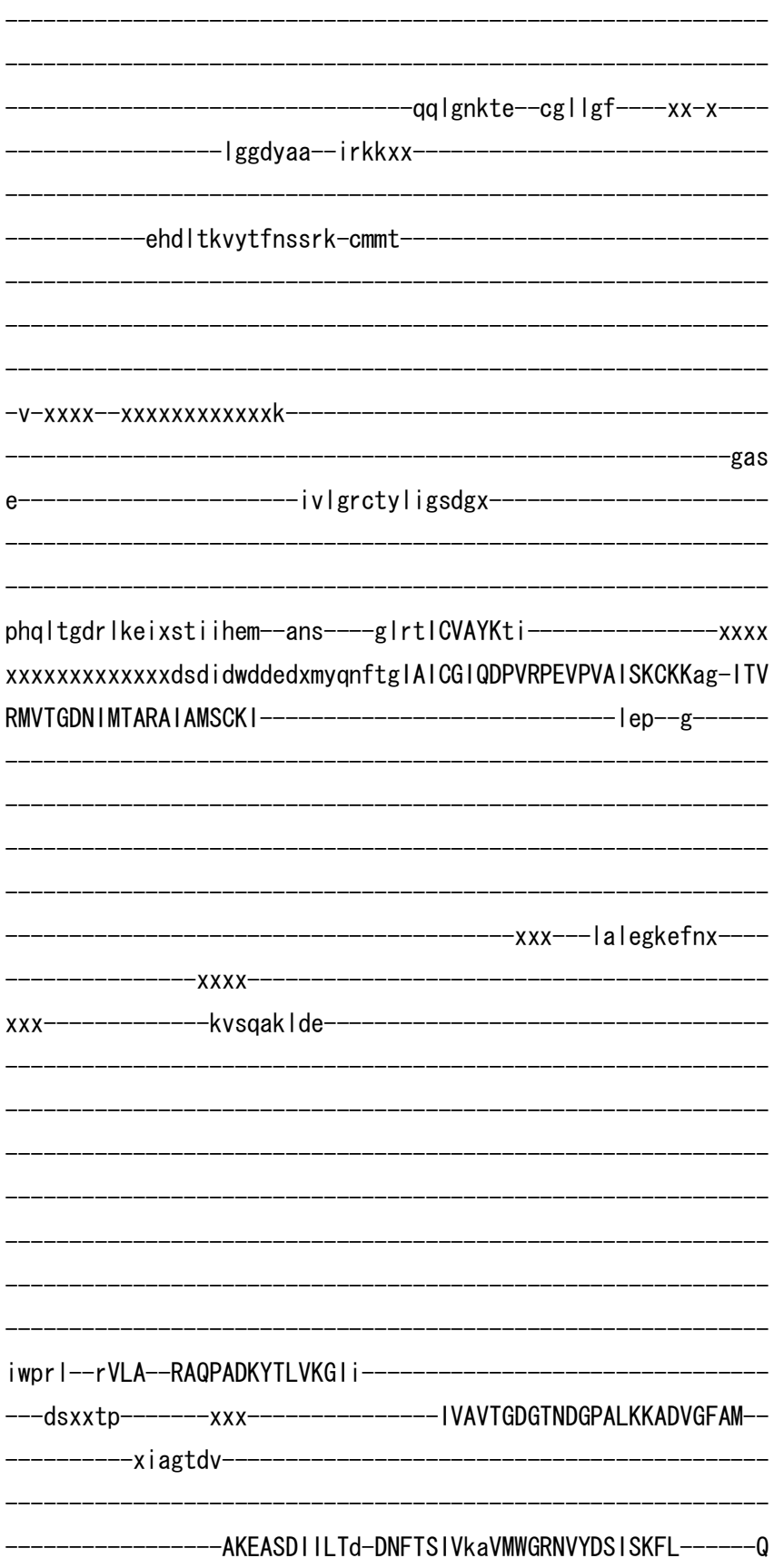

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v---
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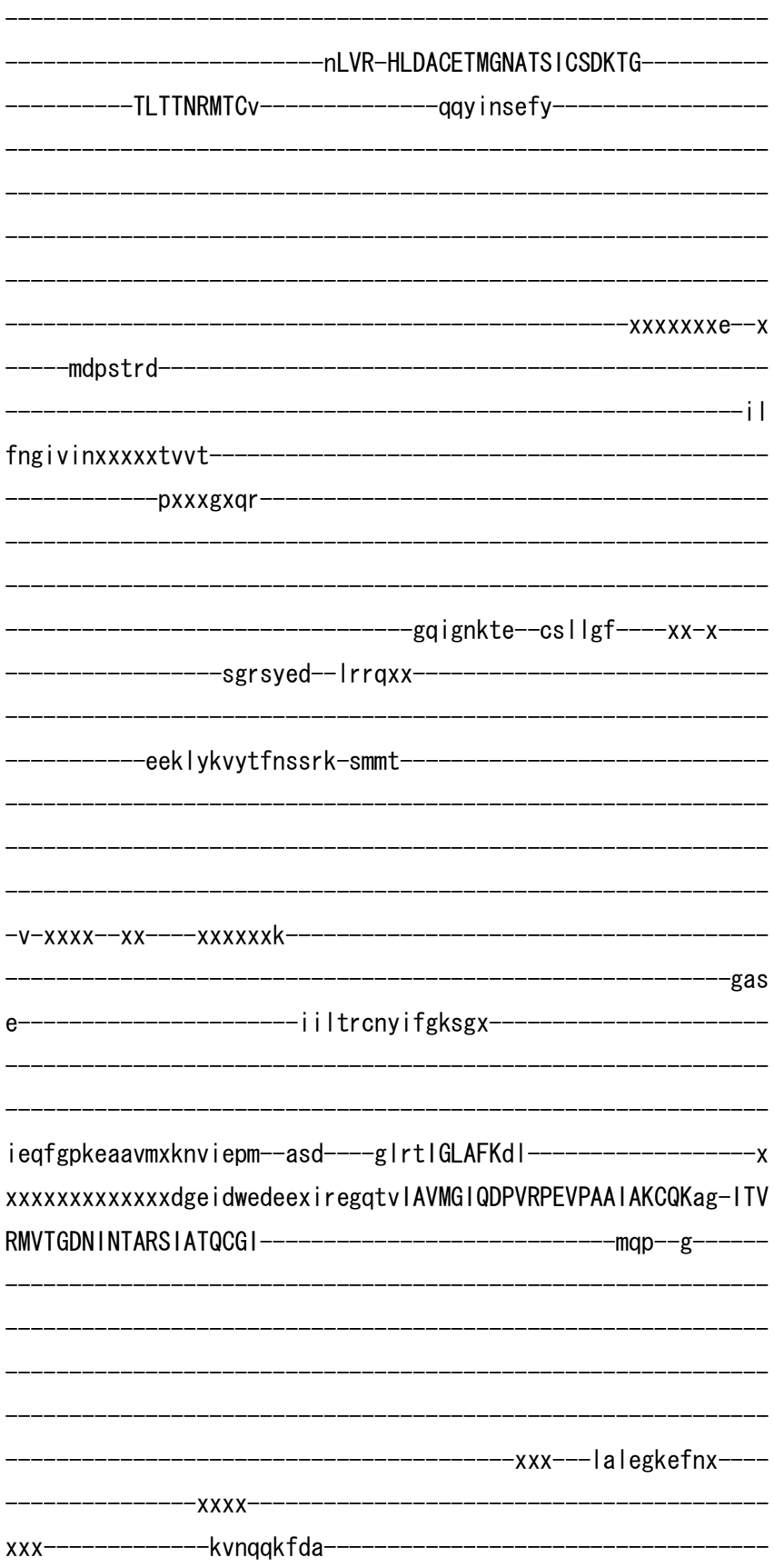

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------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
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---esxxtk-------xxx---------------VVAVTGDGTNDAPALKKADVGFAM--
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------------------------------------------------------------
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v-knivghavy--qlailfaimf-------------------------------------
-wgdklxxxx--xxxxxxxxxxx-------------------------------------
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lishiliv--qf--ggq----------wfstapl--------------------------
--------dltqwi----ic--iccgvgelfwg---------------------------
----------qiinci--------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
--------------------------pasilx---------xxx-----------------
---xxxxxxxxxxxx---------------------------------------------
------------------------------------------------------------
------------xxxxxxxxxxxxxx-xxxxxxx----------xxxx-xxxxxxxx---
------------xxxxxxxxx-------------------------------------
------------------------------------------------------------
-------------xxxxxxx-xxxxxxxxxx----------xxxxxx--xxxxx---xxx
xxxxxxxxx-----------xxxxxxxxxx-----------------------------
----xxxxxxxxxxxxx-------------------------------------xxxxx
a
>hsall_IIB01 NP_001673.2
m-------------------------------------------------------------
------------------------------------------------------------
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```


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esygdvygict----------

----------klk--------tspneglsgnp----------

----------xxlerreavfgknfippkkpk----------
-tflqlvwea-l----------
----------qdvtliileiaa--ivslg
lsfx------xxxxxxxxxxxxxxxx-x---------------xeg---egetgwiegaa
ills-v---------vcvvlvtafnd-------------ws-----------ke----kq
frglqsxxeq----------

--------eqk-ftv----------
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p----------
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-----GDLLPADGlLlqg----------

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me----gsgr---------------------mVVTAVGVNSQTGiiftllgaxxxx-xx
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VPEGLPLAvTISLAYSVK-KMmkdn-----------------------------------

-------------------------nLVR-HLDACETMGNATAICSDKTG----------
----------TLTMNRMTVv--------------qayinekhy------------------
----

---x-xxxxxe--x
-----ippnils---
--yl
vtgisvnxxxxxkilp---
-----------pxxxgxlp---

-------------------------------rhvgnkte--callgl----xx-x----
-----------------lkrdyqd--vrnexx---------------------------

----------eealykvytfnsvrk-smst-------------------------------
----

-v-xxxx--xx----xxxxxxk---------------------------------------
--gas
e--------------------iilkkcfkilsangx-----------------------

```
--------------------------------------------------------------
--------------------------------------------------------------
akvfrprdrddixktviepm--ase----glrtlCLAFRdf--------------------
----------xxxepepewdnenxivtgltclAVVGIEDPVRPEVPDAIKKCQRag-ITV
RMVTGDNINTARAIATKCGI-----------------------------lhp--g------
--------------------------------------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
-----------------------------------------xxx---lclegkdfnx-----
---------------xxxx-------------------------------------------
xxx-------------eieqeridk-----------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
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m-knilghafy--qlvvvftllf-----------------------------------
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ps----ehytivfntfvlmqlfn-einarkixxernvf---x---gixnnaifctivlgt
fvvqiiiv--qf--ggk----------pfscsel-------------------------
--------sieqwl----ws--iflgmgtllwg--------------------------
----------qlisti-------------------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
-------------------------ptsrlx---------xxx-----------------
---xxxxxxxxxx-----------------------------------------------
```

----------xxxxxx--xxxxxxx---------xxxxxxxxxxxxxx---
----------xxxxxxxxx----------

----------xxxxxxx-xxxx--xxxx----------xxxxxx--xxxxxx--xxx
xxxxxxxxxxxxxxxxxx--xxxxxxxxxxx----------xx----x-
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|
>celll_llBO3 NP_500294.2
m----------

----------xxx------xxx----

----------xxxxxxxxx----------xxxxxxxx---xxx
tdyggttglce----------

----------rlk-------tdpnnglpnne----------

----------xxlerrrnvfganeipphppk----------
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----------qdvtlvillvsa--ivsla
lsfx------xxxxxxxxxx----------xds---ehdagwiegva
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frglqaxxet----------

--------ehr-ffv----------
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v----------
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-----GDLIPSDGIIIqs----------

----------n--dlkMDESSLTGESDQIRKsp-

----------x----------

--h----------
----------d----------PIILS--GTHV----------
me----gsgk----------mLVTAVGVNSQTGiimtllgaxxxxxxx
----------xxxxxxxxxxxxxxxxxx
xx-xxxxxxxxxxxxxxxxxxxxxxx-gkkersvlqakltrlaiqigyagsfvagctv
-liliirfcxxxxxxxxxxx----x--------xxxxx------hfinfliigVTVLVVA
VPEGLPLAvTLSLAYSVK-KMmldn----------

----------nLVR-HLDACETMGNATAICSDKTG----------
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mdcisinxxxxxqvip----------
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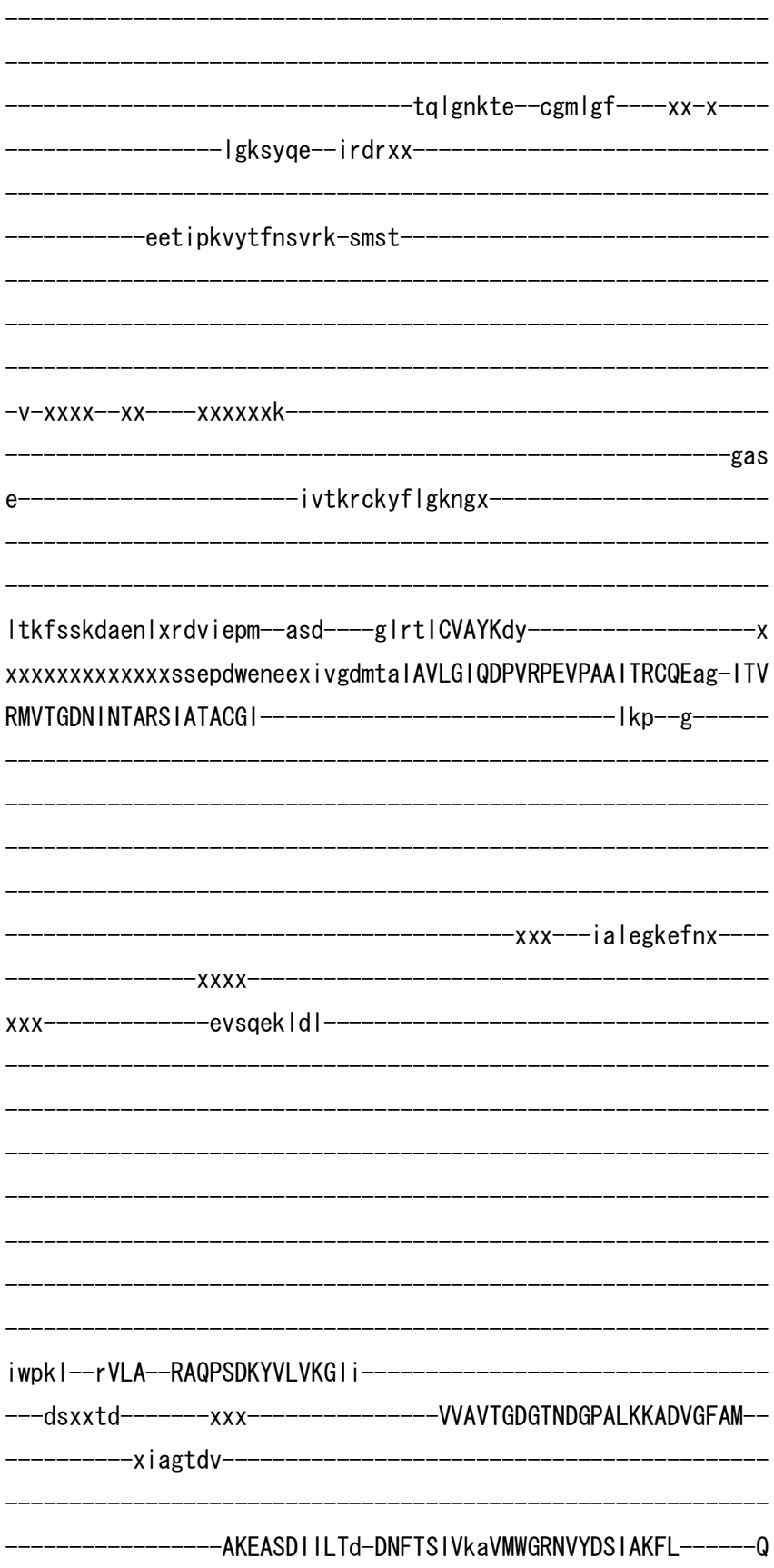

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lsfx-----xxxxxxxxxxxxxxxxx----------xeg---eaeagwiegaa
ills-v---------icvvlvtafnd----------ws----------ke----kq
frglqsxxeq---

--------eqk-ftv---
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p---
----vaelVVGDlAQVky---
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----------n--dlkIDESSLTGESDQVRKsv-

-xk---
----------d---------PMLLS--GTHV----------
me----gsgr----------mLVTAVGVNSQTGiiftllgaxxxx-xx
-----xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxx--xxxxxxx-hkkeksvlqgkltklavqigkaglvmsaitv
-iilvlyftxxxxxxxxxxxxxxx--------xxxxx------yfvkffiigVTVLVVA
VPEGLPLAvTISLAYSVK-KMmkdn---

```
-------------------------------------------------------------
-------------------------nLVR-HLDACETMGNATAICSDKTG----------
----------TLTTNRMTVv-------------qayvgdvhy-----------------
-------------------------------------------------------------
-------------------------------------------------------------
-------------------------------------------------------------
-------------------------------------------------------------
-----------------------------------------------x-xxxxxs--x
-----intktme--------------------------------------------------
-------------------------------------------------------------ll
inaiainxxxxxkilp----------------------------------------------
------------pxxxgxlp-----------------------------------------
-------------------------------------------------------------
-------------------------------------------------------------
--------------------------------rqvgnkte--cgllgf----xx-x-----
-----------------lkqdyep--vrsqxx-------------------------------
-------------------------------------------------------------
-----------eeklykvytfnsvrk-smst-------------------------------
-------------------------------------------------------------
-------------------------------------------------------------
-------------------------------------------------------------
-v-xxxx--xx----xxxxxxk----------------------------------------
-------------------------------------------------------------gas
e---------------------ivlkkcckilngagx-----------------------
-------------------------------------------------------------
-------------------------------------------------------------
prvfrprdrdemxkkviepm--acd----glrtlCVAYRdf--------------------
-----------xxspepdwdnenxilneltclCVVGIEDPVRPEVPEAIRKCQRag-ITV
RMVTGDNINTARAIAIKCGI-------------------------ihp--g------
-------------------------------------------------------------
-------------------------------------------------------------
-------------------------------------------------------------
-------------------------------------------------------------
-----------------------------------------xxx---lclegkefnx----
---------------xxxx------------------------------------------
xxx------------eieqeridk-----------------------------------
```

```
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
iwpkl--rVLA--RSSPTDKHTLVKGli----------------------------------
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------------------------------------------------------------
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nlimdtfaslalateppt-et-----------------lllrkpy---g-rnkplisrtm
m-knilghavy--qlaliftllf-----------------------------------
-vgekmx-xx--xxxxxxxxxxx-----------------------------------
ps----ehytiifntfvmmqlfn-einarkixxernvf---x---gixrnpifctivlgt
faiqiviv--qf--ggk----------pfscspl-------------------------
--------qldqwm----wc--ifiglgelvwg--------------------------
----------qviati-------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
--------------------------ptsrlx---------xxx----------------
---xxxxxxxxxxx---------------------------------------------
------------------------------------------------------------
--------------------xxxxxx--xxxxxxx---------xxxxxxxxxxxxxx---
------------xxxxxxxxx-------------------------------------
------------------------------------------------------------
-------------xxxxxxx-xxxx--xxxx----------xxxxxx--xxxxxx--xxx
xxxxxxxxxxxxxxxxxx--xxxxxxxxxx----------------------xx----x-
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|
>hsall_IIB03 NP_068768.2
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----------xxxxxxxxx-------------------------xxxxxxxx---xxx
eaygdvsglcr----------

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----------xxlekrrqiygqnfippkqpk----------
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----------qdvtliilevaa--ivslg
lsfx------xxxxxxxxxxxxxxxxxx----------xeg---eaeagwiegaa
ills-v--------icvvlvtafnd----------ws----------ke----kq
frglqsxxeq----------

--------eqk-ftv----------
-----irn----------gq--llq------v
p----------
----vaaLVVGDlAQVky----------
-----GDLLPADGVLlqa----------

----------------------------------n--dlkIDESSLTGESDHVRKsa-

-----------------x-------------------------------------

--k---
---------------------d---------PMLLS--GTHV----------------
me----gsgr---------------------mVVTAVGVNSQTGiiftllgaxxxx-xx
-----xxxxx---------------------------------xxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxx-pkkeksvlqgkltklavqigkaglvmsaitv
-iilvlyfvxxxxxxxxxxxxxxxx-------xxxxx------yfvkffiigVTVLVVA
VPEGLPLAvTISLAYSVK-KMmkdn-----------------------------------

-------------------------nLVR-HLDACETMGNATAICSDKTG----------
----------TLTTNRMTVv--------------qsylgdthy-----------------

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-----ltpkild---
--ll
vhaisinxxxxxkilp---
-----------pxxxgxlp---

-------------------------------rqvgnkte--callgf----xx-x----
-----------------lkrdfqp--vreqxx---------------------------

----------edklykvytfnsvrk-smst-------------------------------
----

-v-xxxx--xx----xxxxxxk---------------------------------------
--gas
e--------------------illkkctnilnsngx----------------------

```
--------------------------------------------------------------
--------------------------------------------------------------
lrgfrprdrddmxrkiiepm--acd----glrtlClAYRdf--------------------
----------xxgqepdwdnenxvvgdltclAVVGlEDPVRPEVPEAlRKCQRag-lTV
RMVTGDNlNTARAlAAKCGl----------------------------iqp--g------
--------------------------------------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
----------------------------------------xxx---lclegkefnx-----
---------------xxxx-------------------------------------------
xxx-------------eieqerldk-----------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
vwpkl--rVLA--RSSPTDKHTLVKGli-------------------------------
---dsxxge-------xxx---------------VVAVTGDGTNDGPALKKADVGFAM--
----------xiagtdv-------------------------------------------
--------------------------------------------------------------
-----------------AKEASDllLTd-DNFTSlVkaVMWGRNVYDSlSKFL------Q
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nlimdtfaslalateppt-es-----------------lllrkpy---g-rdkplisrtm
m-knilghavy--qlaiiftllf-------------------------------------
-vgelfx-xx--xxxxxxxxxxx-------------------------------------
ps----ehytiifntfvmmqlfn-einarkixxernvf---x---gixsnpifctivlgt
fgiqiviv--qf--ggk----------pfscspl-------------------------
--------steqwl----wc--lfvgvgelvwg--------------------------
----------qviati-------------------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
-------------------------ptsqlx---------xxx-----------------
---xxxxxxxxxx-----------------------------------------------
```

----------xxxxxx--xxxxxxx---------xxxxxxxxxxxxxx---
----------xxxxxxxxx----------

----------xxxxxxxxxxxx--xxxx----------xxxxxxxxxxxxxxxxxxx
x----------
----------xxxxxxxxxx--xxxx-x---------xx--xxxxx
p
>hsall_llB04 NP_001001396.1
m----------

----------xxxxxxxx------xxxxxxxxxxxx------xxx----

----------xxxxxxxxx----------xxxxxxxx---xxx
vhyggvqnlcs----------

----------rlk-------tspveglsgnp----------

----------xxlekrrqvfghnvippkkpk----------
-tflelvwea-l----------

----------qdvtliileiaa--iislv
lsfx------xxxxxxxxxxxxxxxxx----------xen---eaqagwiegaa
ilfs-v---------iivvlvtafnd----------ws----------ke----kq
frglqcxxeq----------

--------eqk-fsi----------
-----irn----------gq--liq-------l
p----------
----vaelVVGDlAQVky----------
-----GDLLPADGILlqg----------

----------n--dlklDESSLTGESDHVKKsl-

-xk----------
----------d----------PMLLS--GTHV----------
me----gsgr----------mVVTAVGVNSQTGiiltllgvxxxx-xx
-----xxxxx----------xxxx-xxxx-xxxxxxxxx
xx-xxxxxxxxxxxxxxxxxxxxxxx-pkkeksvlqgkltrlavqigkagllmsaltv
-fililyfvxxxxxxxxxxxxxxx--------xxxxx------yfvkffiigITVLVVA
VPEGLPLAvTISLAYSVK-KMmkdn----------

----------nLVR-HLDACETMGNATAICSDKTG----------
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----------li
vngisinxxxxxkilp----------
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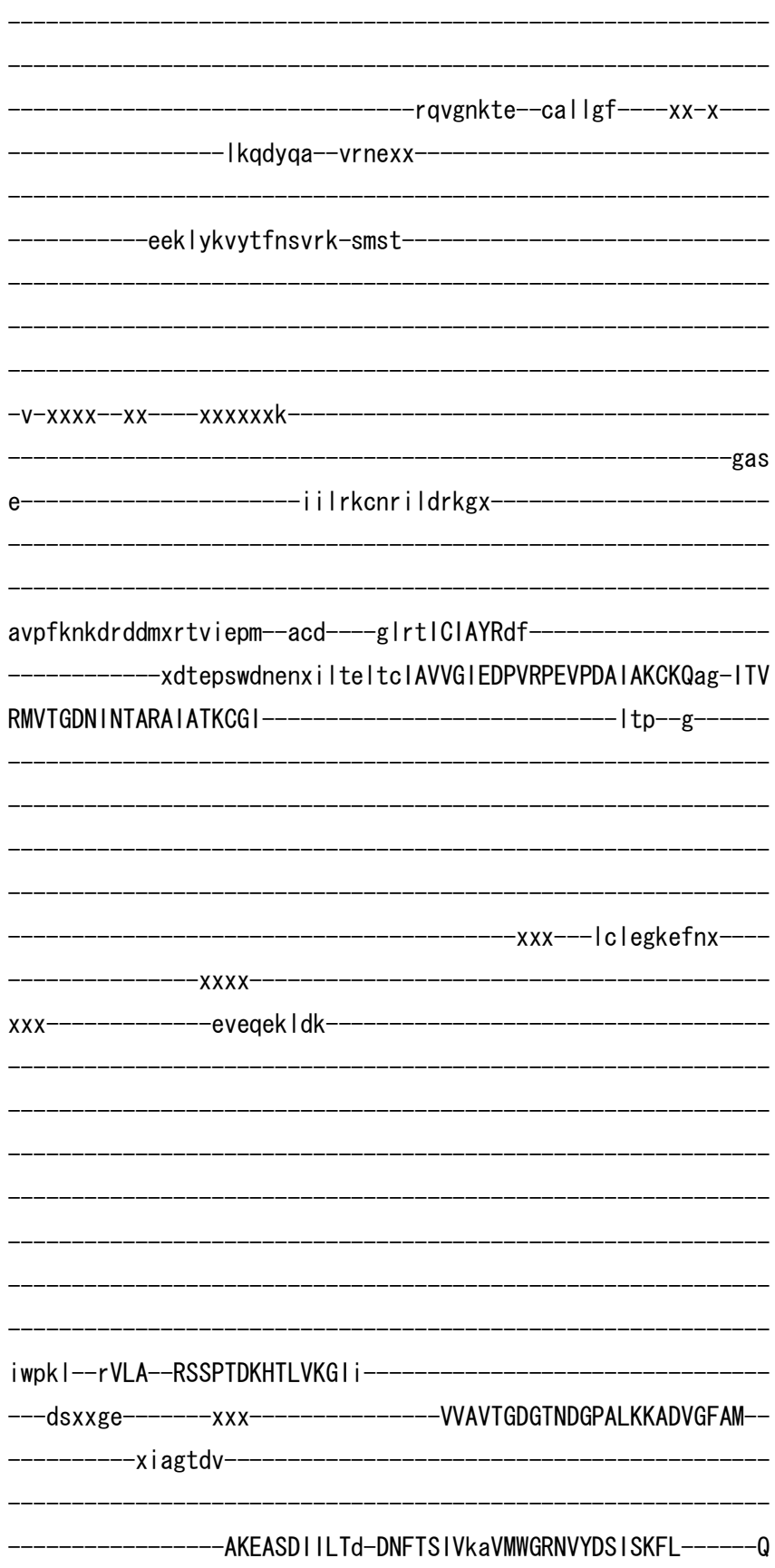

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p---
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xxxxxxxxxx----------xxxxxxxxx-xxxxxxxxx
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-iilvlyfvxxxxxxxxxxxxxxxx--------xxxxx------yfvkffiigVTVLVVA
VPEGLPLAvTISLAYSVK-KMmkdn----------

```
-------------------------------------------------------------
------------------------nLVR-HLDACETMGNATAICSDKTG----------
----------TLTMNRMTVv-------------qayinekhy-----------------
-------------------------------------------------------------
-------------------------------------------------------------
-------------------------------------------------------------
-------------------------------------------------------------
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-------------------------------------------------------yl
vtgisvnxxxxxkilp----------------------------------------------
------------pxxxgxlp-------------------------------------------
-------------------------------------------------------------
-------------------------------------------------------------
---------------------------------rhvgnkte--callgf----xx-x-----
-----------------lkrdyqd--vrnexx-------------------------------
-------------------------------------------------------------
-----------eealykvytfnsvrk-smst-------------------------------
-------------------------------------------------------------
-------------------------------------------------------------
-------------------------------------------------------------
-v-xxxx--xx----xxxxxxk-----------------------------------------
-------------------------------------------------------gas
e---------------------iilkkcfkilsangx-----------------------
-------------------------------------------------------------
-------------------------------------------------------------
akvfrprdrddixktviepm--ase----glrtlCLAFRdf--------------------
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xxx------------eieqeridk-------------------------------------
```

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------------------------------------------------------------
------------------------------------------------------------
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------------------------------------------------------------
iwpkl--rVLA--RSSPTDKHTLVKGli-------------------------------
---dsxxse-------xxx---------------VVAVTGDGTNDGPALKKADVGFAM--
----------xiagtdv-------------------------------------------
------------------------------------------------------------
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m-knilghafy--qlvvvftllf-------------------------------------
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frglqsxxeq----------

--------eqk-ftv----------
-----irn----------gq--llq------v
p----------
----vaaLVVGDlAQVky----------
-----GDLLPADGVLlqg----------

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------------------x-------------------------------------

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VPEGLPLAvTISLAYSVK-KMmkdn-----------------------------------

-------------------------nLVR-HLDACETMGNATAICSDKTG----------
----------TLTTNRMTVv--------------qsylgdthy------------------
----

---x-xxxxxs--x
-----ltpkild---
--ll
vhaisinxxxxxkilp--
-----------pxxxgxlp---

--------------------------------rqvgnkte--callgf----xx-x----
-----------------lkrdfqp--vreqxx---------------------------

----------edqlykvytfnsvrk-smst-------------------------------
----

-v-xxxx--xx----xxxxxxk--
--gas
e--------------------illkkctnilnsngx----------------------

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--------------------------------------------------------------
--------------------------------------------------------------
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--------------------------------------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
-----------------------------------------xxx---lclegkefnx-----
---------------xxxx-------------------------------------------
xxx-------------eieqerldk-----------------------------------
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----------qviati-------------------------------------------
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frglqsxxel----------

--------eqk-fsi----------
-----irn----------gq--liq-------l
p----------
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-----GDLLPADGILlqg----------

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-xk----------
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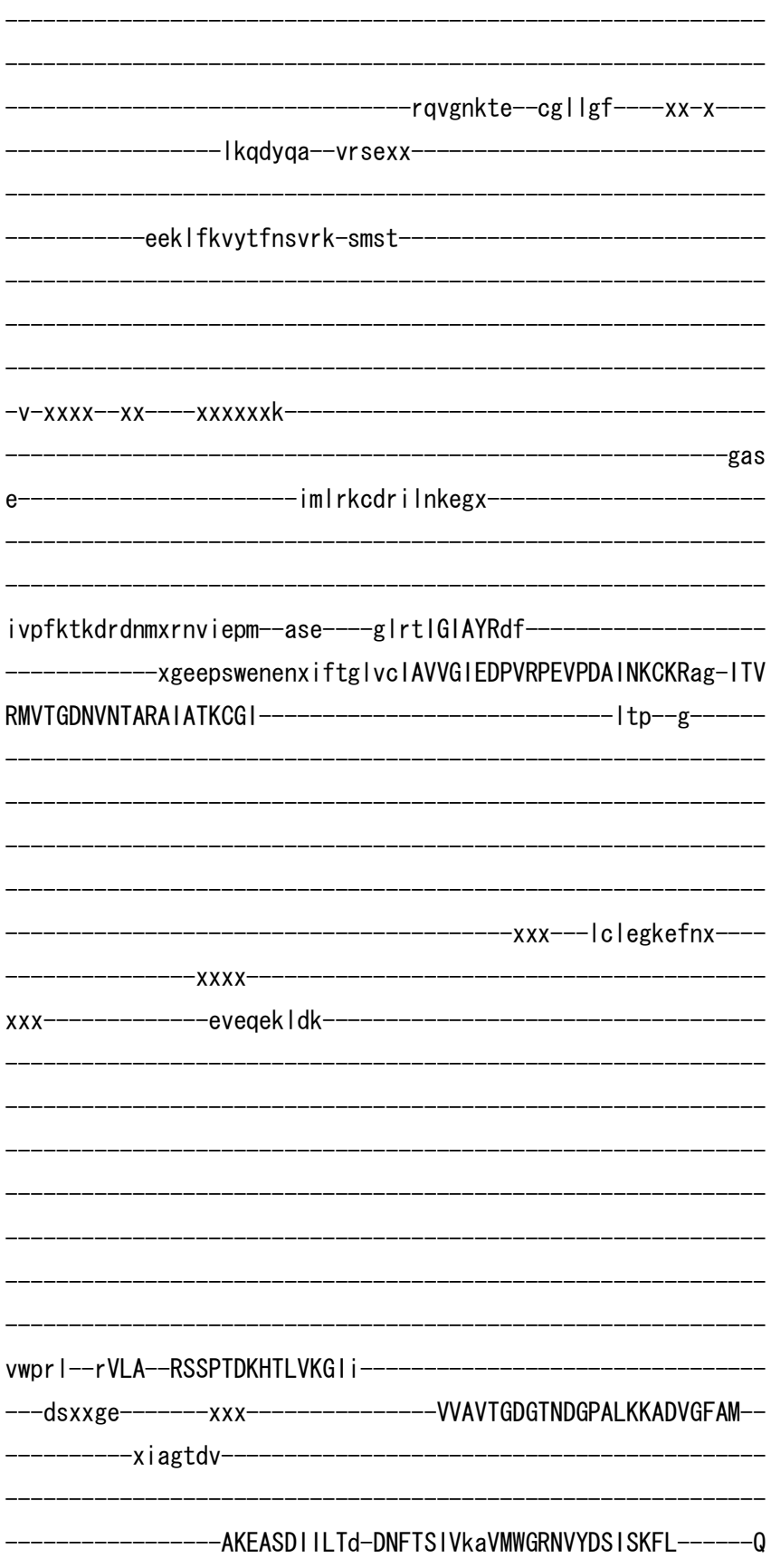

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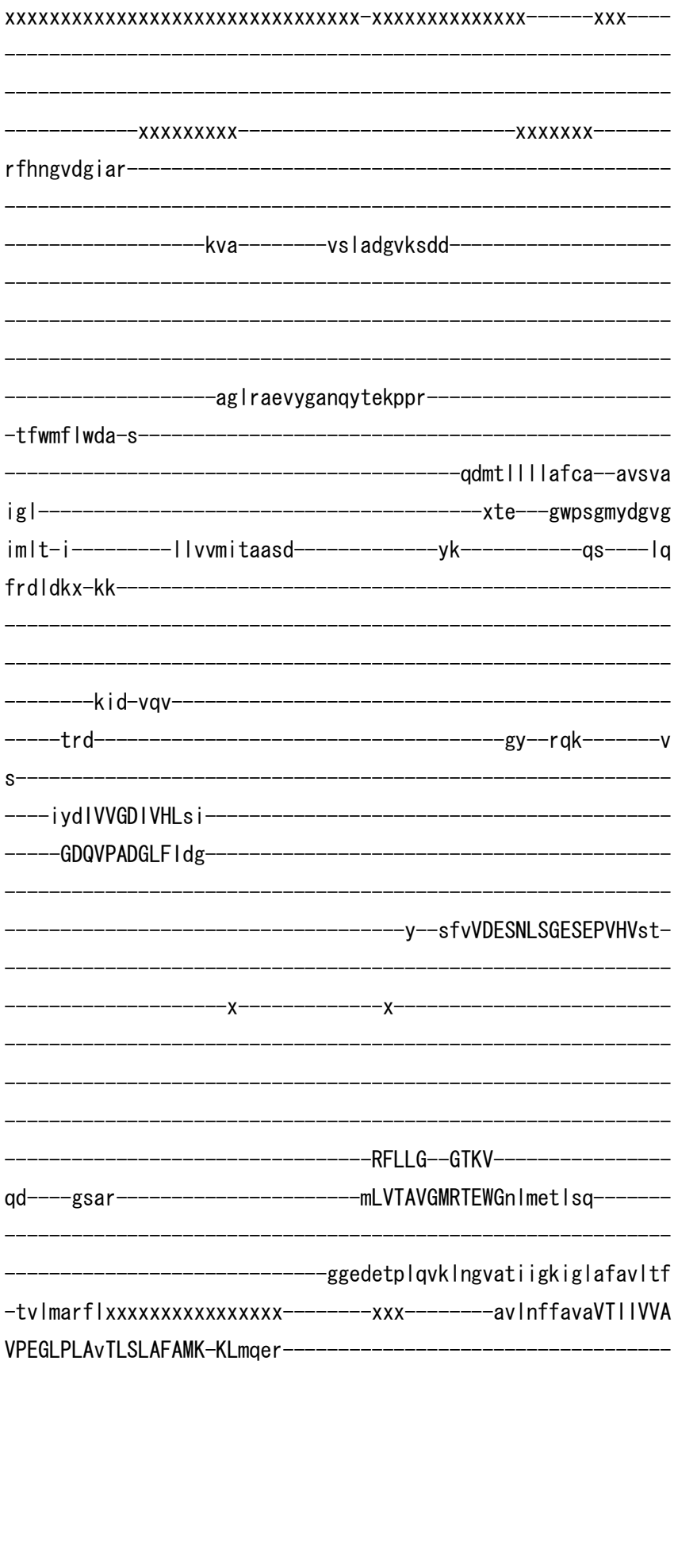

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legvfhc---xxsevv----------
----------rxxxg-rh----------

----------timgtpte--tailef----xx-x----
----------vekrari--eht----------

----------gagklkvepfnsvkk-tmav----------

-v-xxxxxxxx----xxxxxxk----------
----------gas
e----------vvlsrcslvldgtgx----------

----
vekltdakakrv-asaidaf--ace----alrtLCLAYQdv----------
----------dggggdxpgegytlIAVFGIKDPLRPGVREAVATCHAag-INV
RMVTGDNINTAKAIARECGI----------ltd--d-----

----------x----iaiegpefr-----

----------nkdpdqmre----------

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---gm-xne----------VVAVTGDGTNDAPALHEADIGLAM--

---------xiagtev---

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nlimdtlgalalateppn-da----------mmkrppv---g-rgdnfitkvm

w-rnivgqsiy--qlvvlgvlll---

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agfqvimv--el--lgt---------fantvhl---

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----------pvesgx---------xxx---

----------xxxxxxxxxx---

----------xxx---xxx---

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-sflvflwea-c----------

----------qdltlviliiaa--vislv

lgi----------xte---gikegwydgas

iafa-v---------flvilvtavsd----------yk----------qs----lq

fqhlnex-kq----------

--------niq-vev----------

-----irg----------gr--rie-------v

s----------

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-----GDQVPADGVLVsg----------

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--k----------
----------s----------PFLMG--GCKV----------
ad----gygt----------mLVTAVGLNTEWGllmasise-------

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legiaqn---xxgsvf----------
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e----------ivlalctnwldvngx----------

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RMVTGDNLQTARAIALECGI-----------------------------lt--d------
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-----------------------------------------xxxxxxviiegkvfr------
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-----------------aysdaerea---------------------------------
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--------------------------------------------------------------
vadqi--sVMG--RSSPSDKLLLVKALk--------------------------------
---kk--gn--------------------------VVAVTGDGTNDAPALHEADIGLAM--
----------xiqgtev-------------------------------------------
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fql-tvn-v-aaliinvvaaissg----------------------n--vplnavqllwv
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w-rnlfiqavf--qvtvlltlnf-------------------------------------
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hl----tqdtldhan----kvfn-efnsrkpx-elnif---x---gvxrnhlflavvsit
vvlqviii--ef--lgk----------ftstvrl-------------------------
--------swklwl----vs--vgigfvswpla--------------------------
----------fagkfi-------------------------------------------
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kshggveaiaa----------

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-sfwvfvwea-l----------

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vgi----------xte---gwpkgahdglg
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--------kit-vqv----------
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s----------
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e---------------------iilascskylndqgx----------------------

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RMVTGDNlNTAKAlARECGl--------------------------lte--g------

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w-rnilgqafy--qfiviwylqt----------
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frdldkx-kr---

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l---
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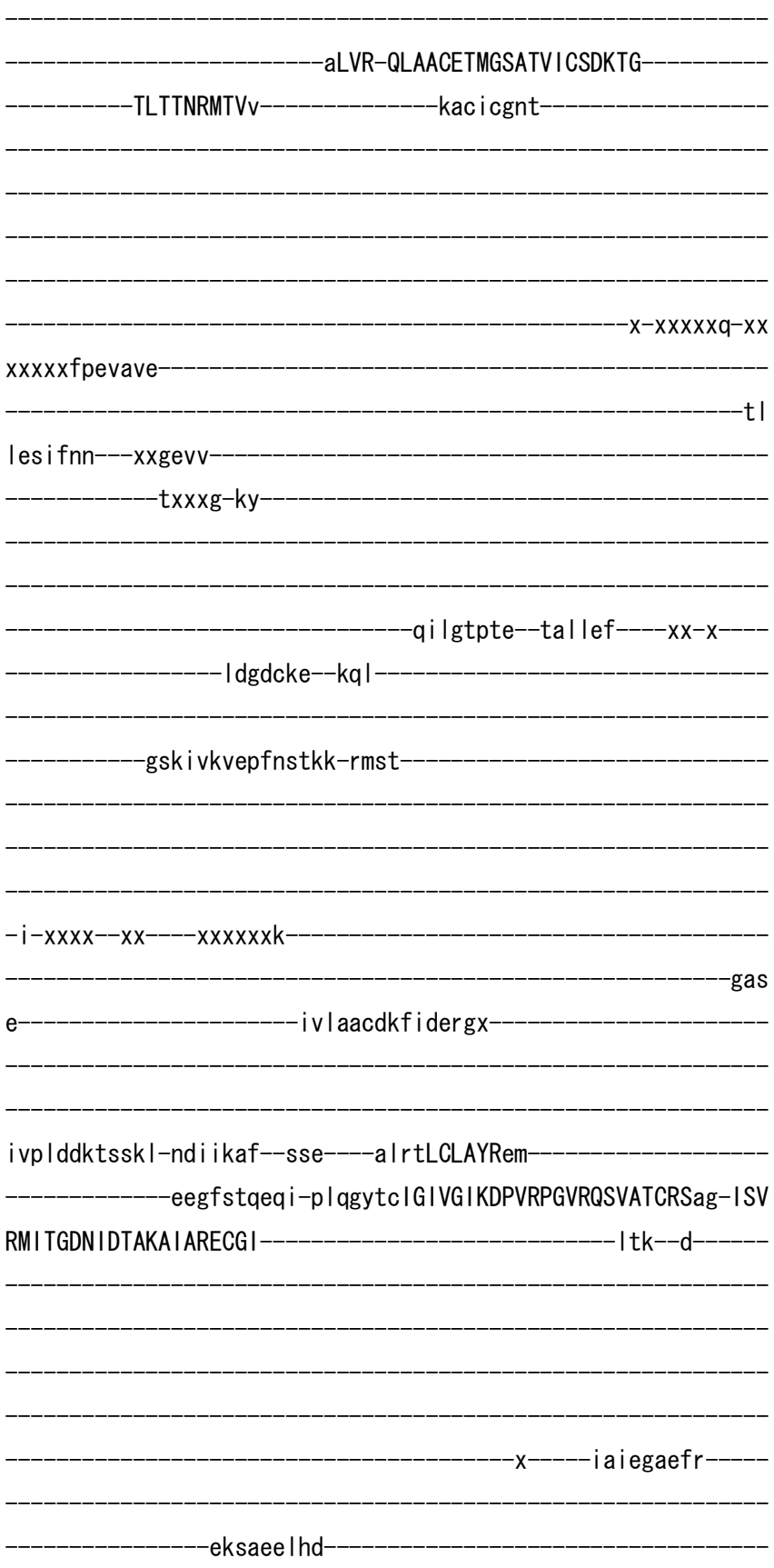

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di----vlntiifntfvfcqvfn-eissremx-dinvl---x---gmxgnsiflgvltgt

iffqfilv--qf--lgd----------fanttpl---

--------tqqqwl----is--ilfgflgmpia---

----------aaikli---

-------------------------avephx---------xxx---

---xx----------

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vegiaqn---xxgsif----------
----------exxxgxdp----------

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e----------iildsckswlaadgx----------

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-----------------------------------------xxxxxxviiegkafr------
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----------------alsdleree-------------------------------------
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--------------------------------------------------------------
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aaeki--sVMG--RSSPNDKLLLVKALr-----------------------------------
---kr--gh--------------------------VVAVTGDGTNDAPALHEADIGLSM--
----------xiqgtev-----------------------------------------------
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w-rnliimalf--qvivlltlnf-----------------------------------
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dk----vkntfifntfvlcqvfn-efnarkpx-elnif---x---gixgnhlfmaivait
vvlqaliv--ef--lgk----------ftsttrl-------------------------
--------twqlwl----vs--iglaffswpla--------------------------
----------fvgkli------------------------------------------
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v
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----------iatrqmlyganrhaekppr----------
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----------hdltliilvvca--lvsiv
vgl----------xtk---gwpmgiydgfg
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fmeldrx-kq----------

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l----------
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----------xxxxxkxxx
xxxxxiservma----------
----------il
iqgifvn---xxsevv----------
----------kxxxg-kn----------

---------------------------------tilglate--tallef----xx-x----

----------------leehlyd--dyn--------------------------------

----------kltrikvdpfnsvkk-kmsv-----------------------------

-t-xxxx--xx----xxxxxxk-----------------------------------

---gas

e---------------------iileqcntihntdgx----------------------

---

ivplsemqkhnv-lniinsf--ase----alrtLCIAFKdm--------------------

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----------------nkssdelke----------------------------------

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llpki--qVIA--RSLPMDKYKLVTSLk---------------------------------

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----------xitgtev---

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w-rnilgqgly--qllvlatlmv----------
-igkklx-xx-----xxx---xx----------
dk----tintlifnsfvfcqvfn-eincremx-kinvl---x---gixrnwifvgiltat
vifqviiv--ef--lgt---------fantvpl----------
--------sgelwl----ls--vvigsismiis----------
----------vilkci----------

-------------------------pvefnx---------xx----------

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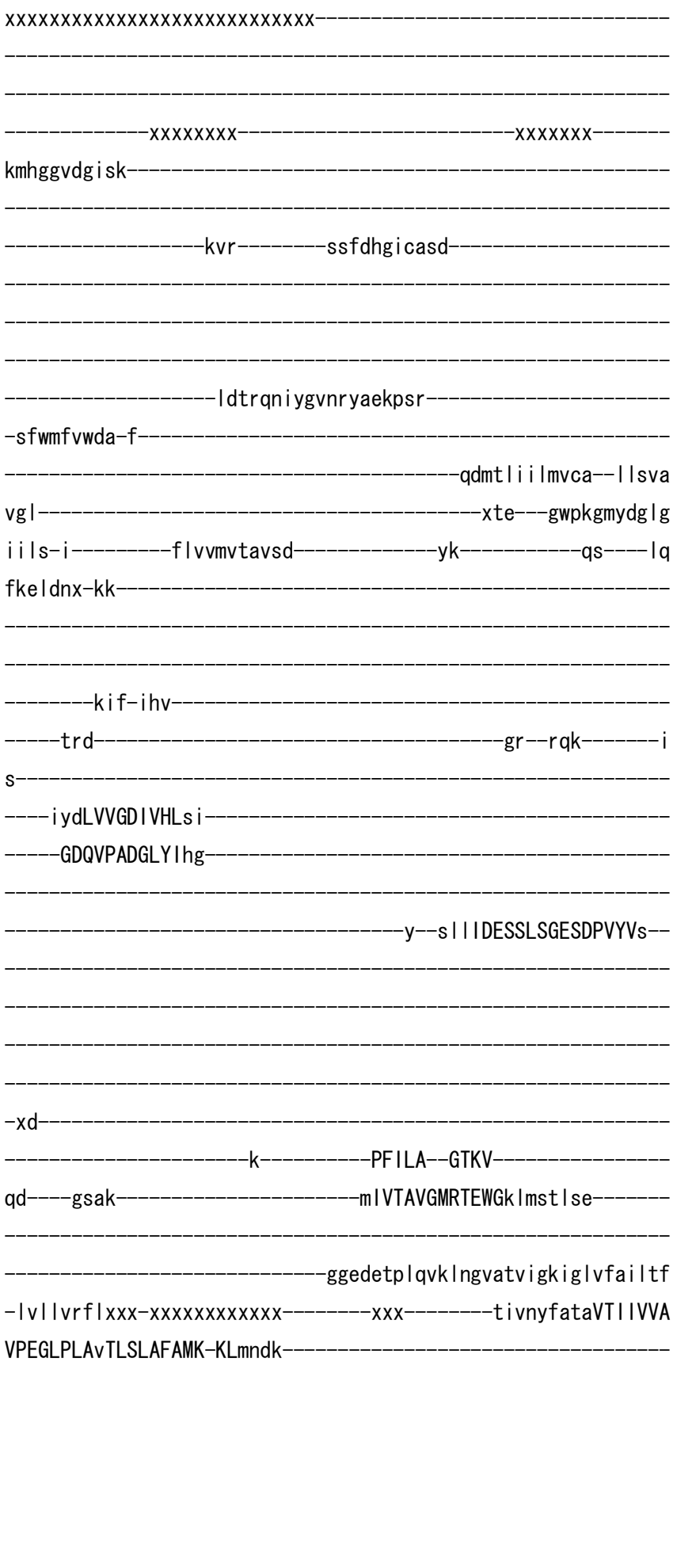

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xxxxxvssrtls--------------------------------------------------
------------------------------------------------------------ll
lqgifen---xxaevv----------------------------------------------
------------kxxxg-kq----------------------------------------
------------------------------------------------------------
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--------------------------------tvlgtpte--railef----xx-x----
-----------------legvhda--eys-----------------------------
------------------------------------------------------------
-----------actkvkvepfnsvkk-kmav-----------------------------
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-l-xxxx--xx----xxxxxxk---------------------------------------
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--------------dddiddnadxptsgftllAlFGIKDPVRPGVKDAVKTCMSag-ITV
RMVTGDNINTAKAIAKECGI-------------------------lte--d------
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-----------------------------------------x----vaiegpefh-----
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----------------skspeemrd-----------------------------------
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------------------------------------------------------------
lipni--qVMA--RSLPLDKHTLVTNLr-------------------------------
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nmimdtlgalalateppn-de-----------------mmkrppv---r-kgesfitkvm
w-rnimgqsly--qlfvlgalmf-------------------------------------
-ggeslx-xx-----xxx---xx-------------------------------------
ks----iintlifnsfvfcqvfn-einsremx-kinvf---x---gixsnwifiaviaat
vafqvvii--ef--lgt----------fastvpl--------------------------
--------nwqhwl----ls--vglgsislivg---------------------------
----------vilkci-------------------------------------------
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fkeldnx-kk----------

--------kif-ihv----------

-----trd----------gr--rqk-------i

s----------

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xxxxxvssstls----------
----------ll
lqgifen---xxaevv----------
----------kxxxg-kq----------

----------tvlgtpte--railef----xx-x----
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----------actkvkvepfnsvkk-kmav----------

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----------gas
e----------iilqmcdmmvdgdgx----------

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RMVTGDNINTAKAIAKECGI----------------------------lte--d------
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----------------------------------------x-----vaiegpefh-----
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----------------sksteemrd--------------------------------
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------------------------------------------------------------
lilni--qVMA--RSLPLDKHTLVTNLr-------------------------------
---gm-xde-------------------------VVSVTGDGTNDAPALHEADIGLAM--
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w-rnimgqsly--qlfvlgalmf-------------------------------------
-ggerlx-xx-----xxx---xx-------------------------------------
ks----iintlifnsfvfcqvfn-einsremx-kinvf---x---gixsnwifiaviaat
vafqvvii--ef--lgt----------fastvpl-------------------------
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-------------------------pvgsgx----------xx-----------------
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ilis-v---------ivvvivtafnd----------ys----------ke----rq
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s----------
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----------x----------

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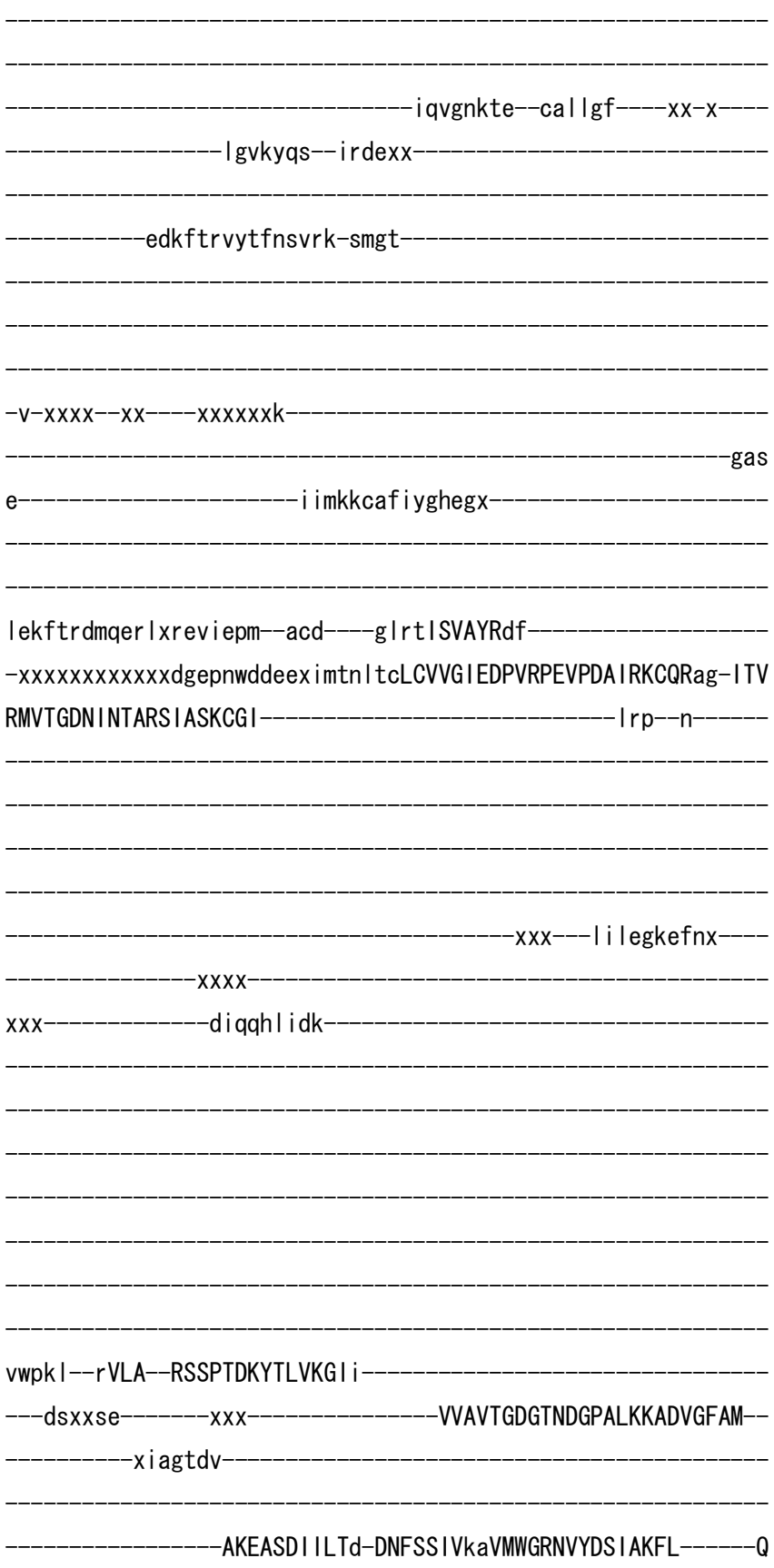

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xxxxxxxxx----------xxxxxxxxxxx----------
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vgi----------xme---gwpkgahdglg
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s----------
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mdsfkn--mv----------

--------pqq-alv----------
-----ire----------ge--kmq------i
n----------
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------------------------------------------------------xxxxxx
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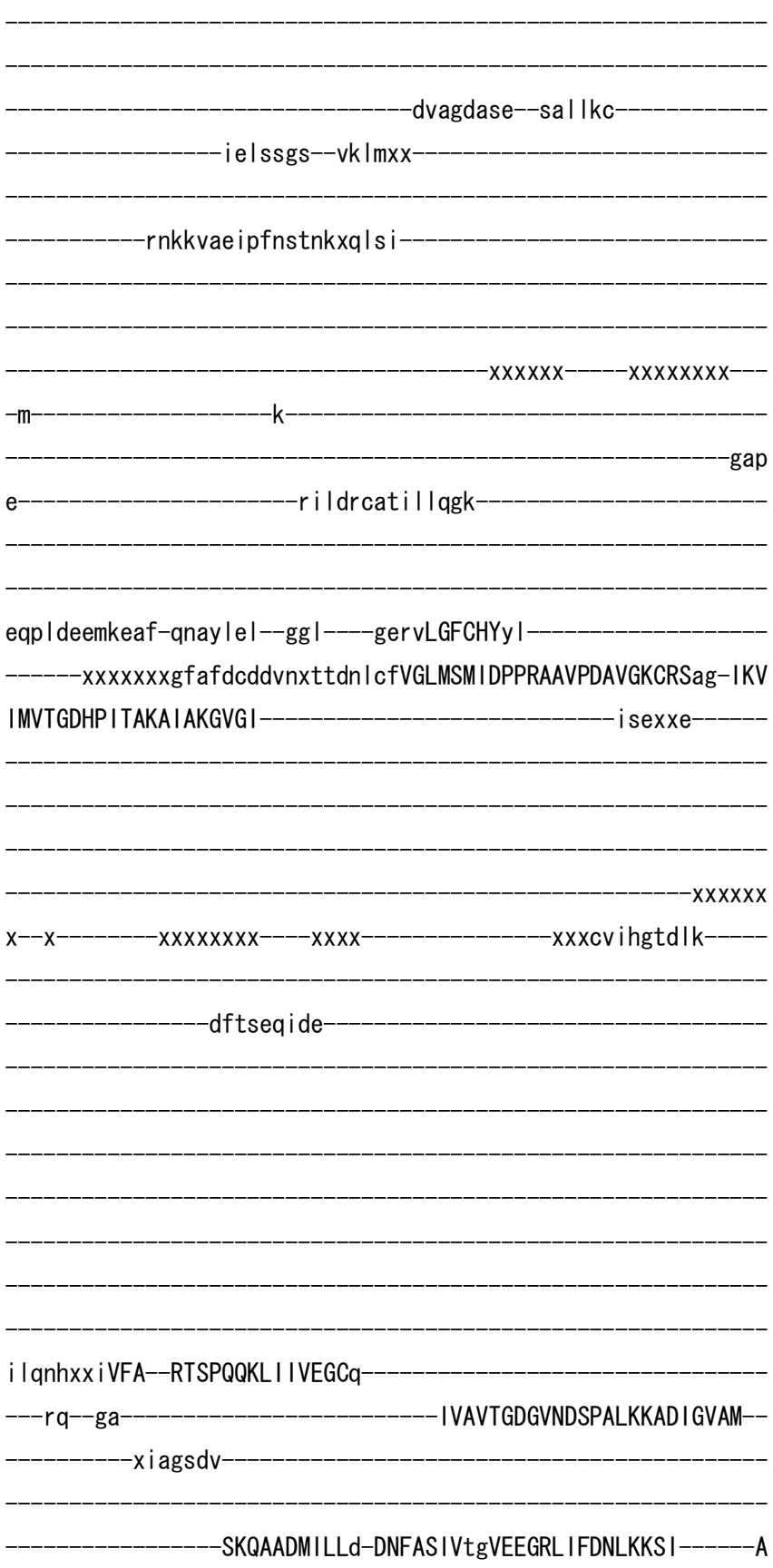

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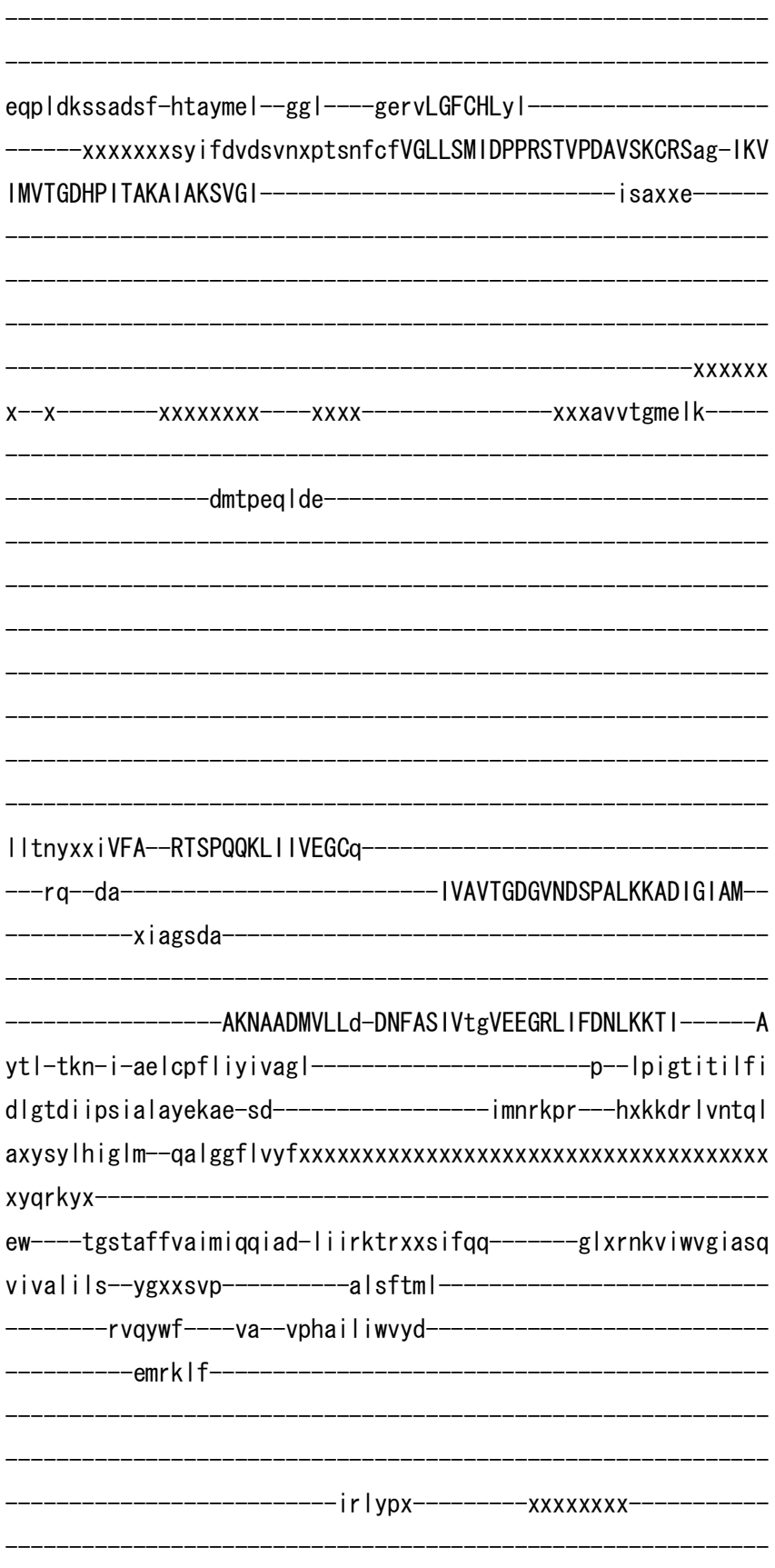

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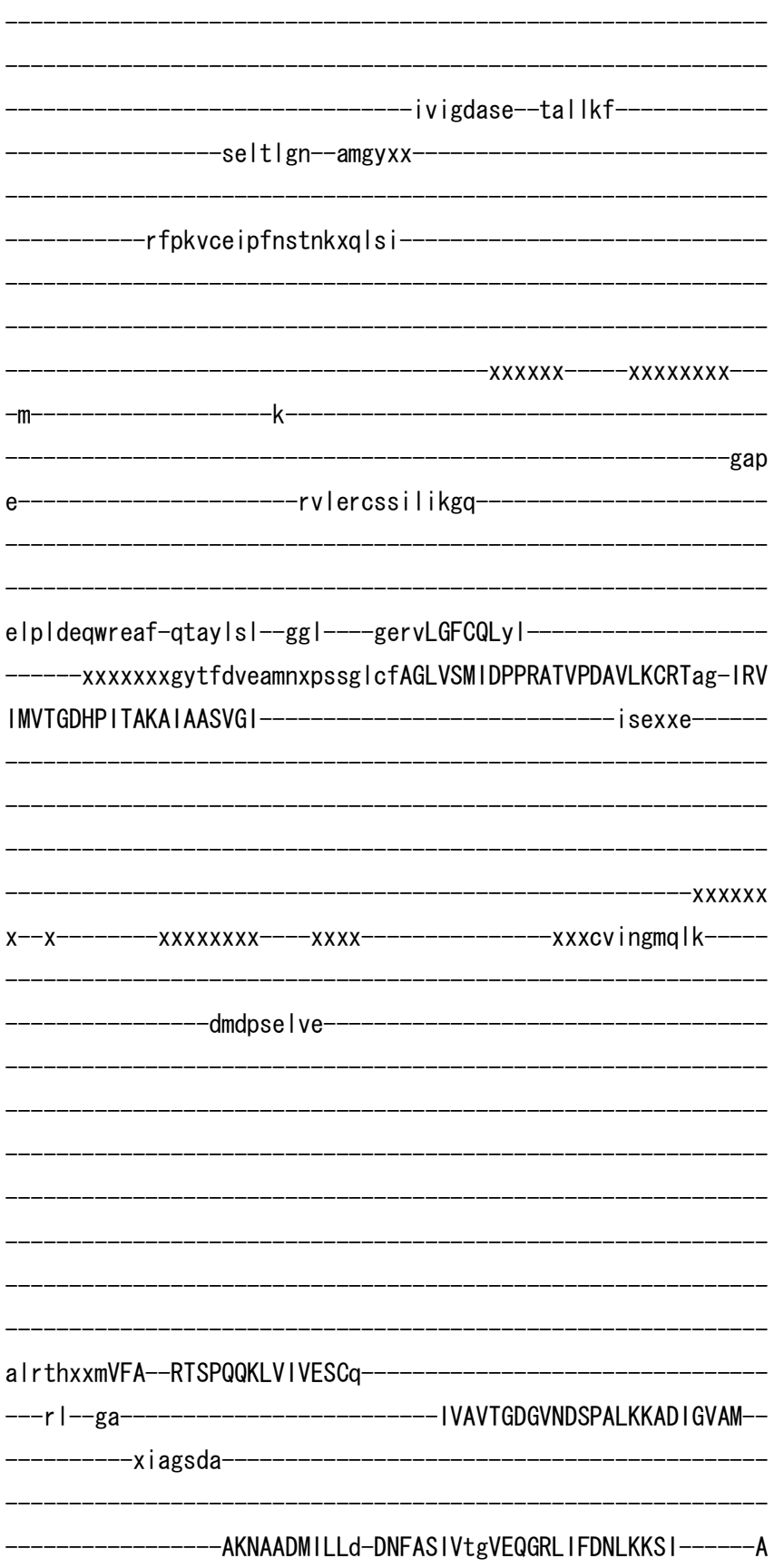

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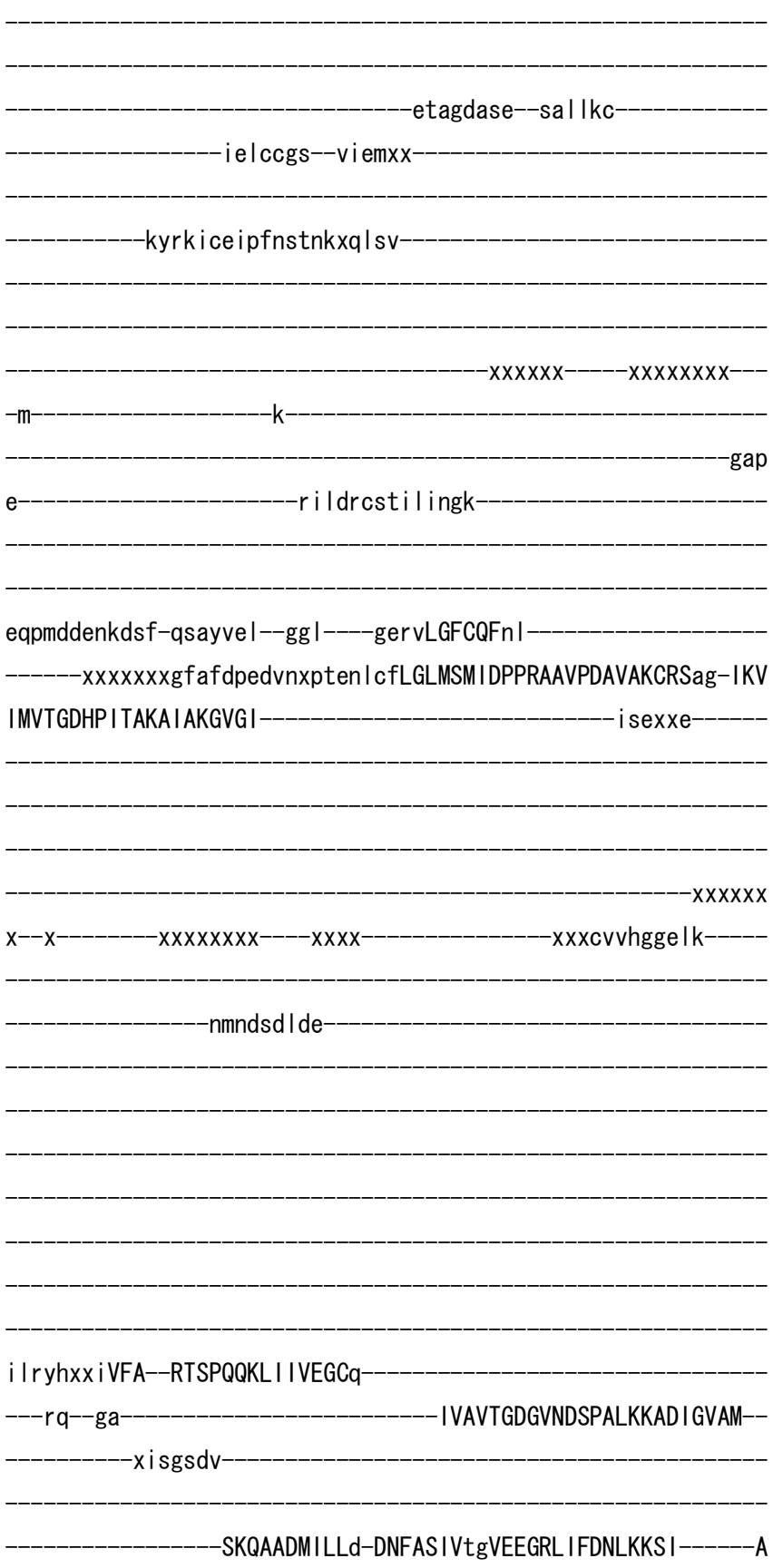

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y

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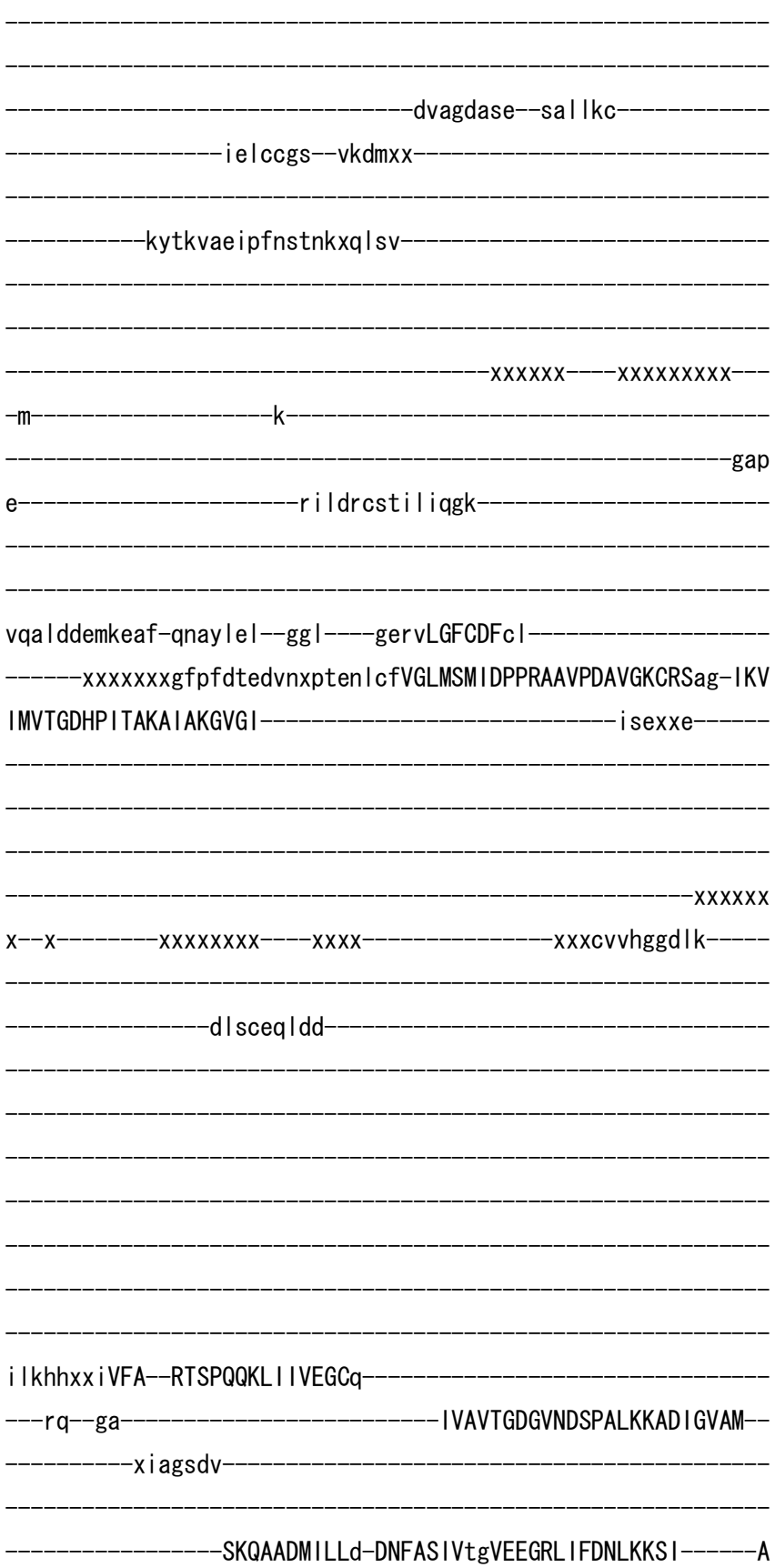

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y

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y----------

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mesfkn--mv----------

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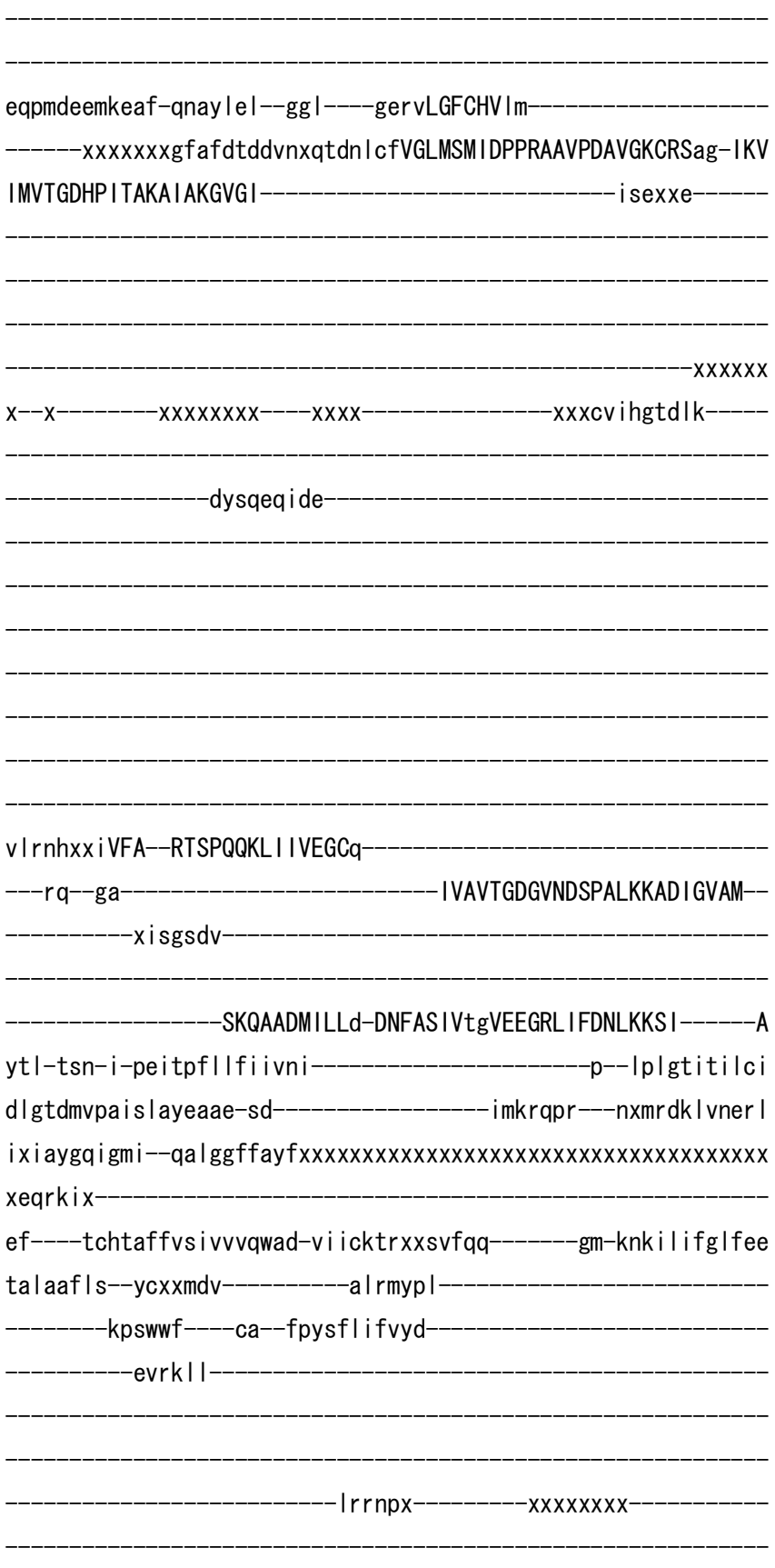

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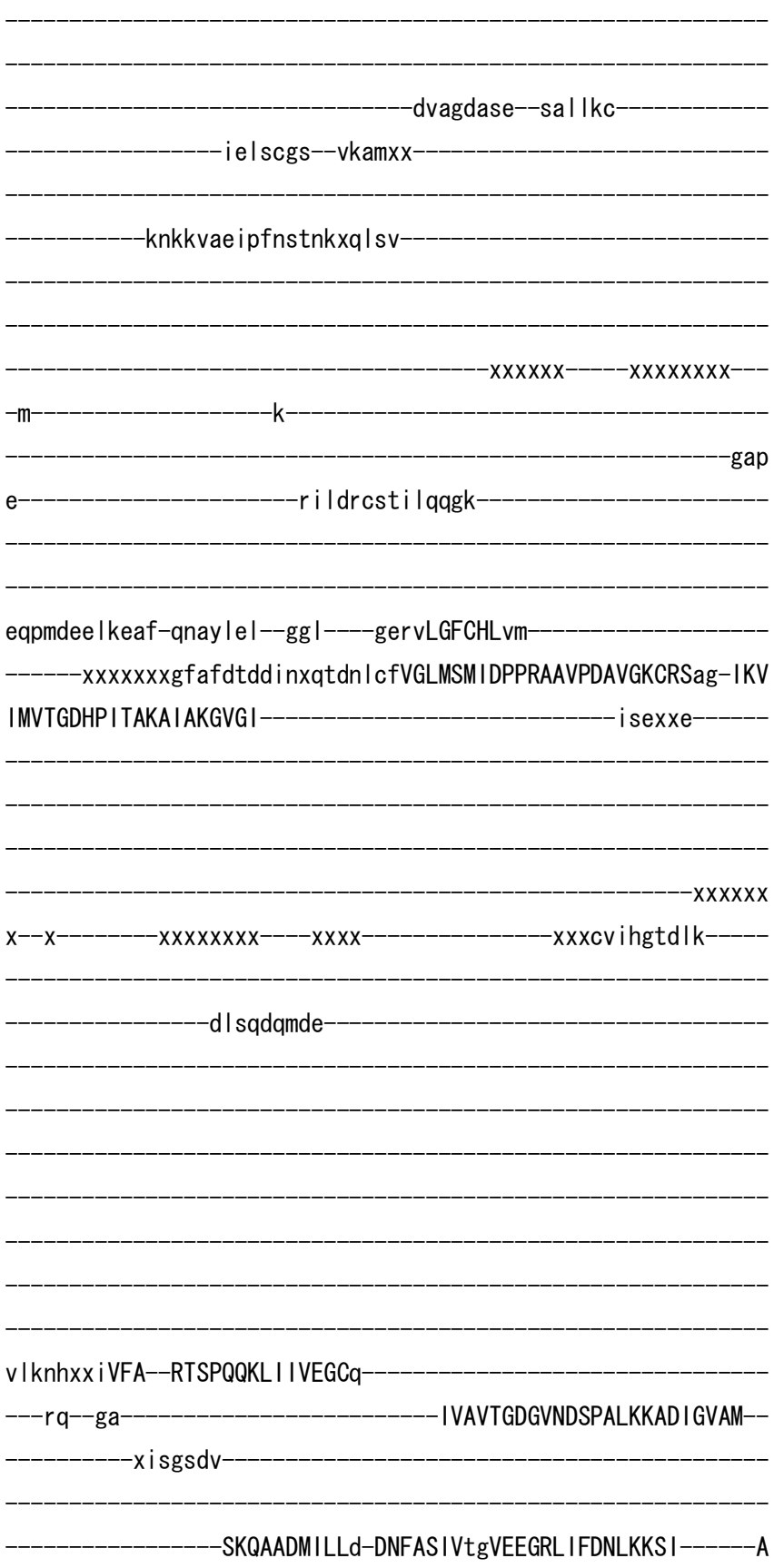

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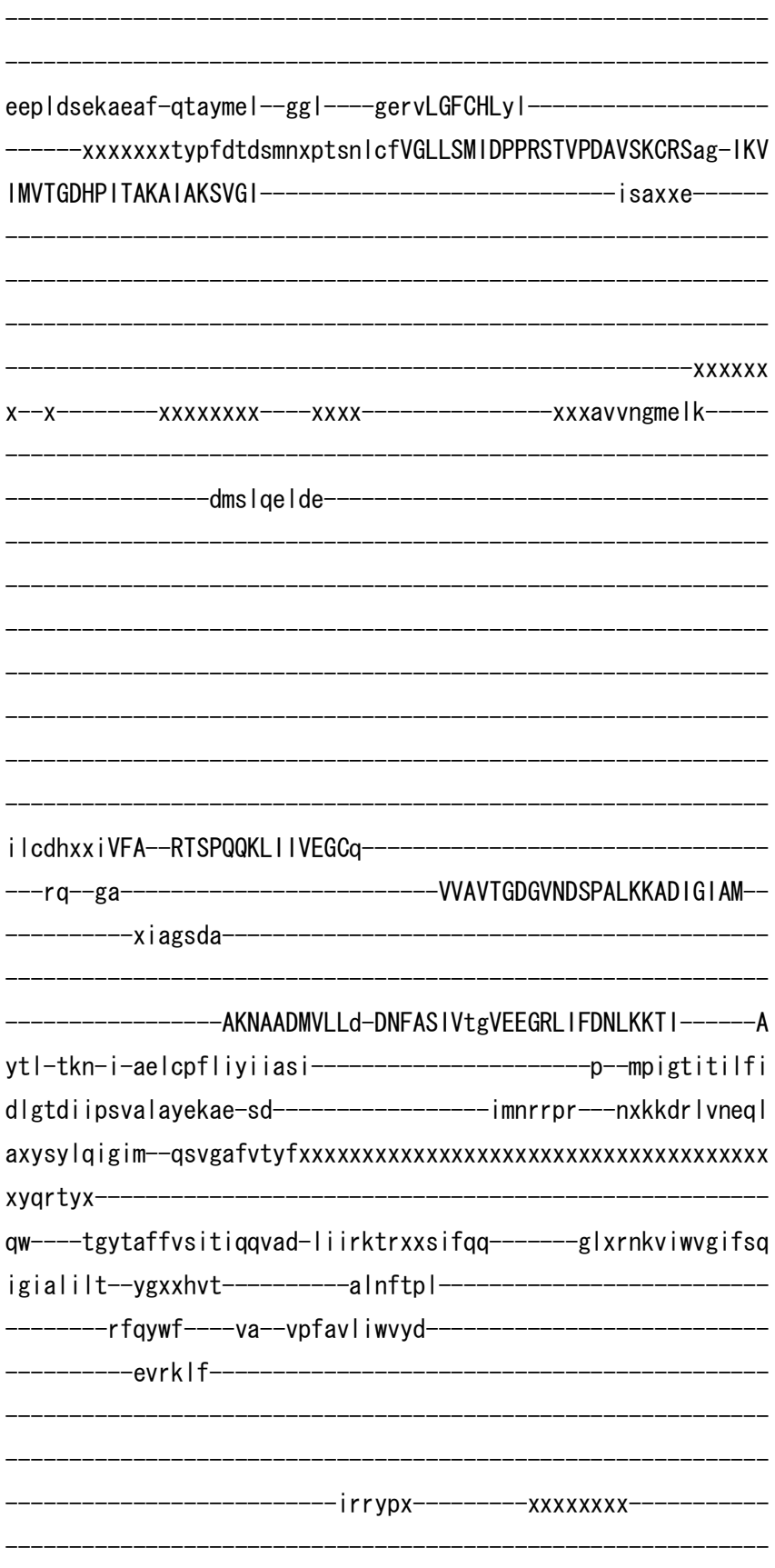

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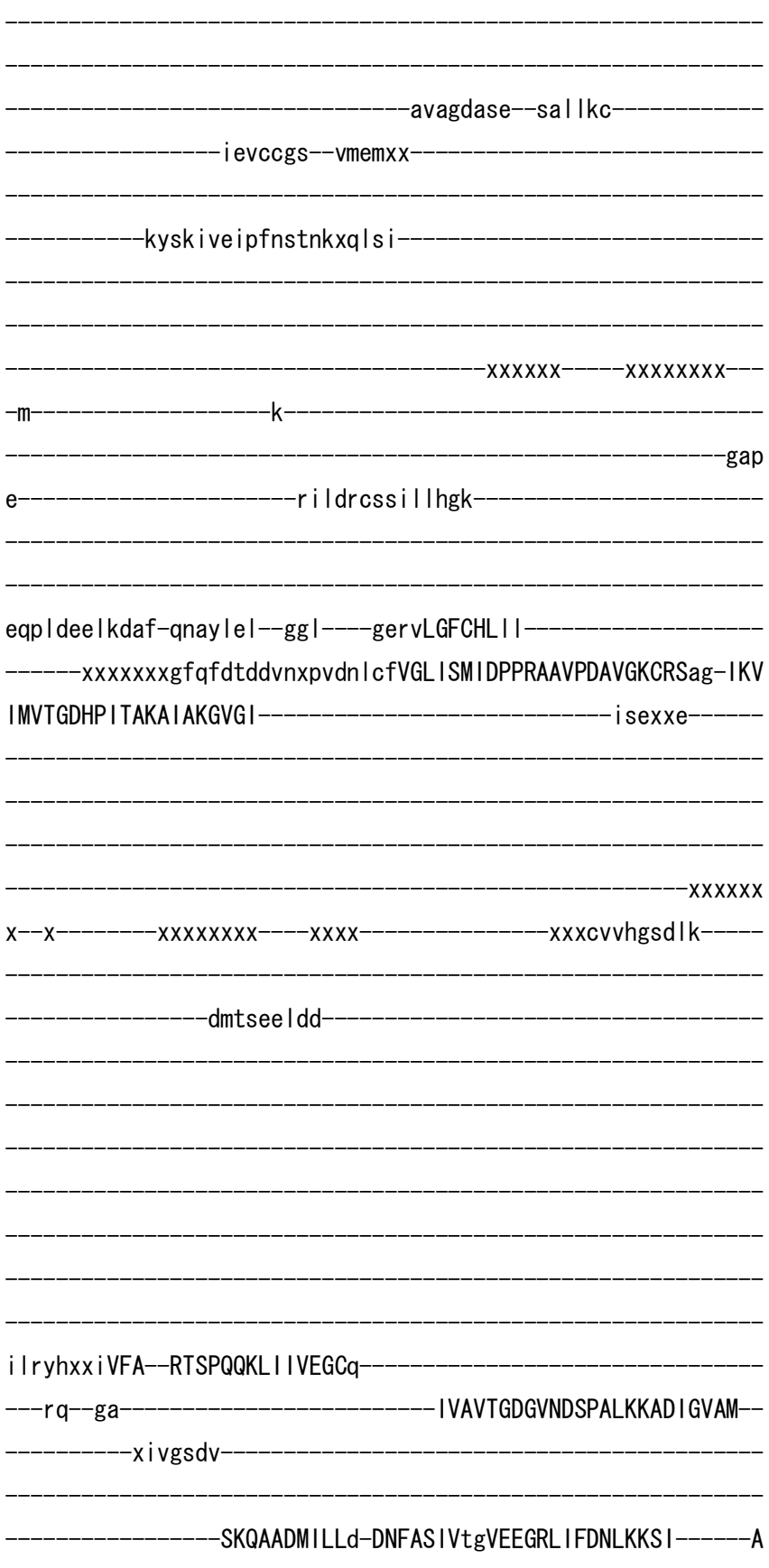

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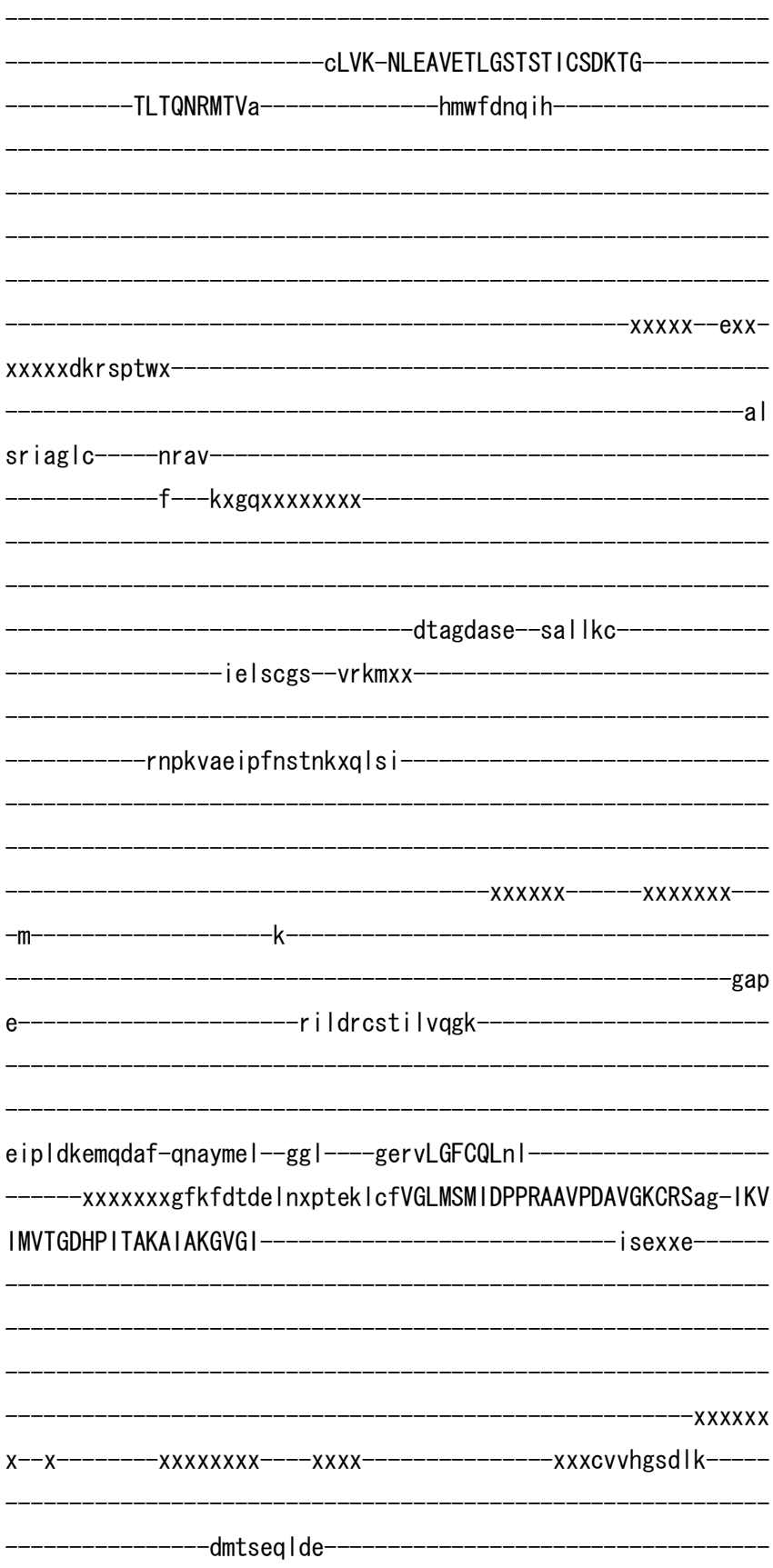

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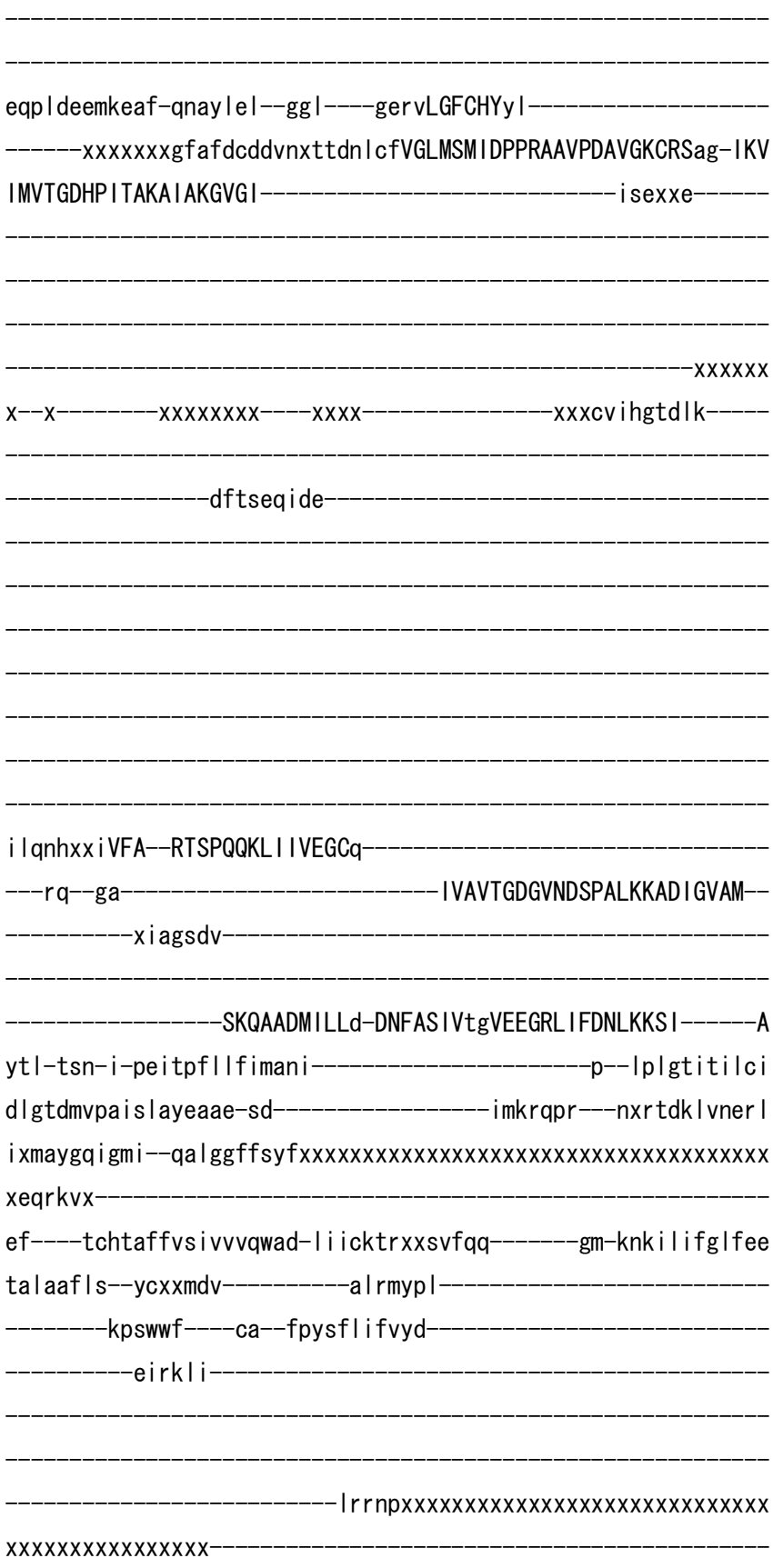

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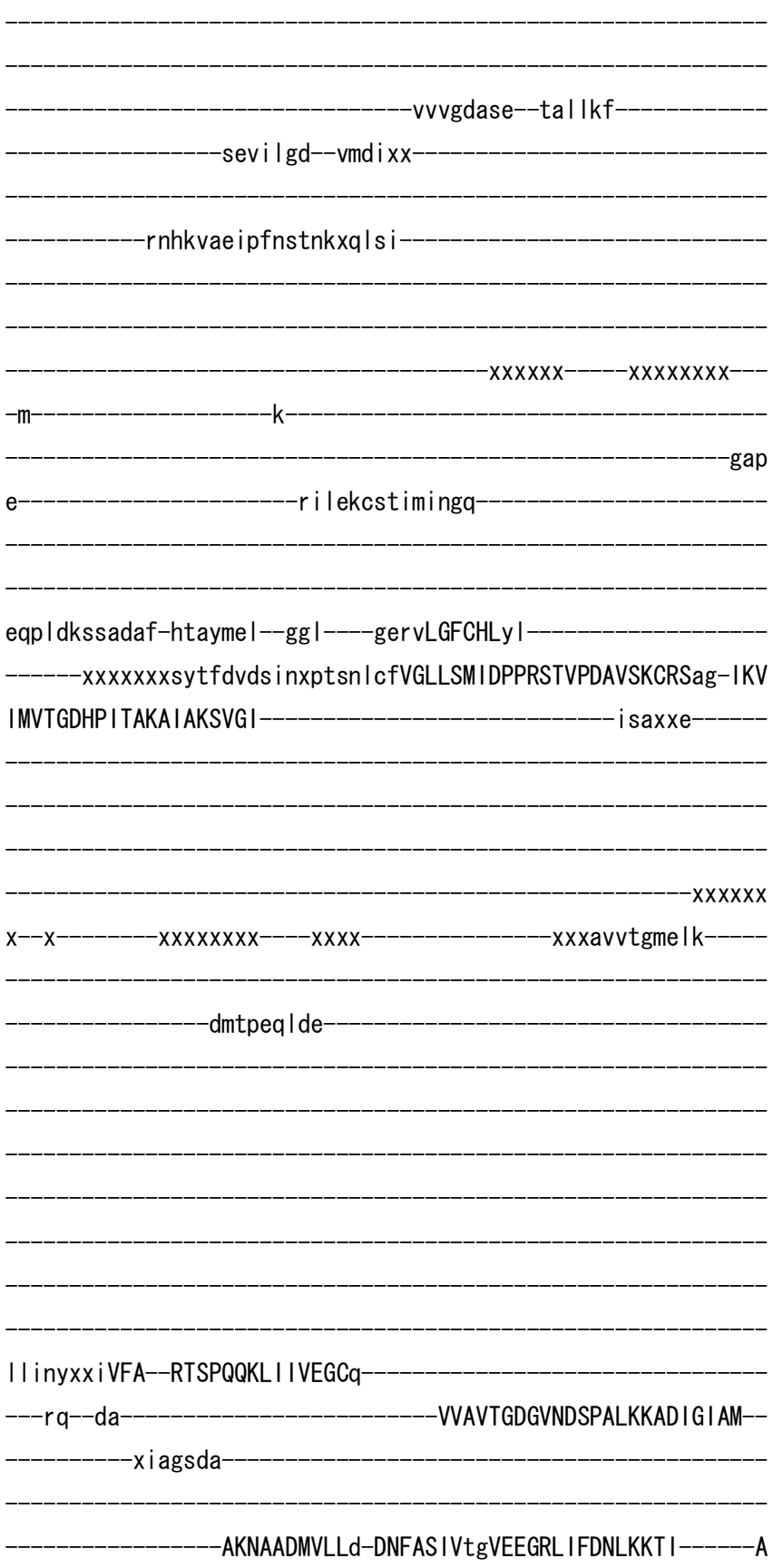

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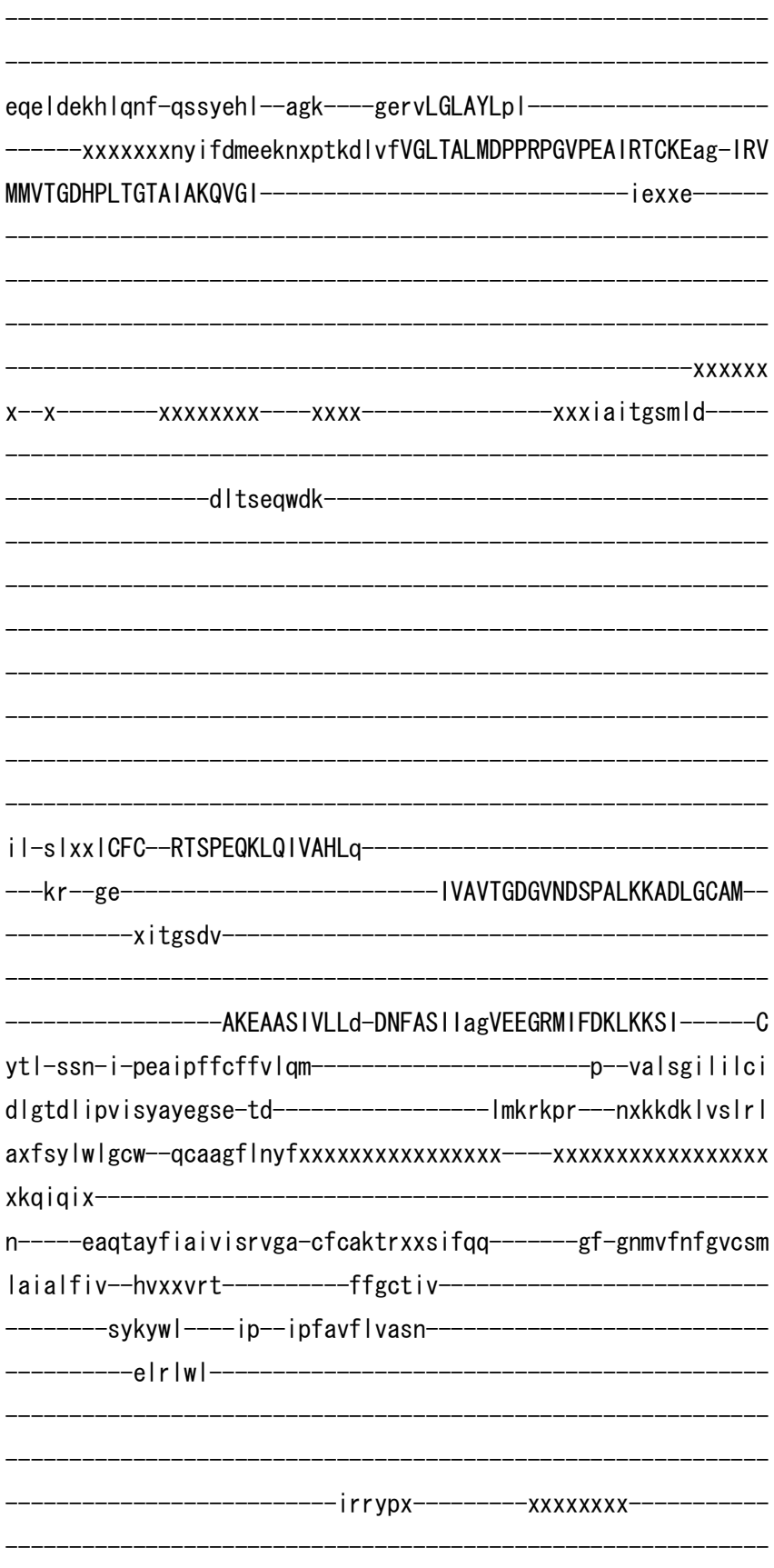

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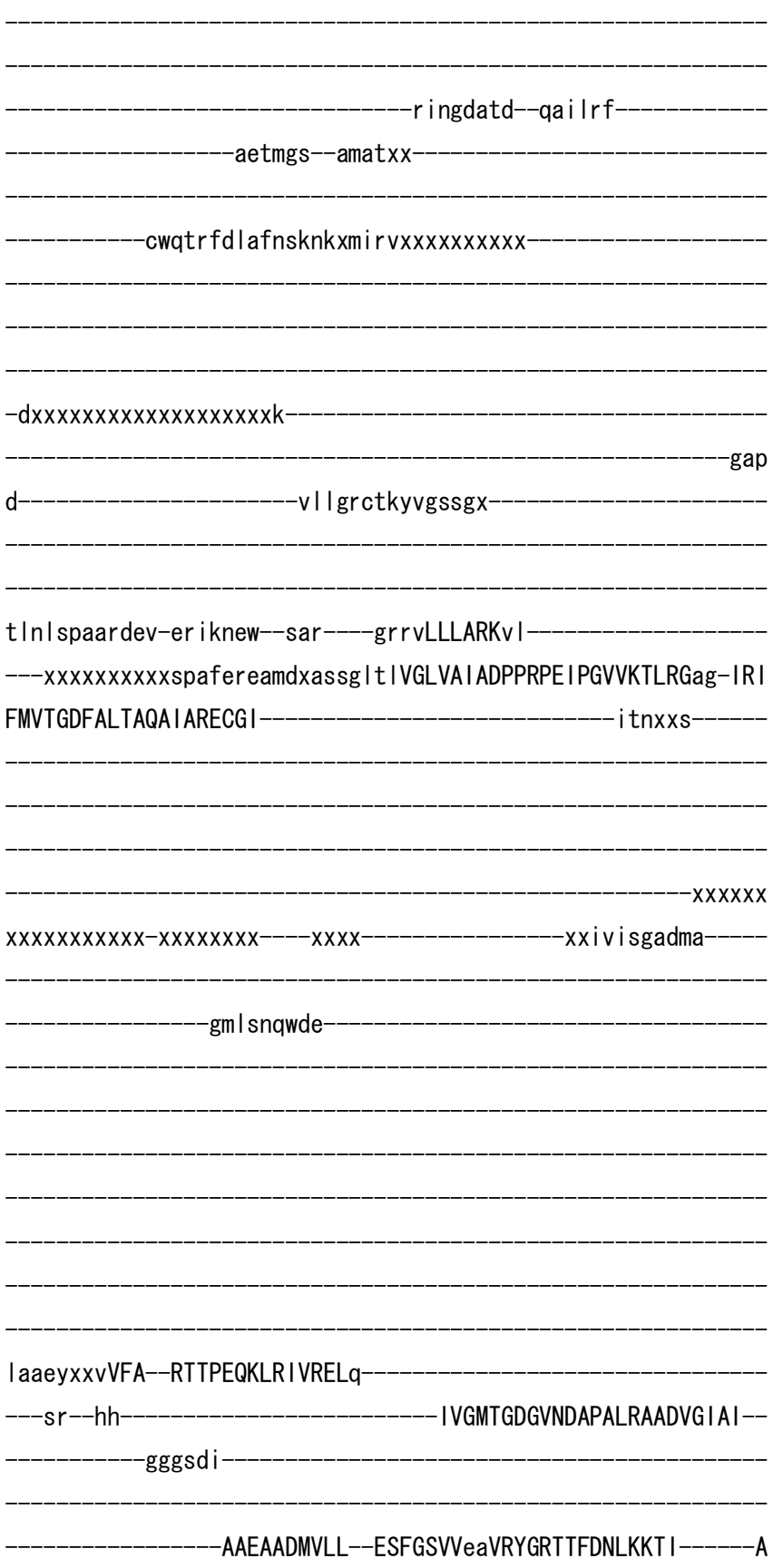

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vriaslc-----nrae----------
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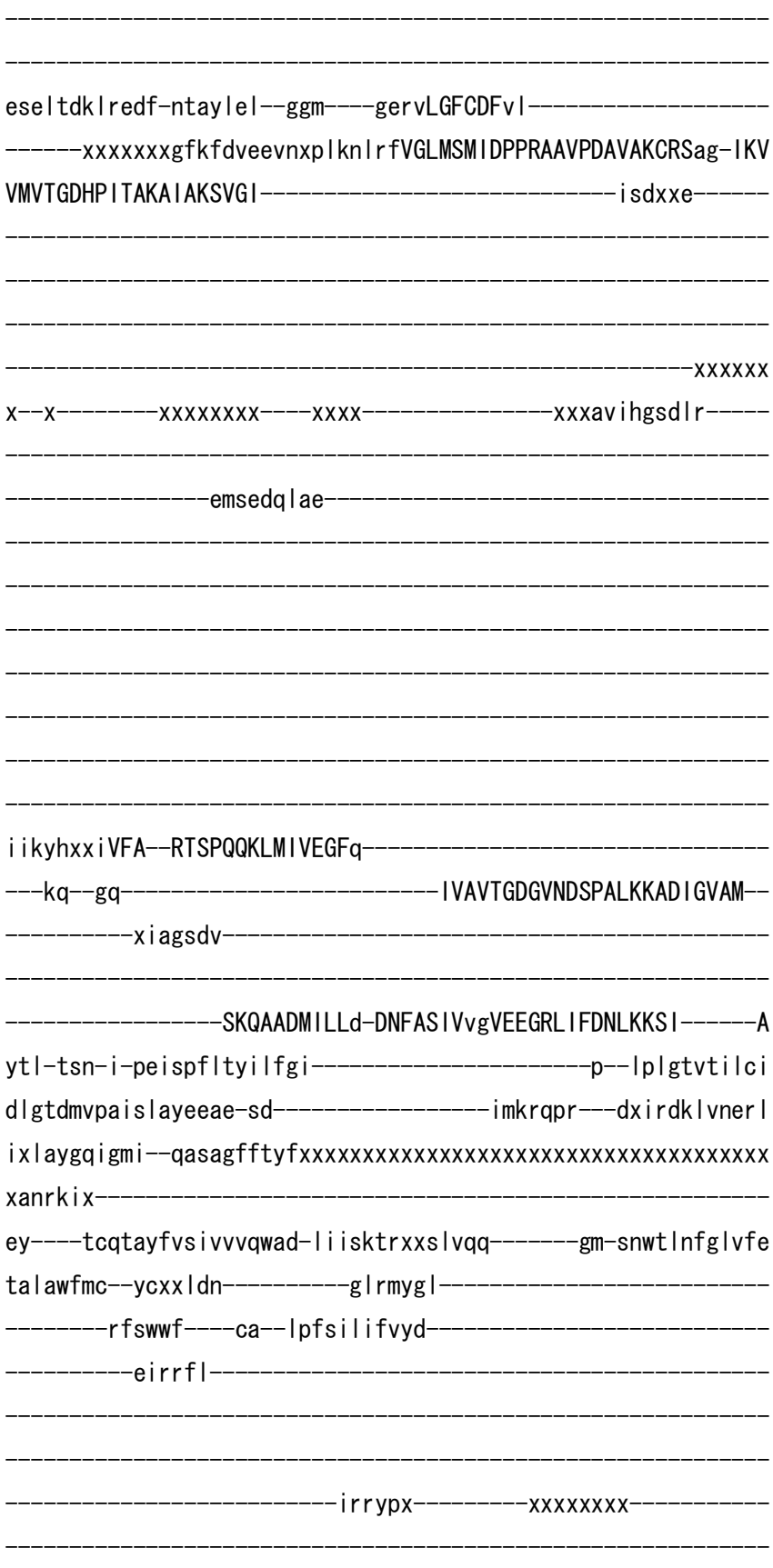

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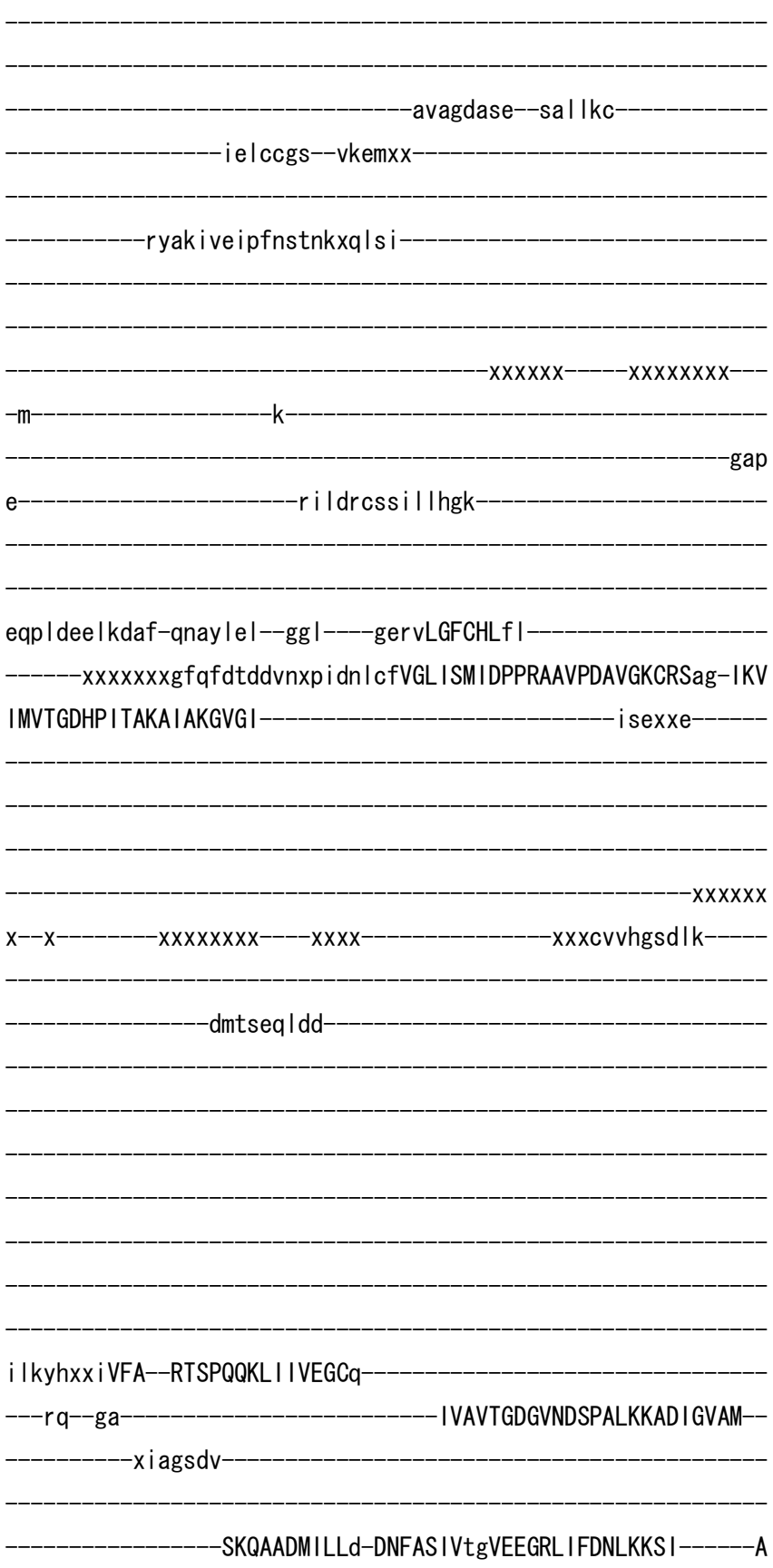

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x---------------xxxxxxxxxxxx-----------------xavitgpelp-----
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w

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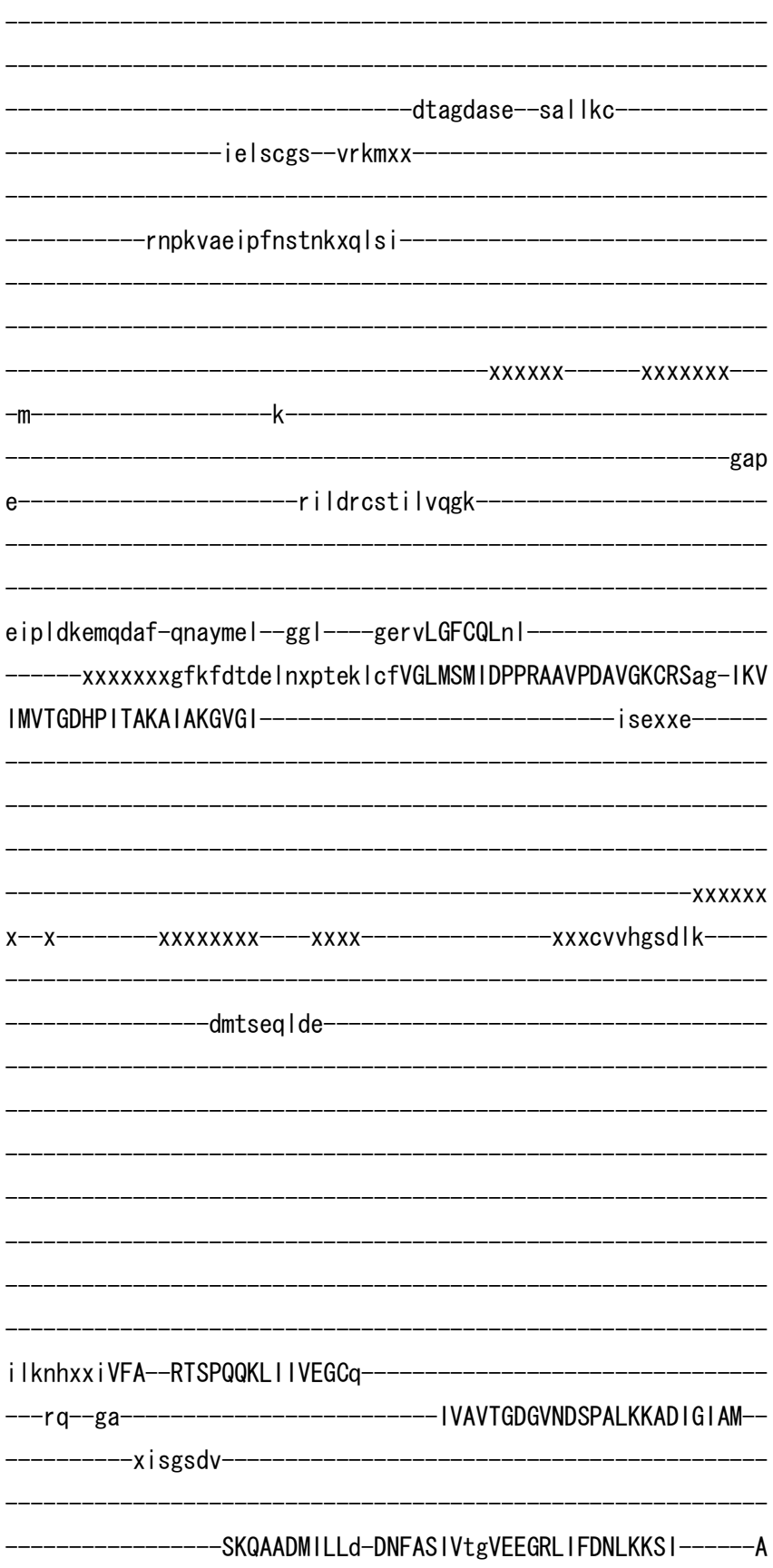

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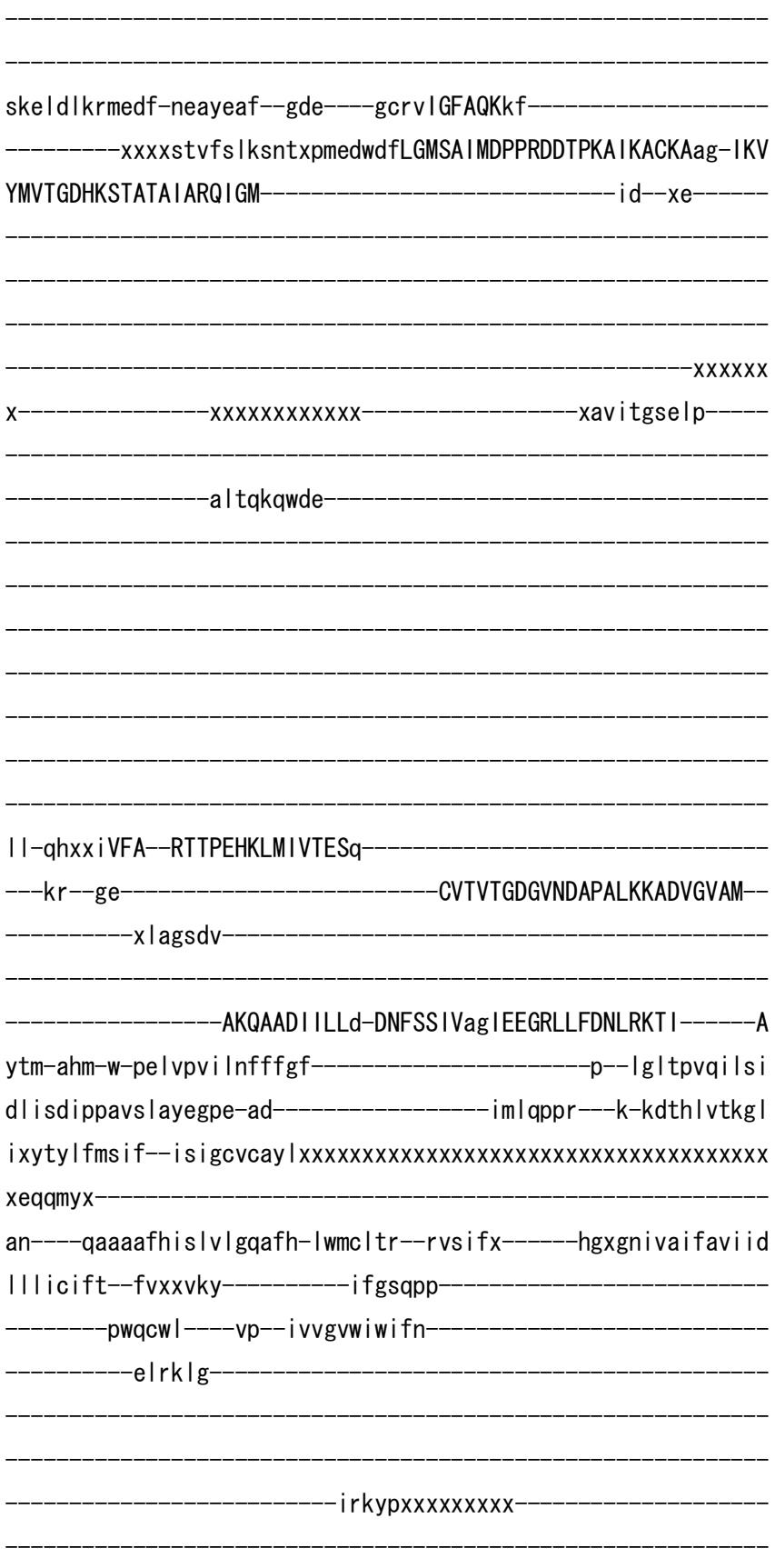

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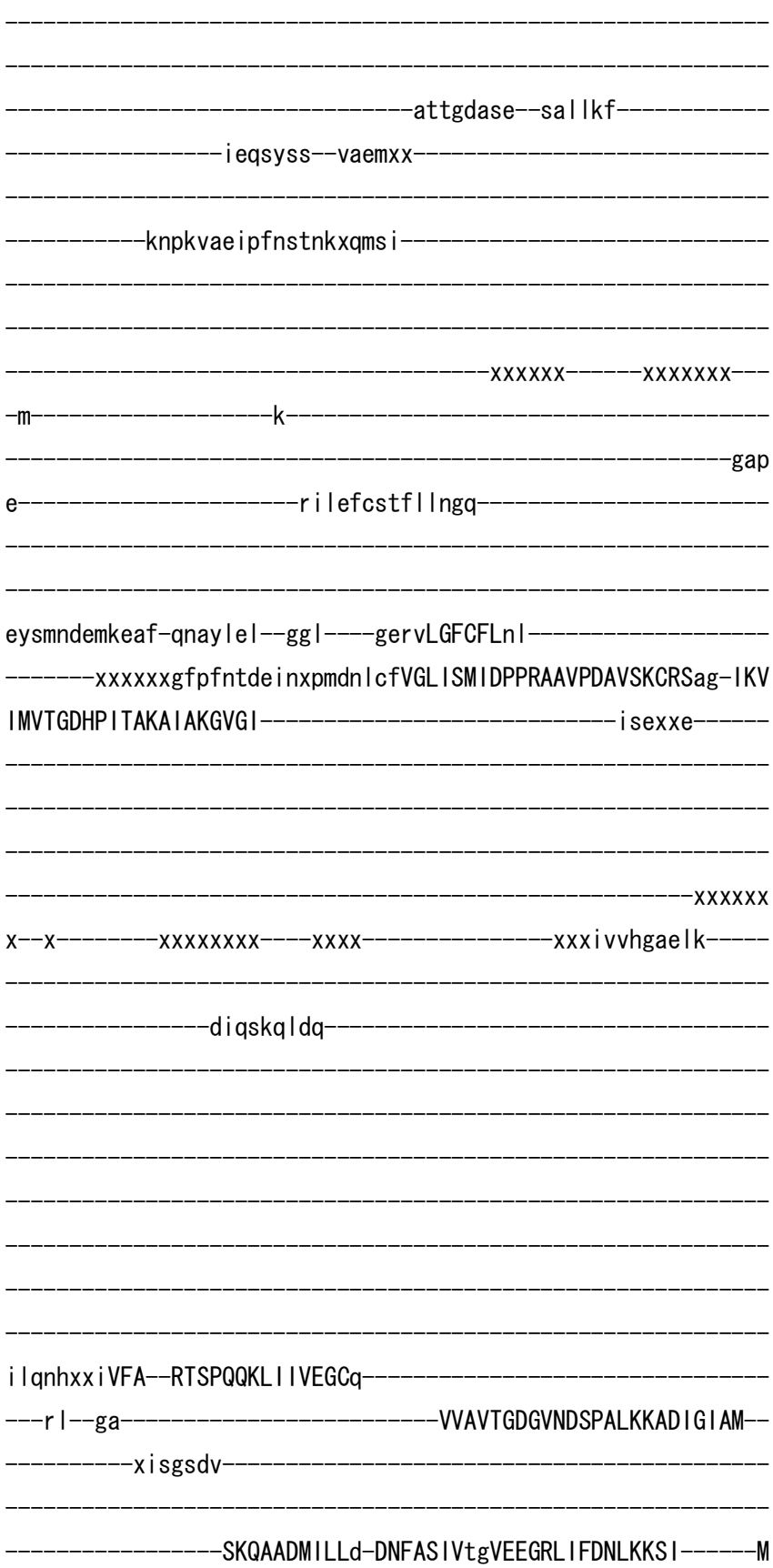

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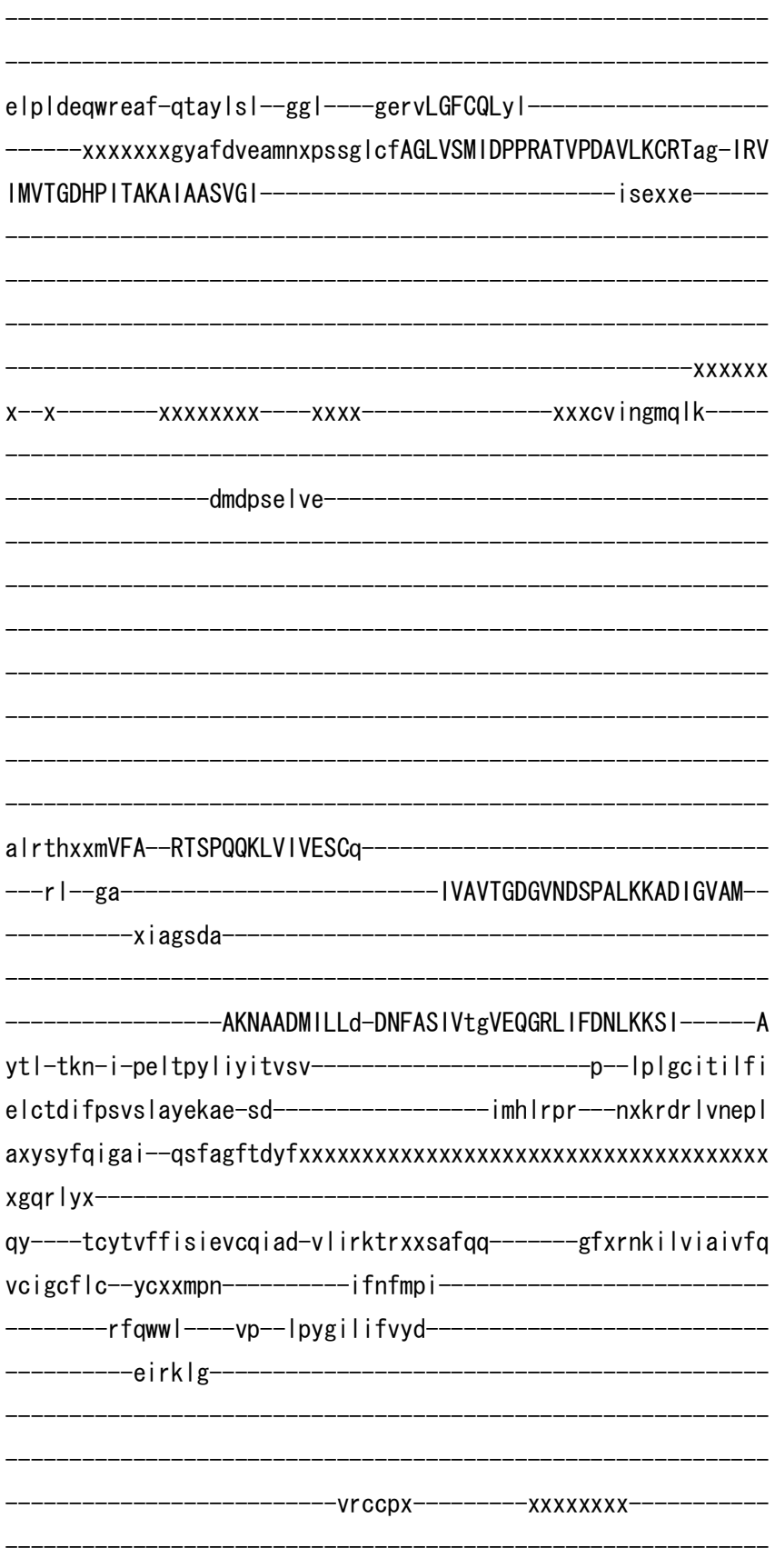

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vasles--vg----------

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-----GDIVPADGRILdg----------

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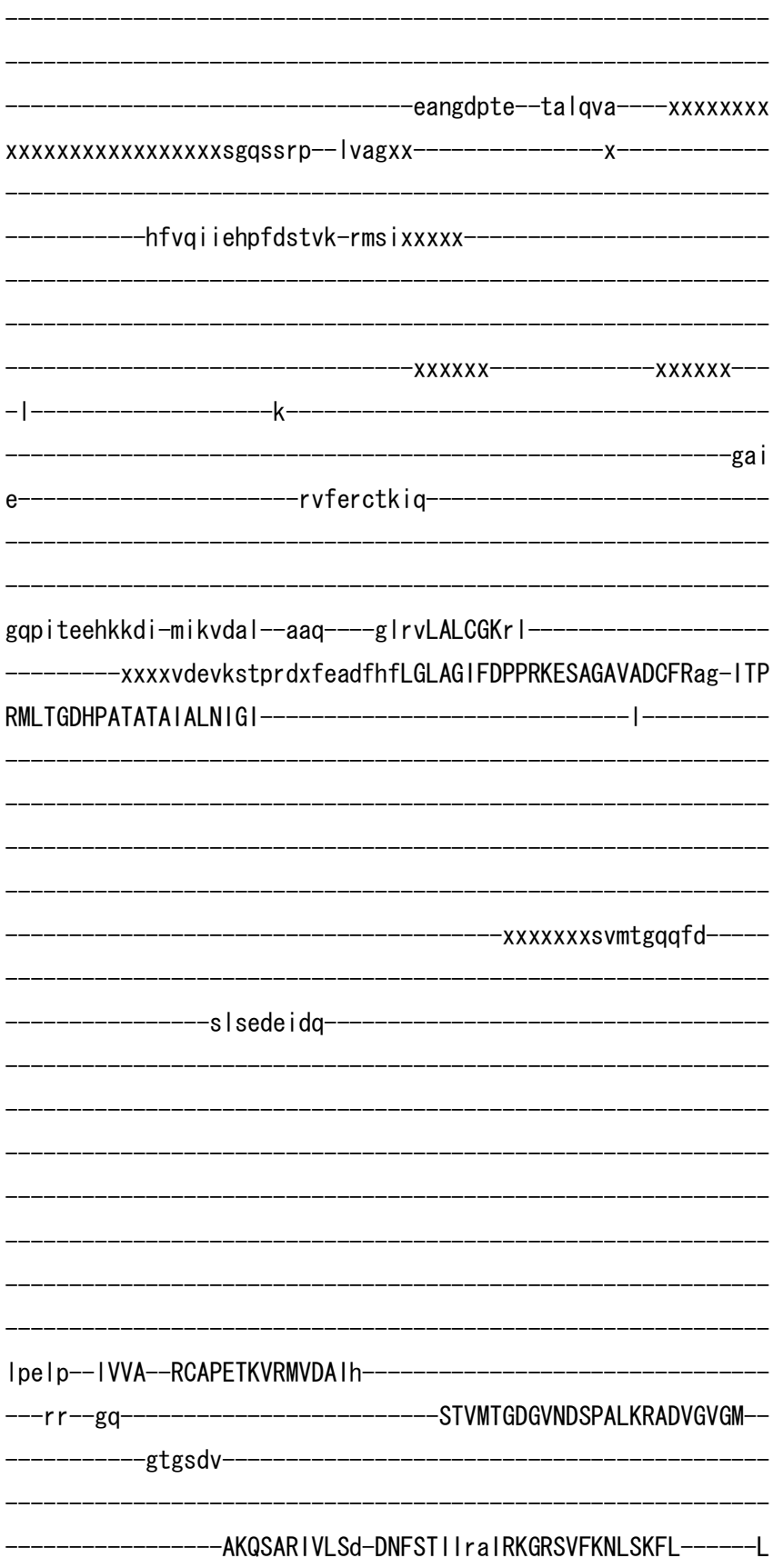

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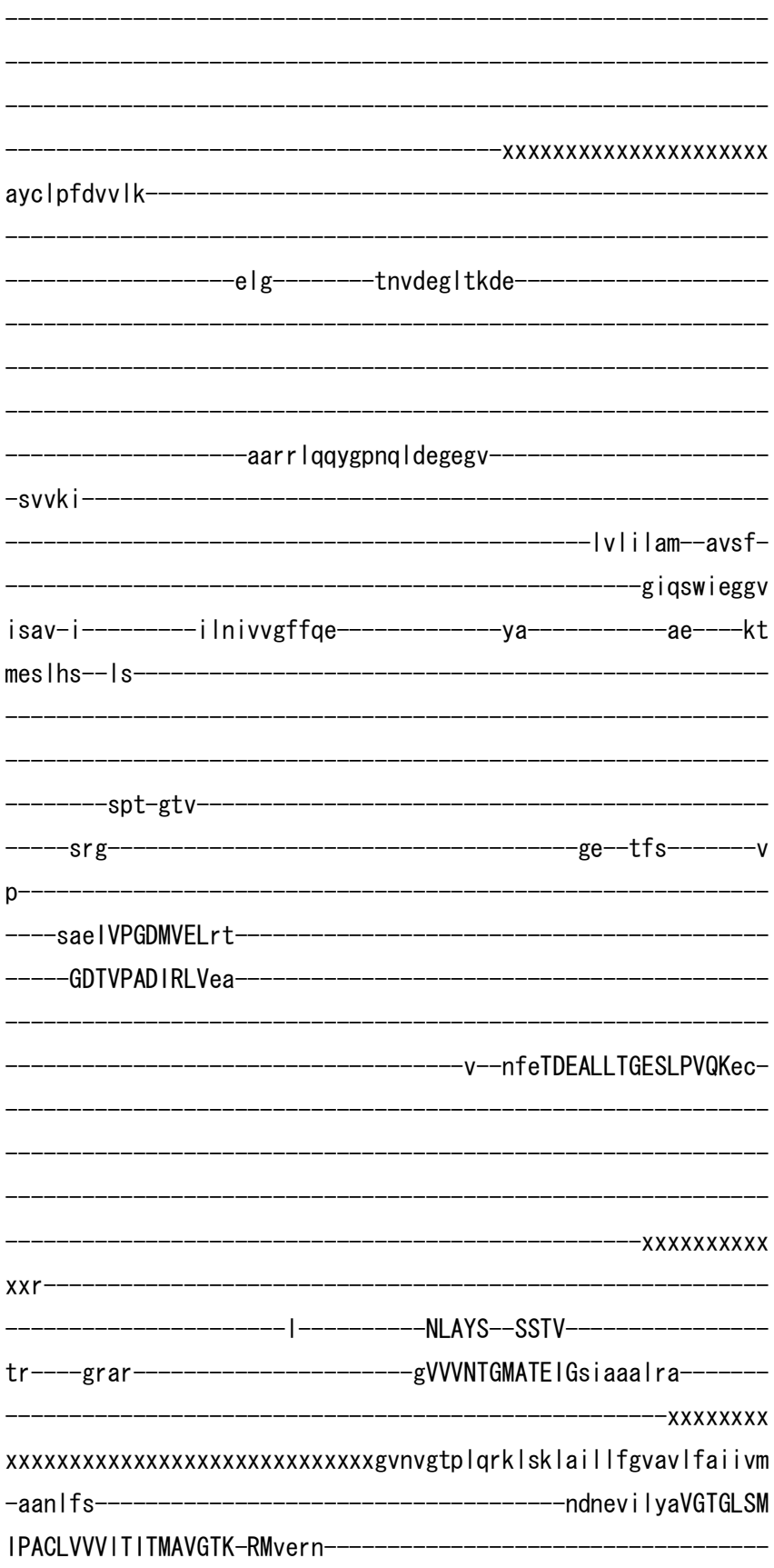

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hll-sen-i-aqactlliglafkdxxx----------kxxfplapveilwi
imitsgmpdmglgmevaa-pd----------imdrppq-----skqgiftwei
i-vdilvygfw--taalclsafsxxxxxxx----------xxxxx
xgcnrexxxxxxxxxxxx----------
atxxxxltwfalflawemvnlrl-sffrmqpxxkkyftxxxx---dvxrnkflfwsimag
wittfpil--yixxlnt----------vvfkh----------
--------tgiswe----wg--ivfveaalffax----------
---------xeawkwa----------

----------krvyyxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxx----------

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g
>aniI_IID02 EAA58171.1
m----------

----------xxxxxxxxxxxxxxx
ahtlspdeilr----------

----------elk--------vnseegltaae----------

----------akkrlelfgpneleggegv----------
-slakiiirq-i----------
----------anammlvliiam--avsf-
----------gieswieggv
igav-i--------glnivvgvyqd----------ya----------ae----kt
mdslrn--ls----------

--------spt-gva----------
-----trd----------gk--tnt-------i
p----------
----atelVPGDMIELkv----------
-----GDTVPADVRLVda----------

----------m--nfeTDEALLTGESLPVQKev-
----------xxxxxxxxxxxxx----------

----------NIAYS--SSTV----------
tr----grar----------gVVIGTGMKTEIGaiaaalha-------
----------xxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxginvgtplqrklsklalllfgiavvfaivvm
-ganemr----------ndkeviiyaVATGLAM
IPACLVVVITITMAVGTK-QMverh----------

----------vlVR-RLDSLEALGAVTNICSDKTG----------
----------TLTQGKMVAk----------rawipslgt----------

----------xxxxxxxxxxdxxx
xxxxxlpdppvkxxxxxxxxxxxxxx-xxxxxxxxx----------
----------dy
lnvasma-----nlav----------
----------vxxxexnex----------

----------qargeptd--iaiqvf----xxxxxxxx
xxx----------tkgexx----------

----------iwrqkaeypfdstvk-kmsvxxxxx----------

----------xxxxxxxxxxx---
-t----------k----------
----------gav
e----------rvidscttilwtrnxx----------

```
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pipmsediksqi-lqnmeal--ake----glrvLCLASRef-------------------
---------xxxxanseevpprexvekdlvfCGLVGLYDPPRPETAGAIEECYRag-ISV
HMVTGDHPGTARAIAAQVGI----------------------------ipaxxd------
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------------------------------------------------------------
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-----------------------------------xxxxxxxxxmvmtasqfd-------
------------------------------------------------------------
----------------kltdeeidd----------------------------------
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------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
lptlp--lVIA--RCAPTTKVRMIDALh-------------------------------
---rr--gr-------------------------YAAMTGDGVNDSPSLKRADVGIAM--
----------xeagsdv-------------------------------------------
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imitsgapdmglgmevaa-pd-----------------vmdrppq-----skqgiftwei
i-vdmlvygvw--maalcltafsxxxxxxx----------------------xxxxx
xgcnanxxxxxxxxxxxx-----------------------------------------
atxxxxmtwfalflaweminmrr-sffrmqpxxkkyftxxxx---dvxrnkflfcgvmlg
fvttfpvl--yixxind----------vvfmh---------------------------
--------tgiswe----wg--vvvveailffax-------------------------
---------xelwkwc------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
-------------------------kriyfxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxx---------------------------------------------
```

---

v

>anill_IlD03 EAA61850.1

m---

---xx

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx----

---xxxxxxxxxxx

ahilspsslsa---

----------llk-------vdlqhglsnee----------

----------assrlardgpnrvremegl----------

-svwkillrq-v---

----------snsltlilvivm--gvsf-
----------gindyieggv
vtav-i---------llnivvgfvqd----------yr----------ae----kd
ilslqr--ls----------

--------api-ckv----------
-----lrd----------gr--vap-------i
k----------
----aesLVVGDIVLLav----------
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----------m--nasMDEALLTGESLPVAKtp-

----------xxxxxxxxxxx
xxr----------
----------t----------NMAYS--GCST----------
tq----grat----------gVVTATGMNTEVGkiaqllqd-------

-----xxxxxxxxxxxxxxxxxxxxxxxxlglvgtplqvklskfalllfalaillaiivf
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VPESLIAVITITVAVGTK-AMakgn----------

----------vlVR-KLQCLEAVGGVTNICSDKTG----------
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xxxxxdasn----------
----------tf
italslc-----nlst----------
----------vxxxrxgsxxxxxxxxxxxxx----------

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xxxxxxx----------

----------glqlhteftfdssvk-kmtv----x----------

----------------------------------xxxxxx----------xxxxxx---
-s----------------k----------

----------gap
e----------alip----------

----

sldiideekevi-qdtaerl--age----glrvLCIAYKks----------
----------xxddesqissrnxaesnlrfAGLIGLYDPPRLETAAAVRKCQMag-ITV
HMLTGDHIRTAMAIASEVGI----------l---d------

----------------------------------xxxxxxxxxlvmtakefd-----

----------rlsdadidk----------

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ieqlp--lVIA--RCSPTTKVRMVEAMh----------
---rr--ga----------FCVMTGDGVNDSPALKRADVGIAM--
----------xkngsdv----------

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i-tdkmvygsf--mgclclvafaxxxxxxx----------------------xxxxxxx
xdcnegxxxxxxxxxxxxxxxx-------------------------------------
at----ltfllvtawevkhfsr-slfnldpxxypgklxxxx---sixrnqflfwaviag
fliafpvi--ylxxvnr----------vvfkh-----------------------------
--------qgiswh----wg--ivfgcvavyltx-------------------------
---------xeswkam---

-------------------------krrfgx---------xxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxx---

------------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxx-xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
g
>mgrll_llD01 XP_359699.1
m---

----------xxxxxxxx
pfllpteevaa----------

----------tln-------tdvdkgltsaq----------

----------vqklqeeyppneldaggai----------
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----------namvlvlifam--alsf-
----------gisdyiegav
laav-i---------vlnvsigfvqe----------yr----------ae----kk
mdalra--ls----------

--------sps-ati----------
-----lrd----------gk--tqv------i
p----------
----naeVVPGDICILkt----------
-----GDTVPADLRLFev----------

----------m--nlsCDEQSLTGESMPVDKiv-

----------xxxxxxxxxxxxxx----------

----------xxxxxx
xxr----------
----------v---------NIAYA--TTVV----------
rk----grgr----------glVVETGMQTEVGkiaastrk-------
----------xxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxgltegtplqrklaslayvlfgcalilavivf
-gvnrfq----------isheiviyalSTGIAl
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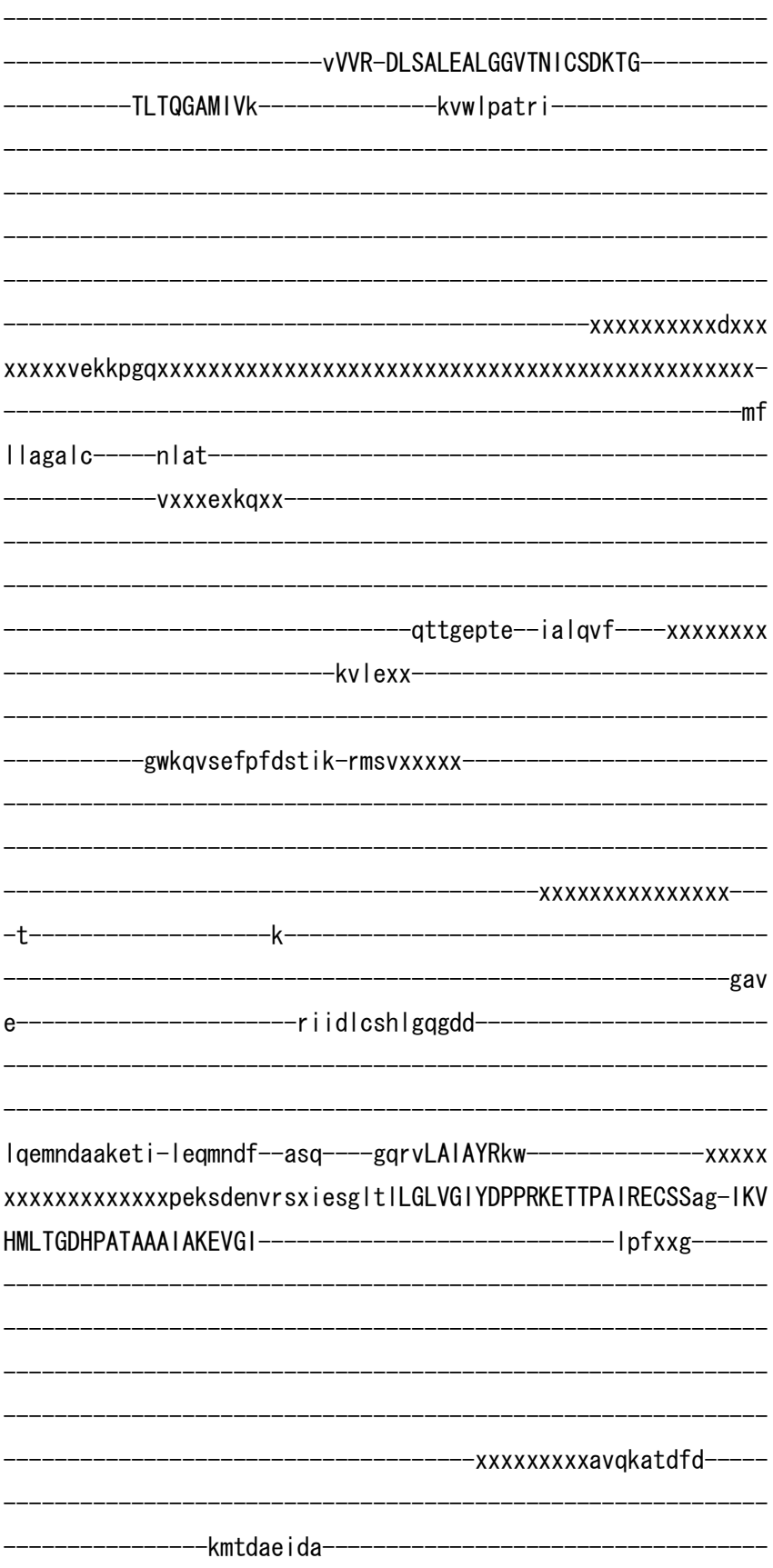

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l-vdmlvygfi--mgvctlmtfvxxxxxxx----------xxxxx

xdcnttxxxxxxxxxxxxxxx----------

ae----ltwlilisawefkslrr-smfrlnpxxtskfpxxx----dixenrflfwsvvia

ffsvflav--yixxlnt----------nvfkh----------

--------rgitwe----wg--lvfgglvvfvvx----------

---------xeawkfi----------

----------krkfnxxxxxxxxxxxxxxxxxxxxxxxxxxxx

xxxxxxxxxxxxxxx----------

----------xxxxx----------

---

d

>mgrll_llD02 XP_360418.1

m----------

----------xxxxxxxxxxxxxxxxxxxxxxxxxx
ahaleteqvve----------

----------elq--------anpedgltpae----------

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-kpwniliaq-i----------
----------anamtlvlilam--aasf-
----------giesiiegcv
vaav-i--------llnitvgfqqe----------lk----------aa----kt
mdslrs--ls----------

--------spt-aqa----------
-----vrd----------gr--nit-------v
p----------
----tvelVPGDMVELkt----------
-----GDTIPADVRIlea----------

----------v--nfeTNEALLTGESLPVRKea-

----------xxxxxxxxxx
xxr----------
----------l---------NVAYS--SSTV----------
tk----grar----------gIVFATGMYTEIGqiaaalrg-------
----------xxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxgvnvgtplqrklaklavvlfgtaiicaiivl
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LPASLVVVITITMAAGTK-RMvqrh----------

----------vlVR-KLKSLEALGGVTNICSDKTG----------
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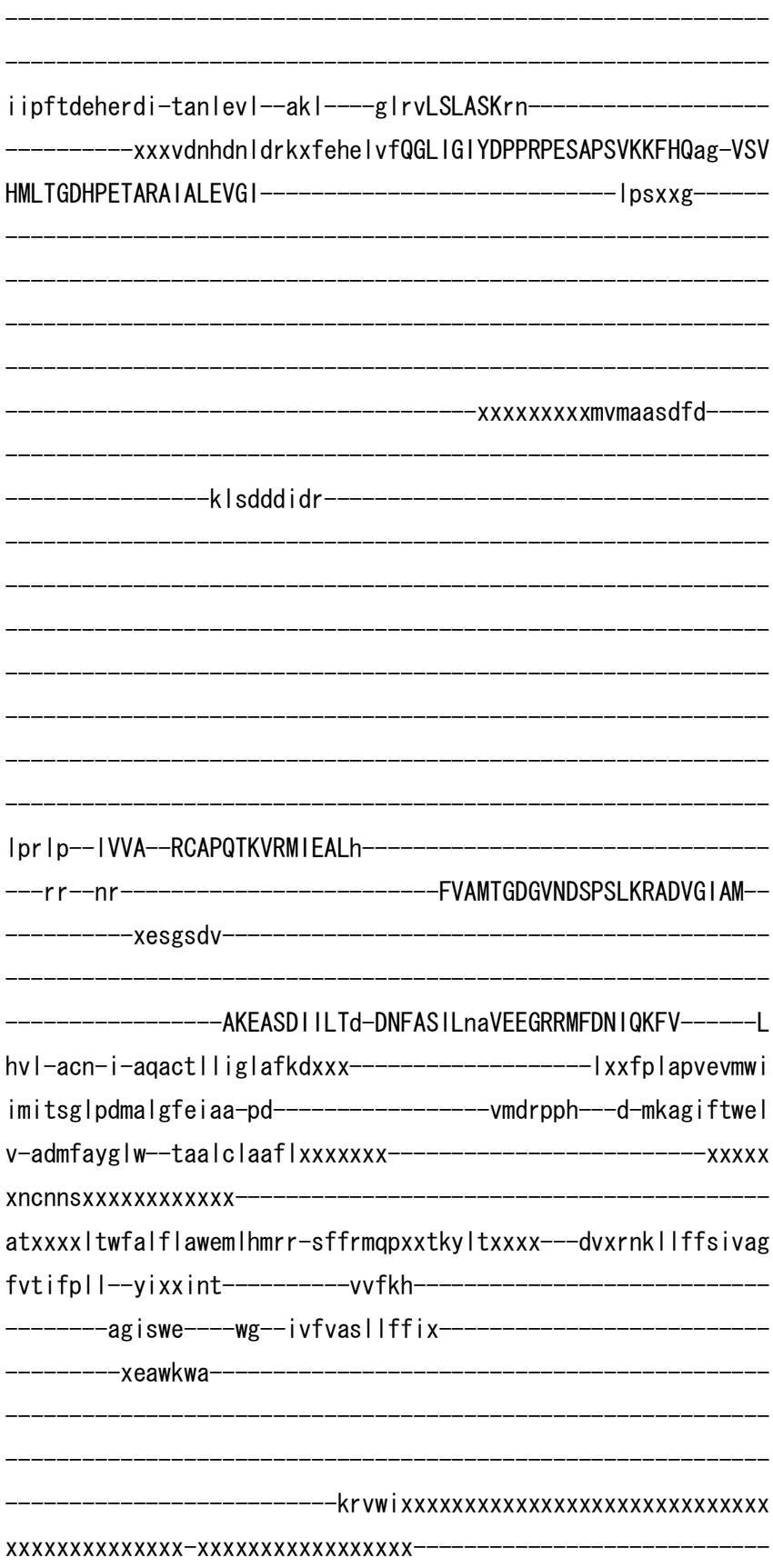
----------xxxxxxxxxxnxxx
xxxxxraeqprdxxxxxxxxxxxxxxxxxxxxxxxxxx----------
----------dy
lnlasla-----nlat----------
----------vxxxkxgex----------

----------hargdpte--iaiqvf----xxxxxxxx
xx----------lsgexx----------

----------rwnqvaefpfdsdvk-kmsvxxxxx----------

----------xxxxxxxx---
-t----------k----------
----------gat
e----------rvipscrkiqmgde----------



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>osalll_lllA01 NP_001048395.1

m---

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v--l-l---------vinstisfiee----------nn----------ag----na
aaalma--gl----------

--------apk-tkv----------
-----lrd----------gk--wqe-------q
d----------
----asiLVPGDIISIkl----------
-----GDIIPADARLLeg----------

----------d--plkVDQAALTGESMPVNKhx-

----------x----------

----------QGVFS--GSTV----------
kq----geie----------aVVIATGVHTFFGkaahlvds-------

----------tnnighfqlvltaignfciisigvgmiiei
-ivmypiqhr----------ayrdgidnlLVLLIGG
IPIAMPTVISVTMAIGSH-RLsqqg----------

----------alTK-RMTAIEEMAGMDVLCSDKTG----------
----------TLTLNKLTVdktli----------evygrgldk----------

----------ds
vllyaar-----asr----------

----------venqdaid--tcivgm----------
----------lad--pkeara----------

----------gikevhflpfnpvek-rtai----------

-t-----yidg-n-gewhrisk----------
----------gap
e----------qiielc----------

--kmskdaekkv-htlidqy--adr----glrsLGVSYQkv----------
----------pekskesegepwqfVGLLPLFDPPRHDSAETIRRALHlg-VNV
KMITGDQLAIGKETARRLGM----------

----------gtnmypsttllgd-kss----

----------emsglpide----------

----
lieka--dGFA--GVFPEHKYEIVKRLq----------
---dr--kh----------ICGMTGDGVNDAPALKKADIGIAV--
----------xxxxxx----------

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yav-sitir-ivlgfmlvallwkf------------------------dfapfmvlii
ailndgti-----------------------------mtiskdrvkpsptpdswklkei
f-atgivlgtymalitalffylahdtdfft----------------------xxxxvrs
ixxx------------x---
ke----mmaalylqvsiisqali-fvtrsrswsfverp-------gallviaflaaqlva
tciavyaewefckmqgigwgw-------------------------------------
--------ggaiwa----fs--vvtyfpldvlk--------------------------
---------fiiryal---

----------------------------sgrawnn-innktafvnkndygkgereaqwat
aqrtlhglnqsstxxx---

-------------lfndktgyrelseiaeqaakraevarlxxxxxxxxxxxxxxxxxxxx
xxxxx-xxxx---

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v
>osalll_lllA02 NP_001048647.1
m---

----------xxxxana----

----------xxxxxxxx----------xdl----------
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----------hlk-------ct-regltsev----------

----------aqqrihsfgynkle-ekqe----------
-skllkflgf-m----------
----------wnplswvmeaaa--imaia
lahg-----gxxxxg----------krm---xxdyhdfvgiv
l--l-l--------finstisfmee----------nn----------ag----na
aaalma--rl----------

--------apk-akv----------
-----lrd----------gt--wde------l
d----------
----aslLVPGDIISVkl----------
-----GDIIPADARLLeg----------

----------d--plkIDQSALTGESLPVTKhx-

----------x----------

----------DGIYS--GSTC----------
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----------tthvghfqkvltsignfcicsiaagmviel
-lvmyavher----------kyrqivdnlLVLLIGG
IPIAMPTVISVTMAIGSH-KLaqqg----------

----------alTK-RMTAIEEMAGMDVLCSDKTG----------
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----------dd
vvlmaar-----asr----------

----------lenqdaid--faivsm----------
----------lpd--pkeara----------

----------giqevhflpfnptdk-rtal----------

-t-----ylda-e-gkmhrvsk----------
----------gap
e----------qilnla----------

--snkceierkv-hhvignf--aer----glrsLAVAYQev----------
----------pegtkespggpwqfVGLLPLFDPPRHDSAETIRRALDlg-VSV
KMITGDQLAIGKETGRRLGM----------

----------gtnmypsssllgdrkdg----

----------diavlpvde----------

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----------xxxxxx----------

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ailndgti----------mtiskdkvkpspypdswkltei
f-atgviigaylavttvlffwaayktqffv----------xxxxvdt
lxxxxxxxxxxxxxxxx----------
ek----lasavylqvstisqali-fvtrsrgwsflerp------gllmaafviaqlia
tvlaaiatwevasirgigwrw----------
--------agaiwv----yn--ivvylldpmk----------
---------favrygl----------

----------sgkawnlvidnkvaftnrkdfgrearvvawah
eqrtlhglqsaas----------

----------rekaastelnqmaeearrraeitrlxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxx----------

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v
>osalll_lllA03 NP_001049185.1
m----------

----------d--plkIDQSALTGESLPVTKrx-

----------x----------

----------DIVFT--GSTC----------
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----------tevvghfqkvltsignfcicsiaigaivev
-iimfpiqhr----------syrdginnvLVLLIGG
IPIAMPTVISVTLAIGSH-HLsqqg----------

----------alTK-RMTAIEEMAGMDVLCCDKTG----------
----------TLTLNHLTVdknli----------evfsremdr----------

----------em
iillaar-----asr----------

----------venqdaid--maiinm----------
----------lad--pkears----------

----------sitevhflpfnpvdk-rtai----------

-t-----yvds-d-gnwfrvsk----------
----------gap
exxxxxxxxxxxxxxxxxxxxxxqilslc----------

--ynkddisekv-qliidrf--aer----glrsLAVAYQev----------

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----------ggaavpvee----------

----

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----------xxxxxx----------

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ailndgti----------mtiskdrvkpspspdswklnei

f-aagvvigtylalvtvlfywtvtrttffe----------vrs

lxxx----------x----------

de---issamylqvsiisqali-fvtrsqglsflerp------gallicafilaqlva

tliavyatisfasisaigwgw----------

--------agviwl----ys--lvfyapldlik----------

---------iavrytl----------

----------sgeawnllfdrkaafasrrdyggnerrpetrw

prshhhhhqqrraxxx----------

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-
>osalll_lllA04 NP_001050947.1
m-----------------------------------------------------------
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------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------x-----xxkgg-------
------------------------------------------------------------
------------------------------------------------------------
------------xxxxxxxx-----------------------xdl-------------
-enipieevfq-------------------------------------------------
------------------------------------------------------------
------------------nlk--------cc-rqgltsee---------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
-------------------aqlrlqlfgpnkle-ekee----------------------
-skflkflgf-m------------------------------------------------
```

----------wnplswvmeaaa--imaia
lang------g----g----------kpp-----dwqdfvgii
t--l-l---------linstisfiee----------nn----------ag----na
aaalma--rl----------

--------apk-akv----------
-----lrn----------gs--wte-------e
e----------
----aaiLVPGDIISIkl----------
-----GDIIPADARLLeg----------

----------d--plkIDQSALTGESLPATKgx-

----------x----------

----------DGVYS--GSTV----------
kq----geie----------aVVIATGVHTFFGkaahlvds-------

----------tnqvghfqkvltaignfcicsiavgmfvei
-ivmypiqhr----------pyrpgidnlLVLLIGG
IPIAMPTVISVTMAIGSH-RLsqqg----------

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----------dq
vilmaar-----asr----------

-------------------------------tenqdaid--taivgm----------
--------------------lad--pkeara----------

----------giqevhflpfnptdk-rtal----------

-t-----yids-d-gkmyrvsk----------
----------gap
e----------qilnla----------

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KMITGDQLAIGKETGRRLGM----------

----------gtnmypssallgqnkde----

----------svaalpvdd----------

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----------xxxxxx----------

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lxxx------------x---
qdxxxxlasavylqvstisqali-fvtrsrswsfierp-------gfllvfaffvaqlia
tliavyanwaftsikgigwgw--------------------------------------
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xxxxx-xxxx---

----
v
>osalll_lllA05 NP_001054118.1
m--

----------gg----

----------xxxxxxxx----------xdl----------
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-skilkflgf-m----------
----------wnplswvmemaa--imaia
lang------g----g----------kpp-----dwedfvgii
v--l-l---------vinstisfiee----------nn----------ag----na
aaalma--nl----------

--------apk-tkv----------
-----lrd----------gr--wge------q
e----------
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-----GDIVPADARLLeg----------

----------d--plkIDQSALTGESLPVTKn--

--x----------
----------x---------DEVFS--GSTC----------
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-ivmfpiqhr----------ayrsgienlLVLLIGG
IPIAMPTVISVTMAIGSH-KLsqqg----------

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------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------dh
vlllaar-----asr-------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
--------------------------------tenqdaid--aamvgm------------
----------------------lad--pkeara-----------------------------
------------------------------------------------------------
-----------girevhflpfnpvdk-rtal-----------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
-t-----yida-d-gnwhrask-------------------------------------
------------------------------------------------------------gap
e---------------------qiltlc-------------------------------
------------------------------------------------------------
------------------------------------------------------------
--nckedvkrkv-havidky--aer----glrsLAVARQev-------------------
-----------------pekskesaggpwqfVGLLPLFDPPRHDSAETIRKALHlg-VNV
KMITGDQLAIGKETGRRLGM-----------------------------------------
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------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
-------------------------------------gtnmypssallgqnkda----
------------------------------------------------------------
----------------slealpvde-------------------------------------
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----------xxxxxx----------

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ailndgti----------mtiskdrvkpsplpdswklkei
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ixxx----------x----------
he----mmsalylqvsivsqali-fvtrsrswsfierp------gllvtafmlaqlva
tflavyanwgfarikgigwgw----------
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--------ffirfvl----------

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aqrtlhglqppevxxx----------

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xxxxx-xxxx----------

----
v
>osalll_lllA06 NP_001055186.1
|----------

----------xxxxxxxxhvg----

----------xxxxxxxxxxxxxxxxxxxxxxxxxxx-xxxxxxslxxxxxx---xxx
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----------wnplswvmeaaa--imaia
lang------g----g----------rpp-----dwqdfvgiv
t--l-l--------finstisfiee----------nn----------ag----na
aaalma--sl----------

--------apq-tkl----------
-----lrd----------gk--wse------q
d----------
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----------lad--pseara----------

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----------gap
e----------qiielc----------

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----------dtgglpvde----------

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---er--kh----------lCGMTGDGVNDAPALKKADIGIAV--

----------xxxxxx----------

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ixxx----------x----------

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---------fairyfl----------

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aqrslhglqqaetxxx----------

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xxxxx-xxxx----------

---

v

>osalll_lllA07 NP_001056980.1

m----------

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----------xxxxxxxx----------xdl----------

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----------gesrlrlygpnkle-ekke----------

-skllkflgf-m----------

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lang------g----g----------rpp-----dwqdfvgiv
s--l-l---------iinstisyiee----------an----------ag----da
aaalma--gl----------

--------apk-tkl----------
-----lrd----------gr--wee-------q
e----------
----aaiLVPGDIISIkl----------
-----GDIIPADARLLeg----------

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----------x----------

----------QEVFS--GSTV----------
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----------tnnvghfqqvltaignfciisigagmavev
-lvmypiqhr----------ayrdgidnlLVLLIGG
IPIAMPTVISVTMAIGSH-RLsqqg----------

----------alTK-RMTAIEEMAGMDVLCSDKTG----------
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----------dm
vllyaar-----asr----------
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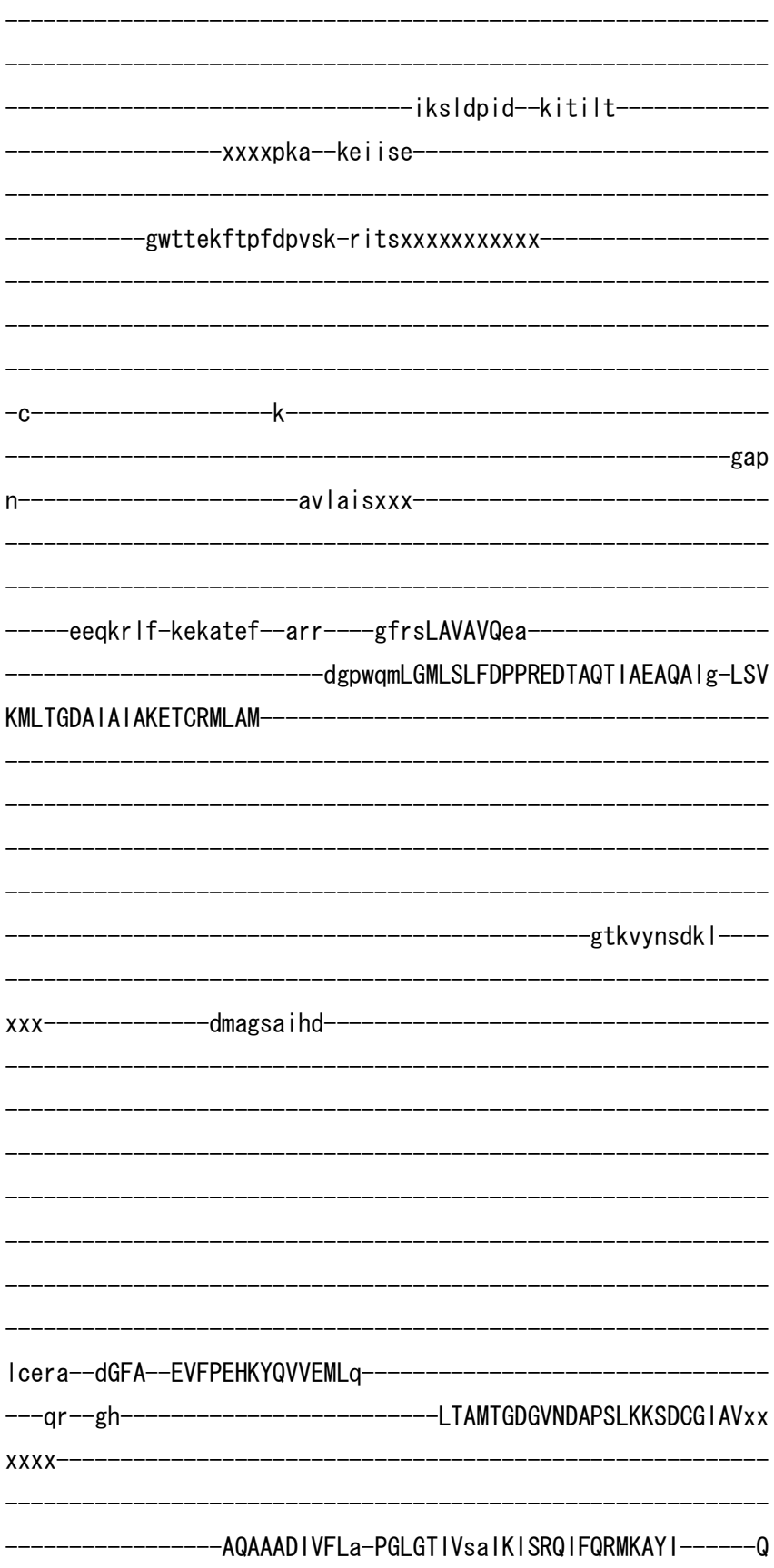

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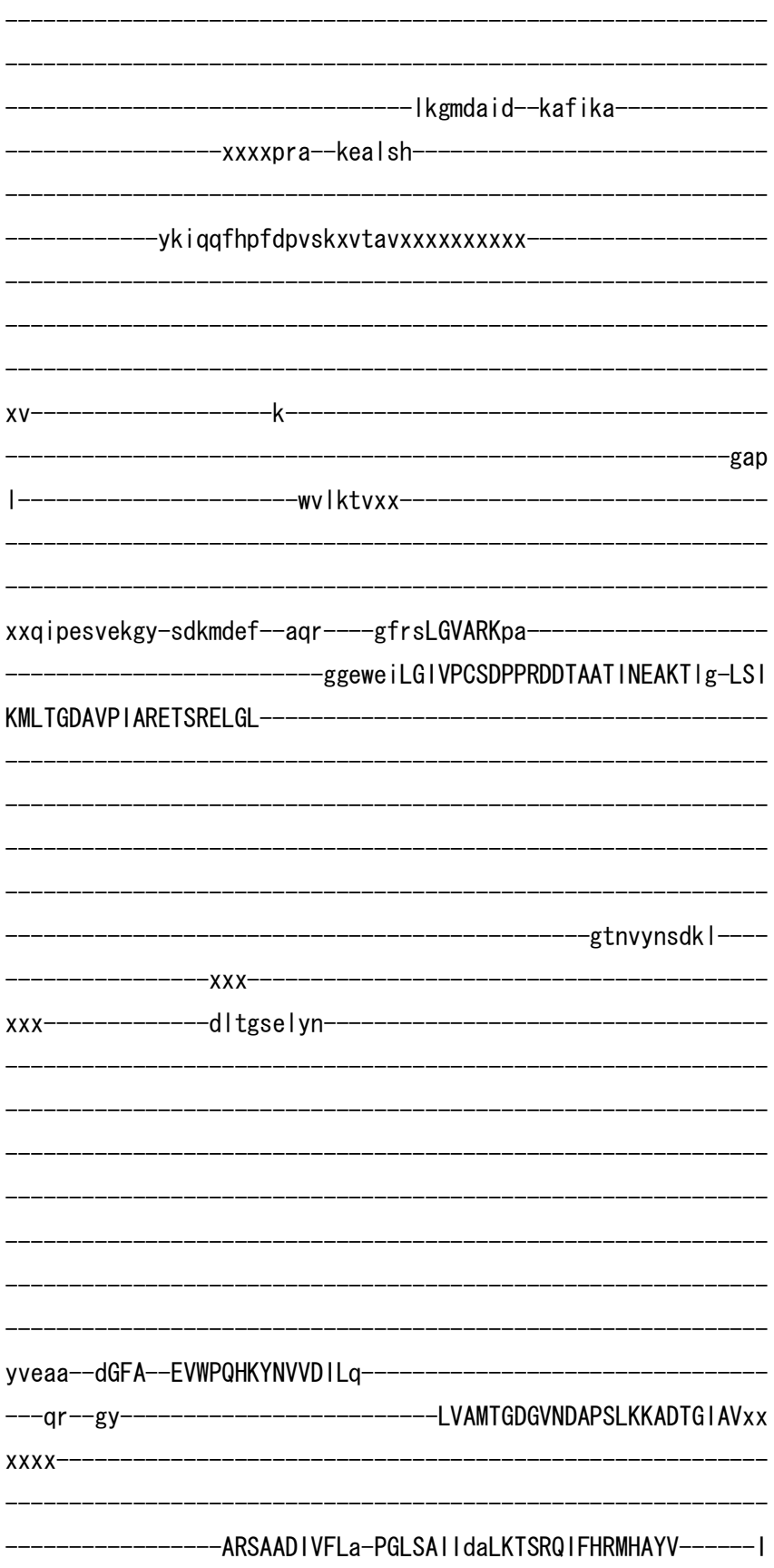

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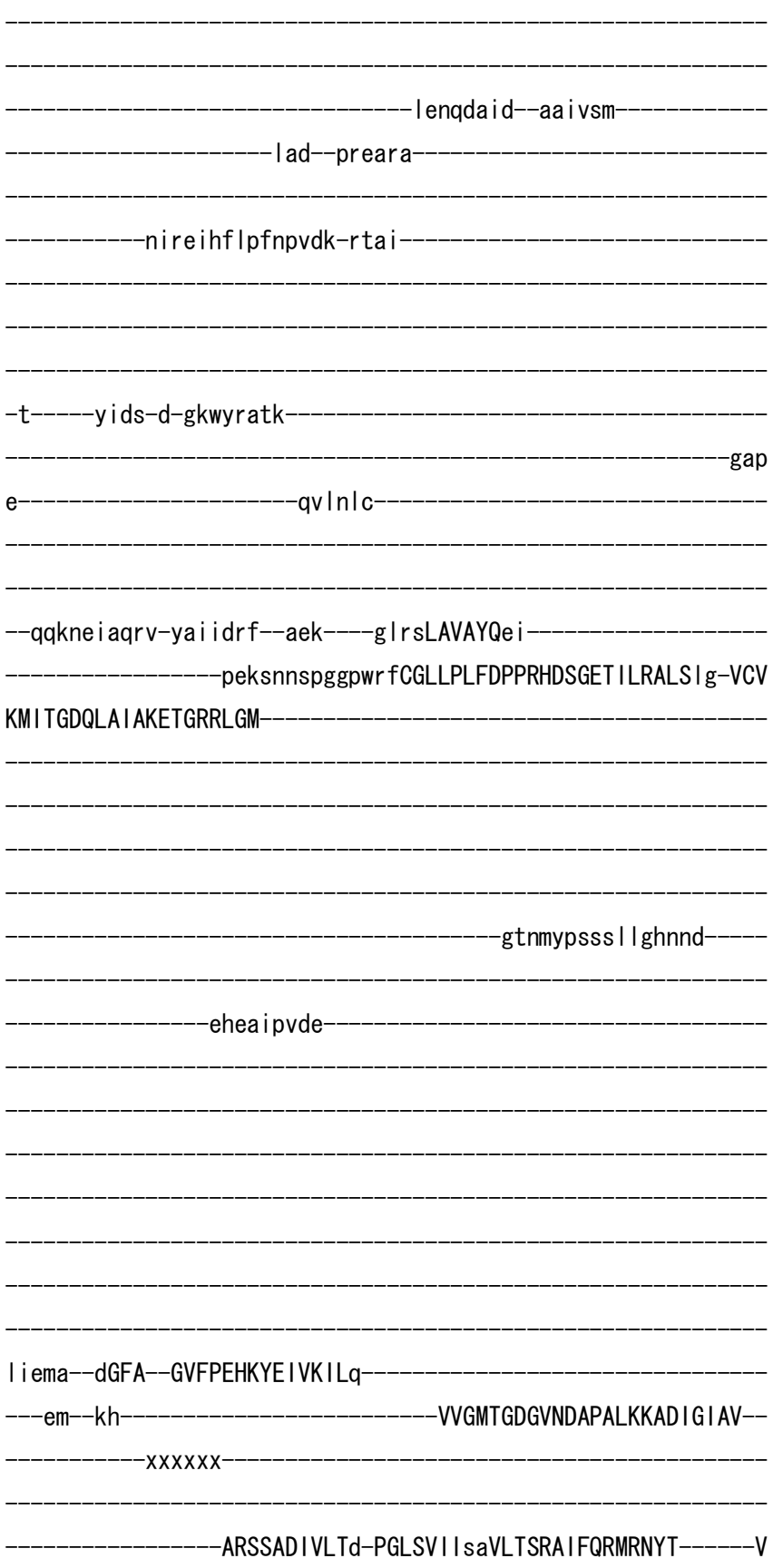

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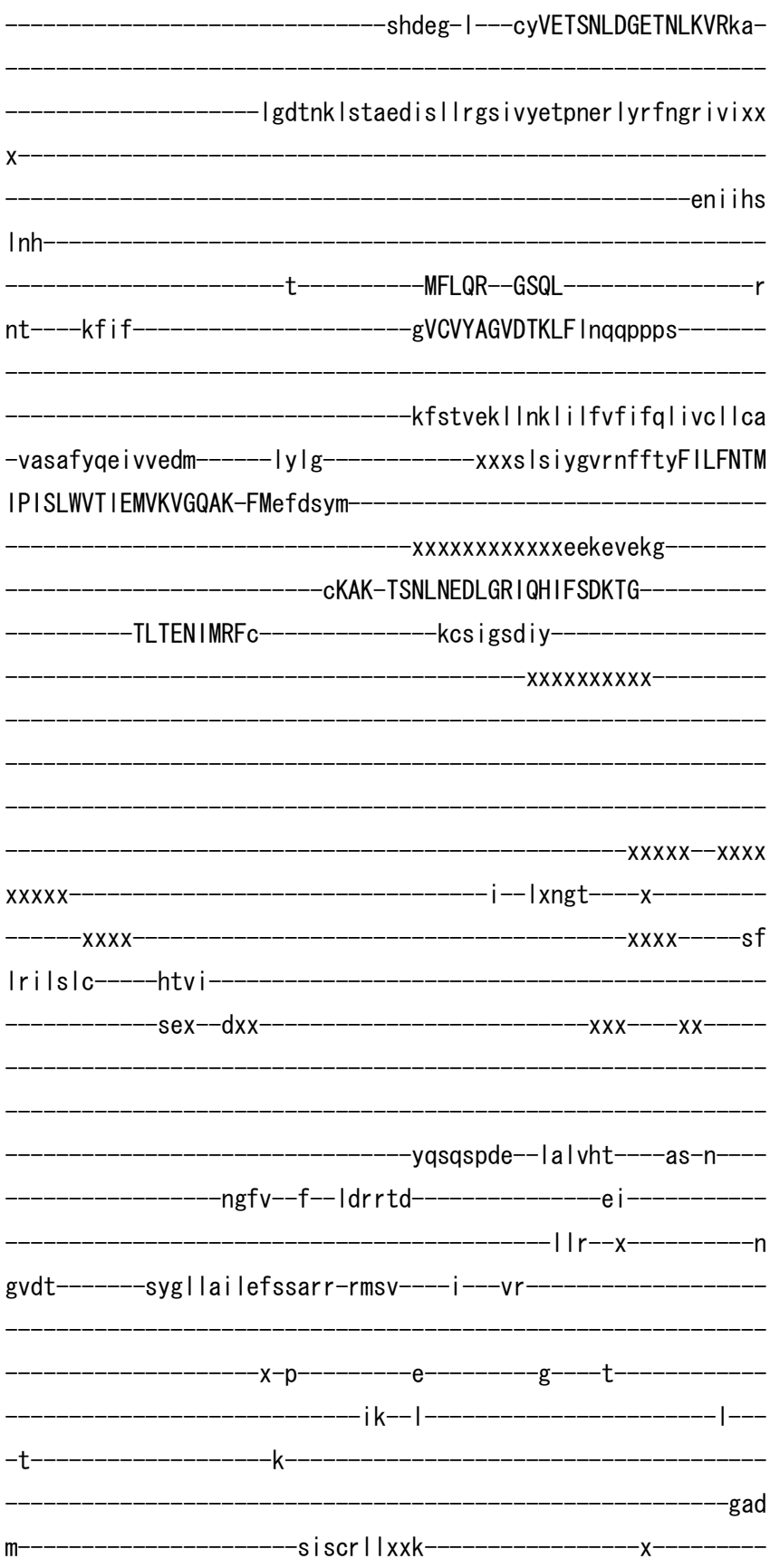

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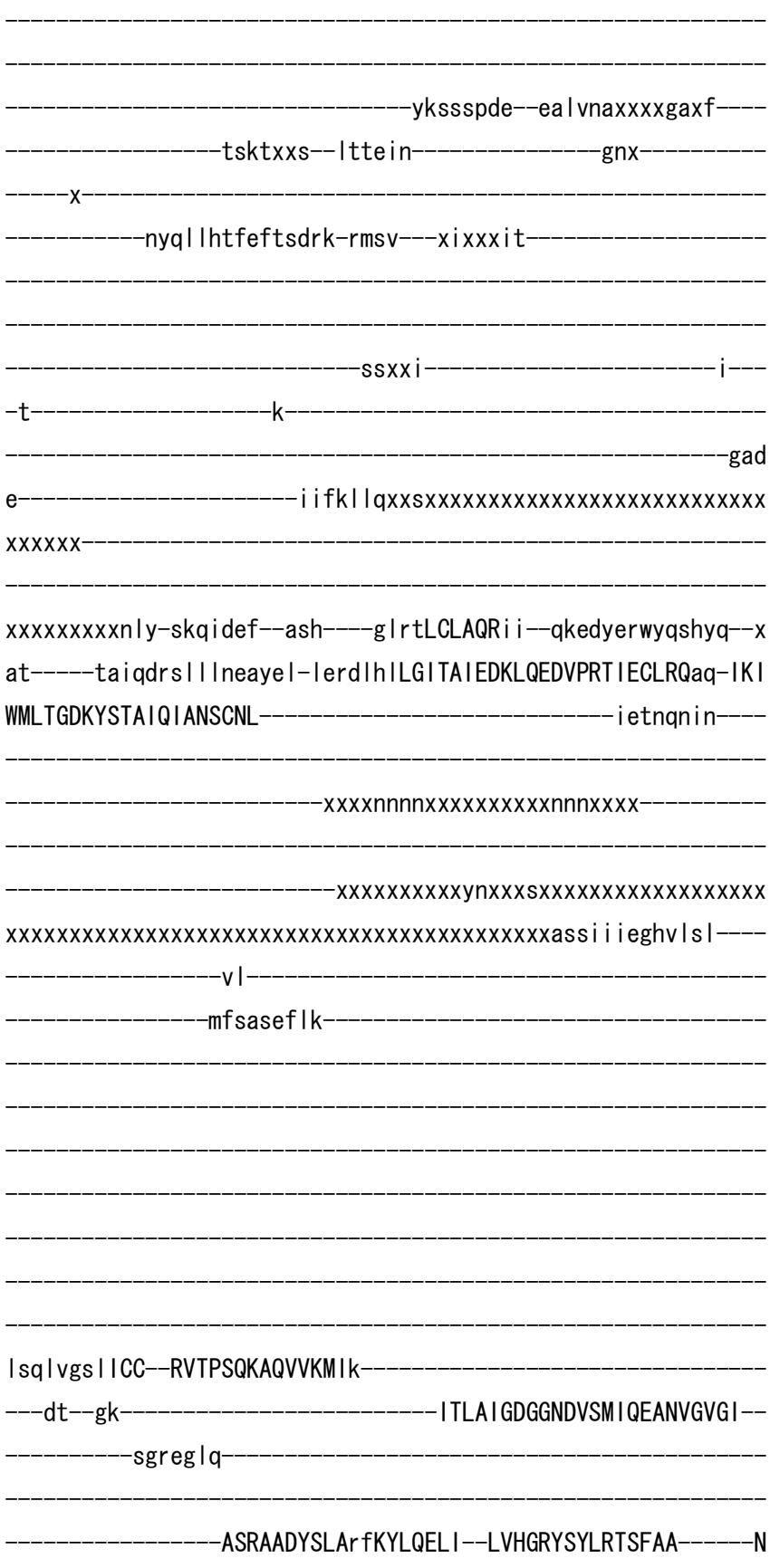

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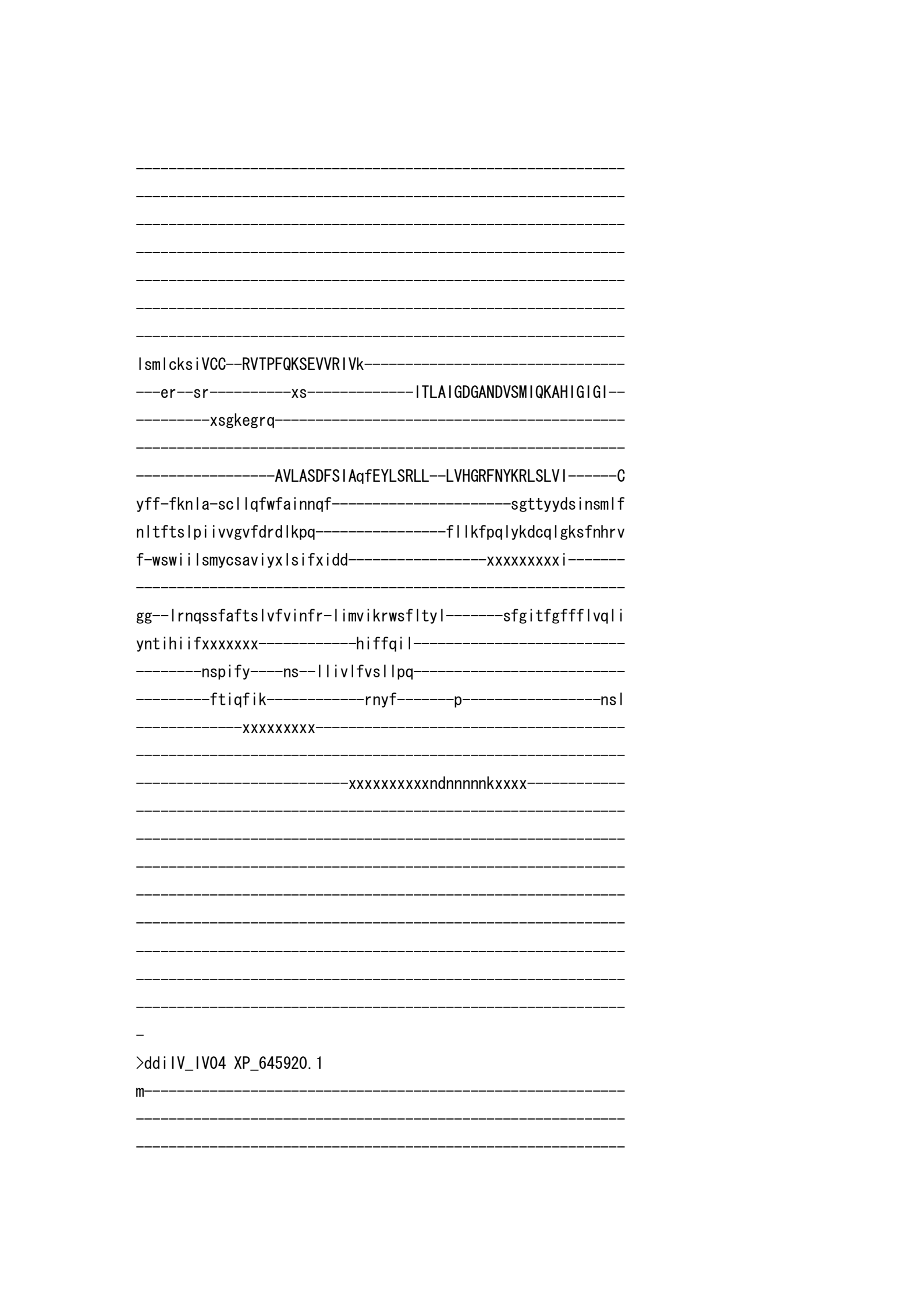

----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
x----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
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----------xxxxxxxxxxxxxxxxxxx--

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----------xxxxx----------

----------pfkfihnkisttkyt----------pw----
-sfipknlyeqf----------
----------r-raanfyfl----viavi
-qli------pgisp----------vna---y-tt----wip
lifv-l--------avtavkegied----------ik----------rn----ls
dktvnnldcr--------ilr----------

----------n-gkf----------x-----i----------
----------v
p----------
----wkqVKVGDlCQVnk----------
-----GERFPADLVVLns----------

----------seqhg----xcylETSNLDGETNLKQRqa-

----------xpqtfeilrseedlahfrgniecehpnnviyvyngaiqmxx

----------dsqkhp
lnn----------
----------t----------QTLLR--GCVL----------r
nt----ewiy----------gAVVYTGEDTKLMqnstdaps-------

----------krstlekIvnralinlfiimfvvcvvgm
-ivsviltstnidkq------wyld----------xxxkdvrkavlnlfsfMIAFAVM
IPISLYVSIELVKVAQAV-YVgwdvkm----------
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----------TLTRNQMDFI----------kcsvgkmvy----------
----------xxxxxxxxxxxxx-----

----------xxxxx--xxxx
xxxxx----------fgfkdrr--ixthlxxxxx---------
------xxxx----------xxxx-----ef
ltllavc-----hsvv----------
----------pdxx-nxx----------xxx----xx-----

----------yeasspde--aalvsa----ak-n----
----------lgya--f--ynrdpt----------gc----------
----------lvn--x---------r
gkie-------rfevlnvlefnsdrk-rmsv----i---cr----------

----------x-p---------q---------g----r----------
----------ii--l----------y---
-c----------k----------
----------gad
t----------tvlpllr--k----------x---------

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------------------------------------------------------------
------------------------------------------------------------
xxx--xx--sit-leflqdf--aad----glrtLCLAYTyl--eeedyqqwnelyke---
aa-----isiqdrdmkvdkvsel-iernlsllGSTAIEDKLQEGVPQAIANLIKan-IKI
WVLTGDKQETAINIGFSCHL---------------------------ltsdmrii----
------------------------------------------------------------
-----------------------i-----lngs--xx------edvxxxx----------
------------------------------------------------------------
-------------------------------------qgxxxaxxxxxxxxxx--------
-----------------------------------------xxgfalvvegsclnf-----
-----------------al-------------------------------------------
x---------------gelksvfle-----------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
laancksvICC--RTTPLQKAQVVKMVr-------------------------------
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----------sghegmq-------------------------------------------
------------------------------------------------------------
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nvvftglpiivcaifdqdvsae----------------ssqkypqlyasgqkdsefnlrv
l-wvwiveawihsvvif-fgvy-gly--------------xxxxxxxxxxxt-------
------------------------------------------------------------
ld--lwamgqnifilvvitvnfk-lafetrywtwithf-------siwasiliwfawvav
laaipgigxxxxxxxx-----------yvaykif-------------------------
--------aspsfw----ls--iavlpticlapd-------------------------
---------viykyiq-----------rdvk-------p-----------------yny
------------xxxxxxxxxxxxxxxxxxxxxx-----------------------
------------------------------------------------------------
--------------------------xxxxxxxxxxmgvespqqxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxx----------------------------------------------
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----------xxxxxxxxxxxxx----------

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>ddilV_lV05 XP_643182.1

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----------xxxxxxxxxxxxxrttypni----------

---yfntfknn----------

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----------kslfsdneisttkyt----------ry----

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lgli-v--------gltaikeayed----------fk----------ry----ra
dkssnykeyl---------iyq----------

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xxxxxxxxxxexskf----------x------l----------
----------i
k----------
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lse----------
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linmttc-----hsav----------
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kkek------tfklltsmdftserr-rmsv----v---lk------------------

----xxxxx-----------------------------------k-----------

----------------------------iy--l---------------------y---

-s-----------------k-----------------------------------

---gad

s---------------------vmmsrlkxxnxxxxxxxxxxxxxxxxxx---------

---

xxx--xx--ekt-tqhikef--sne----glrtLlLAMKei--eidqfnqwfekyns---

il-----nsienreeqieelnnq-lendltllGCTAlEDKLQDGVPETlEFLLNsn-lKV

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-----------------if---

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iakkchsvlCC--RVTPlQKSLlVKMVk---------------------------------

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i-arsvlgglyqsvvmy-fglyxlfl----------xxxxxxxxxxi-------
---
gg--laimgsycasfsvisillq-aaldikywnfivhi-------giwgsillyiiiali
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---------ftskyik----------qqfy-------p----------sqs

----------xxxxxxxxxxkrkrrn----------

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m----------

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----------xxxxx----------

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-sripriivsql----------
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-sfi------dgvsp----------tgk---f-tt----lgp
wlit-i---------tisvlreiied----------lk----------rq----kq
deavnygtse---------vfr----------

----------n-gqf----------x------q----------
----------t
l----------
----wkdlRVGDlVKVrn----------
-----RQYFPADlYlFst----------

----------sepen-v---cwFESKNLDGETNLKQRqa-

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ltp----------
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nt----ewin----------gVVMYTGlDTKLMqntekvke-------

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----------TLTQNAMTFk----------kcsiggyvy----------
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----------xxxxx--xxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxvdlnddk--lxedlxx--x---------
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fyvlsic-----hsvi----------
----------p----lxx----------xxx----xx-----

----------yiatspde--nalvfa----ak-s----
----------fgfe--f--ihkttk----------av----------
----------ylk--x---------n
gvedx------kfellnvldfsserk-rmsv----i---vk----------

----------x-p--------t--------g----r----------
----------im--l----------y---
-c----------k----------
----------gad
s----------vifdklax----------

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xxx--xx--dts-ithiqdf--gyq----glrtLCVASTql--dervyqqwaqqyhaxxx
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WMLTGDGQENAINIGYSSGL----------mnenyemi----

----------ii-----nert----------kenxxxx----------

----------xxxxxxxxxxlqxxxnxxxxxxxxxxxxxxxxxx
xxxxxxxxx----------xxklvlvidggtlkf----
----------vl----------
x----------davgftflr----------

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svvytliplivycvlekdvner----------tiyqhpqlykegiqhkyfnhft
f-lqwiangfyhgfvaf-alvyxtvv----------xxxxxxxxxt-------
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qe--lyafgiivyscvmlivtlk-lalethhwtwinhl------amwgslvvffiwnvi
yatinttaxxxxxx----------yaifhig----------
--------esahyy----ll--lvfvptlalwrd----------
---------ftwkyvy----------rtfl------p----------dqs
----------xxxxxxxxxxxxx----------

----------xxxxxxxxxxiksyrpnnxxxxxxxxxxxxxxxx
xxxxxxxxxx----------

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>ddilV_IV07 XP_645972.1
m----------

----------xxxxxxxxxxxxxxxxxxxxxxxxxppsssnnxxxxxxxxxx----
----------xxxxxxxxxxxxxxxxxxx--

----------x----------
---ysplisd----------

----------xxxxxxxxxxx----------

----------xxxsidevdnrntiqkik----------dfxxxx
xiylsrtiilel----------
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-qfi------pplqt----------gyl---f-ty----isp
lvfv-l---------svtifkeaydd----------fk----------ry----rr
dkeansqhys---------klt----------

----------k-ngf----------x------s----------
----------i
p----------
----ssdlKVGDFlKVet----------
-----NQRVPCDMlFLrt----------

----------tekng-s---sflRTDQLDGETDWKLRrs-

----------vnitqklsldedlvnlrasiyaekpkkdiynfignftnxx

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lsv----------
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as----gnvi----------gCAVYTGRETRCVmntstpst-------

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lPlSMRVNlDLGKTVYSW-MMmkdpli----------
----------pg----------
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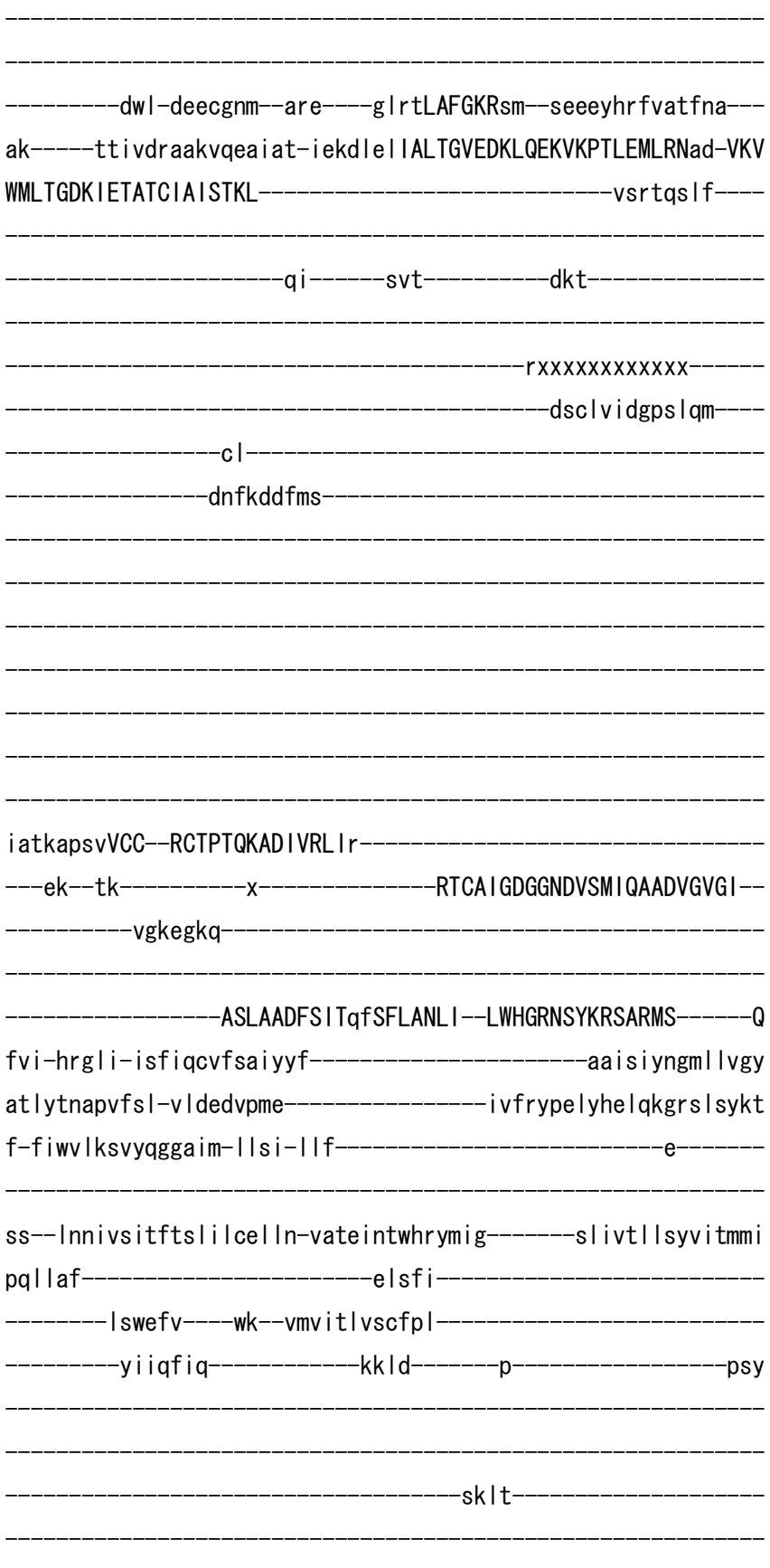
----------TLTQNDMVFk----------klhlgsvsf----------
----------xxxxxxxxxxxxxx------

----------xx-----xxx
xxxxxxxxxxxxx----------xxxxxxxxfsrk-ik----------
----------ea
italalc-----hnvt----------
----------pvxxxaxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx----
----------xxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxx----------yqasspde--valvkf----te-s----
----------vnlv--l--tgreln----------si----------
----------tl----------
lnpl-xxxx--kyeilnifpftsetk-rmgi----i---vr----------

----------x-k---------d---------g----e----------
----------it--f----------y---
-m----------k----------
----------gad
a----------imaklv--xax----------



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lifv-l---------vvtalkeafed----------yr----------ry----ka
dkasnytqyq---------vyr----------

----------d-gsf----------x------l----------
----------i
k----------
----skhlCVGDFlRldn----------
-----DQAFPSDlLVLss----------

----------nledg-i---cyVETSQLDGETNLKLFka-

----------aketnsltqeqlldlnaniecelpnnnlykfkgkftlxx

----------dnstfs
lse----------
----------k----------QLMLRxxGARL----------r
nt----hfii----------glVLYCGKDTKLSlnqknpps-------

----------kfstietrlgrsvigifcfkvvlviiat
-vlsslfefntards------wylr----------xxxxslgftivknfvsyFAILSFL
lPMSLMVTlEVVKVSQAK-YMewdvkm----------xxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxkskilnky--------
----------mSVK-NSNLNDELALlKYlFSDKTG----------
----------TLTENRMLFs----------kcsingtcf----------

----------dgamnqq--lxdevxx--x---------
------xxxx----------xxxx-----ef
llnmslc-----haav----------
----------sdx--nxx----------xxx----xx-----

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------------------------------------------------------------
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----------------nqfe--f--inrtst--------------ha----------
-----------------------------------------qir--x---------m
gedk------qyqllaimefssdrr-rmsi----l---lr-----------------
-----------------------------------------xxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxx-k---------k---------g----k----------
----------------------------ii--l---------------------y---
-s-----------------k-----------------------------------
------------------------------------------------------gad
s---------------------immerlsxxe-----------------x--------
------------------------------------------------------------
------------------------------------------------------------
xxx--xx--eqt-kehisqf--sre----glrtLIlAKRei--sqeeysnwsqqyhe---
as-----tlihdreaemerlndq-iergfelVGCTAIEDKLQDGVPETIDYLLKan-IKV
WIITGDKQETAINIGYSCKL-------------------------lvpeipii----
------------------------------------------------------------
----------------------ii-----naes----------teexxxx----------
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--------------------------xxxxxxxxxxpexxx-------------------
-----------------------------------------xxkvsmvingesltf----
-----------------vl-------------------------------------
---------------kdhsadflk-----------------------------------
------------------------------------------------------------
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------------------------------------------------------------
iaakchsvVAC--RVTPLQKALIVRLVk---------------------------------
---ks---t----------xe-------------VCLSIGDGANDVSMIQEAHIGVGI--
----------fgnegtq-------------------------------------------
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nilmtsvppyfmalfekdvnek----------iipknphlfkevqdchlfqyrs
i-lnwligalyhsvvff-fglyxfld----------xxxxxxxxxxxi-------
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gg--kelagsfcatfavlsillk-aaieikhwnfivhi-------giwgsvivylvislv
dssiitqixxxx----------wvfiyal----------
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---------ftlkfvr----------rhls-------p----------tns

----------xxxxxxxxxxrgknknnixxxxxx----------

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>ddilV_IV09 XP_643097.1
m----------

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xxxdrqteinrxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
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----------xxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxhnnnnneqitssvatxxxxxxxxxxxxxxxxtsxxxx
xtfipkvifyqf----------
----------srlanlytxxxxilcmf
xfsp----------vgxxxxltp
llvv-i---------avtsfkelaed----------lk----------rh----kq
dkeingrets----------

----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxnxpmv----------
xxxxxxxx----------xx--xxx-------c
h----------
----wedlKVGDllYVkn----------
-----GESLPADllCLss----------

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----------ttnyvp
vsi----------
----------d---------QLLLR--GTKL----------r
nt----dwvi----------gVVTYSGVDTKlEknaskasq-------

----------krssvergvnnkllilfllqtiiciics
-ighnrwhleddkda----xxwyid----------xdpeqtedfiyvsyVILYNTL
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----------xxxxxxxxxxxxxxxlnplgip--vxpeixxxxx---------
------xxxx----------xxxx-----ef
ltclaic-----ntvl----------
----------ie---kxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx----xx-----

----------yqaaspde--esltlt----aa-r----
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----------tis--x---------h
gree------rfellnvlefnsyrk-rmsv----i---vk----------

----------n--------q-------xn---q----------
----------ik--i----------y---
-c----------k----------
----------gad
s----------viferakxxt----------

----
xxx--xxxxqst-ekhlsef--acs----glrtLCMSVRti--eheeyiawnkihqe---
as-----islvkkaekvdaacel-iekdllllGSTGIEDRLQDHVPETISALREag-IKV
WVLTGDKQETAISISTSSAV----------ineemeli----

----------il-----nesn--xx------almxxxx----------
----------x
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxepxxxpxxxxxxxxxxxxxxxxx-
----------xxhiaiiidgstlal----
----------al----------
x----------pdlryfflq----------

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-----------------------------------------------------------
vaktcesvVCC--RCSPSQKAKVVNLVa------------------------------
---erxxlf--------xxxa-------------ITMSIGDGANDVPMIQKAHVGVGI--
----------sgregmq-------------------------------------------
-----------------------------------------------------------
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ysf-sknia-lsisqfwfgffsgf----------------------sgqmiyfdflftly
nalftslpviflgtfdqdtked---------------dllnkpylyrvcqsnspfstwk
f-iwwvfigmwqsatif-fvtfxvmn-----------------xxxxxxxxt-------
-----------------------------------------------------------
lg--lwsigtaayiylvvtvnlq-isfitrywtrqtil------avsisvvstflfvml
ysvlgryvxxxxx-------------hiifely--------------------------
--------alptfw----ll--liiapsiallp--------------------------
---------yiivsln-------------------------------------------
-----------------------------------------------------------
-----------------------------------------------------------
---------------------------xxxxxxxxlslqklnlxxxxxxxxxxx-----
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----------xxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxkeikded----------

---arliyind----------

----------xxxxxx----------

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-tflprnlfeqf----------
----------h-rvayiyfl----viavl
-nql------pqlav----------fgr---g-as----imp
lafv-l--------lvsaikdayed----------fr----------rh---rs
drvennrlal--------vfe----------

----------d-hqf----------x-----e----------
----------k
k----------
----wkhlRVGEVIKVqs----------
-----NQTLPCDMVLLat----------

----------sdptg-v---vyVQTTNLDGESNLKTRya-

----------kqetllkaadmesfngfikcekpnrniygfqanmei--

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lgp----------
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nt----awal----------gVVVYAGGETKAMlnnsgaps-------

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-ataavwlrthrddl--xxxxfyrrxxxxxxxxxxxxxxxgwgweifftffmaVIVYQIM
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----------ydessdss--------
----------fQCR-ALNINEDLGQIKYLFSDKTG----------
----------TLTDNKMEFq----------caciegvdy----------

----------xxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxltktgkaxxexkrax----------
----------ef
flslaac-----ntiv----------
----------pixxxtxxxxxxxxx----------

----------yqgespde--qalvya----aa-a----
----------ygfl--l--iertsg----------hi----------
----------vinx----------r
getq------rfnvlglhefdsdrk-rmsv----i----------

----------xgxxxxs----------
----------vk--l----------f---
-v----------k----------
----------gad
s----------smfgvmdxxy----------

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WVLTGDKQETAISIGFSSRL----------------------------ltrnmrqi----
------------------------------------------------------------
----------------------vi-----nsns--xx------scrxxxx----------
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-----------------------------------xxnaxxxsxxx---------------
-----------------------------------------xxnvaliidgtsliy----
-----------------vl-------------------------------------------
x---------------ndledvlfq-------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
vackcsaiLCC--RVAPFQKAGIVALVk---------------------------------
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----------sgqegrq---------------------------------------------
------------------------------------------------------------
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sviytaiptiiigildkdlgrq----------------tlldhpqlygvgqraegysttl
f-wytmidtiwqsaaif-fipmxayw-----------------------xxt-------
------------------------------------------------------------
id--tsslgdlwtiaavvvvnlh-lamdvirwnwitha------aiwgsivaacicviv
idviptlpxx-----------------waifqvg--------------------------
--------ktwmfw----fc--llaivvtsllpr-----------------------------
---------faikflv-----------eyyr-------p-----------------sdv
------------xxxxxxxxxxx-------------------------------------
------------------------------------------------------------
-------------------------xxxxxxxxxxmnliqdppxx----------------
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>athIV_IVO2 NP_568633.1
m----------

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-nflpknlweqf----------

----------s-rfmnqyfl----liacl
-qlw------slitp----------vnp---a-st----wgp
lifi-f---------avsaskeawdd----------yh----------ry----ls
dkkanekevw---------ivk----------

---------xgxkkh----------
----------i
q----------
----aqdlQVGNlVWLre----------
-----NDEVPCDLVLLgt----------

----------sdpqg-v---cyVETAALDGETDLKTRvi-

----------psacvgidlellhkmkgviecpvpdkdirrfdanmrlxx
xxx----------
----------dndvcs
lti----------
----------k----------NTLLQ--SCYL----------r
nt----ewac----------gVSVYTGNQTKLGmsrgiaep-------

----------kltamdamidkltgaifvfqivvvlvlg
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lPlSIKVSIDLVKGLYAK-Flewdvem----------
----------idqetgta--------
----------sYAA-NTAlSEDLGQVEYILTDKTG----------
----------TLTDNKMlFr----------rcciggify----------

----------xxxxxdalkdaq--lxnaixxxxxxxx------
----------rf
ltvmaic-----ntvl----------
----------pvxxxaxx----------xx-----

----------ykaqsqde--dalvia----as-k----
----------lhmv--f--vgknan----------ll----------
----------eirx----------n
gsvi------ryevleileftsdrk-rmsv----v---vk----------

----------xxq----------xg----k----------
----------ii--l----------l---
-s----------k----------
----------gad
e----------ailpyarxxqxx----------

---------rti-gdavehy--sql----glrtLCLAWRel--eeneylewsvkfke---
as-----sllvdrewriaevcqr-lehdlyiLGVTAIEDRLQDGVPETIETLRKag-INF
WMLTGDKQNTAIQIALSCNF----------ispepkgq----

----------llxxxxxteedxxxx----------

----------xxxxxxxxxxtaxx----------
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----------al----------
----------khhrkdfve----------

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----------sgreglq----------

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nvfytsvpvlvs-vidkdlsea----------svmqhpqilfycqagrllnpst
f-agwfgrslfhaiivfxitihxyay----------
----
ekxxmeelgmvalsgciwlqafv-vaqetnsftvlqhl-------siwgnlvgfyainfl
fsaipssgxx----------timfrlc----------
--------sqpsyw----it--mflivgagmgpi----------
---------falkyfr----------ytyr-------p----------ski
----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx---------

----------xxxxxxxxxxlsdspnatxxxxxxxxxxxxxxxxx
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>athIV_IVO3 NP_176191.1
m----------

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----------xxx----------

---yrtvycnd---

----------xxxxx----------

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----------r-rianiyfl----giscl
-smt------p-isp----------vsp---i-tn----vap
lsmv-l---------lvslikeafed----------wk----------rf----qn
dmsinnstve---------ilq---

----------d-qqw----------x------s----------
----------i
p---
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-----DGFFPADlLFMss---

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lsp---
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nt----eyiv----------gAVVFTGHETKVMmnamnaps-------

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-igcsivtdredk---------ylg------xxxxxxxxxnglmigfftfftlVTLFSSl
lPlSLYVSiEMlKFlQSTxFlnrdlnm----------

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-----------------------------------------xxxxxxxxxxxxxx-----
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------------------------------------------------------------
-----------------------------------------------xxxxx--xxxx
xxxxxxxxxx----------------------fnfddpr--lxrgaxx--x---------
------xxxx-----------------------------------xxxx-----el
frclaic-----htvl-------------------------------------------
------------pex--dxx--------------------------xxx----xx-----
------------------------------------------------------------
------------------------------------------------------------
--------------------------------yqaaspde--aalvta----ak-n----
-----------------fgff--f--yrrtpt---------------mv-----------
-----------------------------------------yvr--x---------s
hvekxxxxxxxayeilnvlefnstrk-rqsv----v---cr--------------------
------------------------------------------------------------
-------------------x-p--------d--------g---r-----------
---------------------------lv--l---------------------y---
-c-----------------k-----------------------------------
------------------------------------------------------gad
n--------------------viferlaxx--------------------------
------------------------------------------------------------
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WVLTGDKMETAINIAYACNL-------------------------innemkqf----
------------------------------------------------------------
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------------------------------------------------------xxxxxx
xxxx--------------------xxxxxxxxxxslxxxqx---xxxxxx--------
-----------------------------------------xxklslvidgkclmy----
-----------------al-----------------------------------------
x--------------pslrvmlls-----------------------------------
```

----

lslnctsvVCC--RVSPLQKAQVTSLVr----------

---kg--aq----------k----------ITLSIGDGANDVSMIQAAHVGIGI--

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>athIV_IV04 NP_173193.1

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lvfv-v--------glsmlkealed----------ws----------rf----mq
dvkinaskvy--------vhk----------

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k----------
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ldp----------
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frilaic-----htai----------
----------pex--nxx----------xxx----xx-----

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----------yvh--x---------r
lshs-xxxxxxeykvlnlldftskrk-rmsv----v---vr----------

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-c----------k----------
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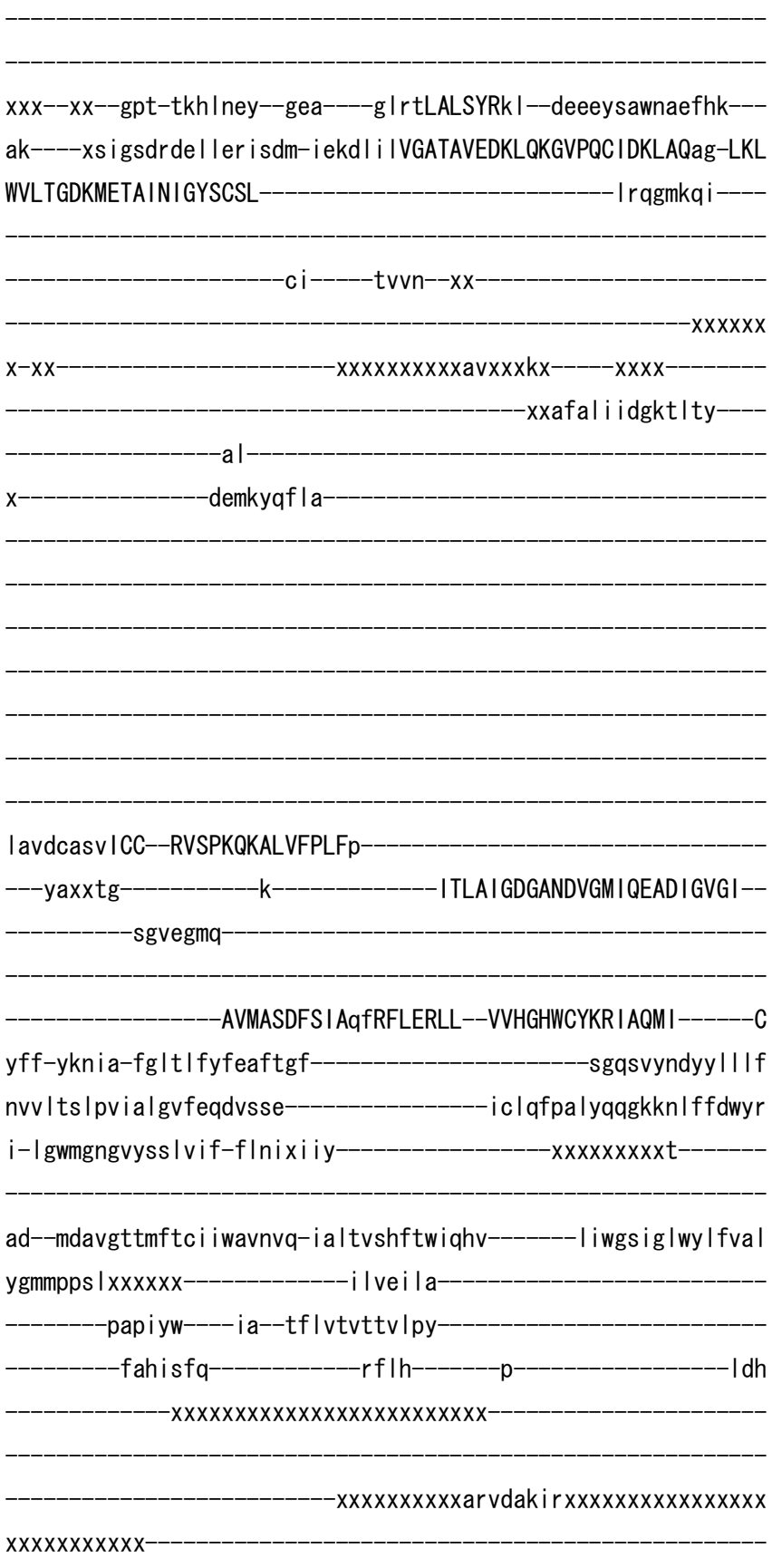
s----------iiferla--k----------x---------



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----------r
k----------
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x-xxxxxxx---xxxxxxxxxxxxxxxxxxxxxxx-----x----------

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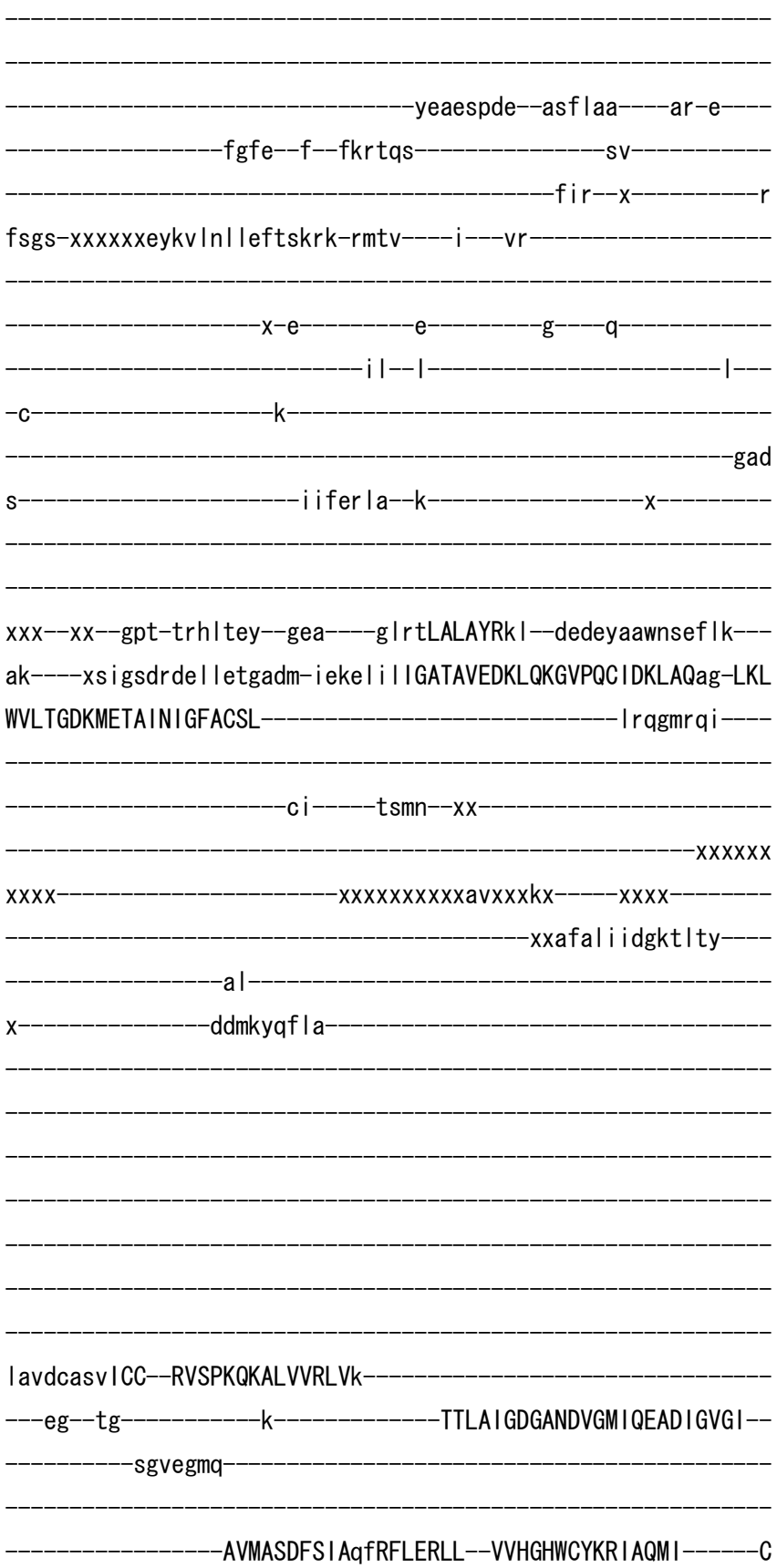

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ysmmppsyxxxxxx----------ildeila----------
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-------------------------xxxxxxxxxxarvdakirxxxxxxxxxxxxxxxx
xxxxxxxxxxx----------

-
>athIV_IV06 NP_175830.1
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----------il--l----------l---
-c----------k----------
----------gad
s----------iiferls--k----------x--------

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xxxx----------xxxxxxxxxxasxxxkx-----xxxx--------
----------xxafaliidgktlty----
----------al----------
x----------ddvkyqfla----------

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----------r
k----------
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ldp----------
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----------xxxxx--xxxx
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------xxxx----------xxxx-----mf
lrilavc-----htai----------
----------pex--dxx----------xxx----xx-----

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----------fgfe--f--tkrtqs----------sv----------
----------fis--x---------r
--hs-xxxxxxeykflnvldftskrk-rmsv----i---vr----------

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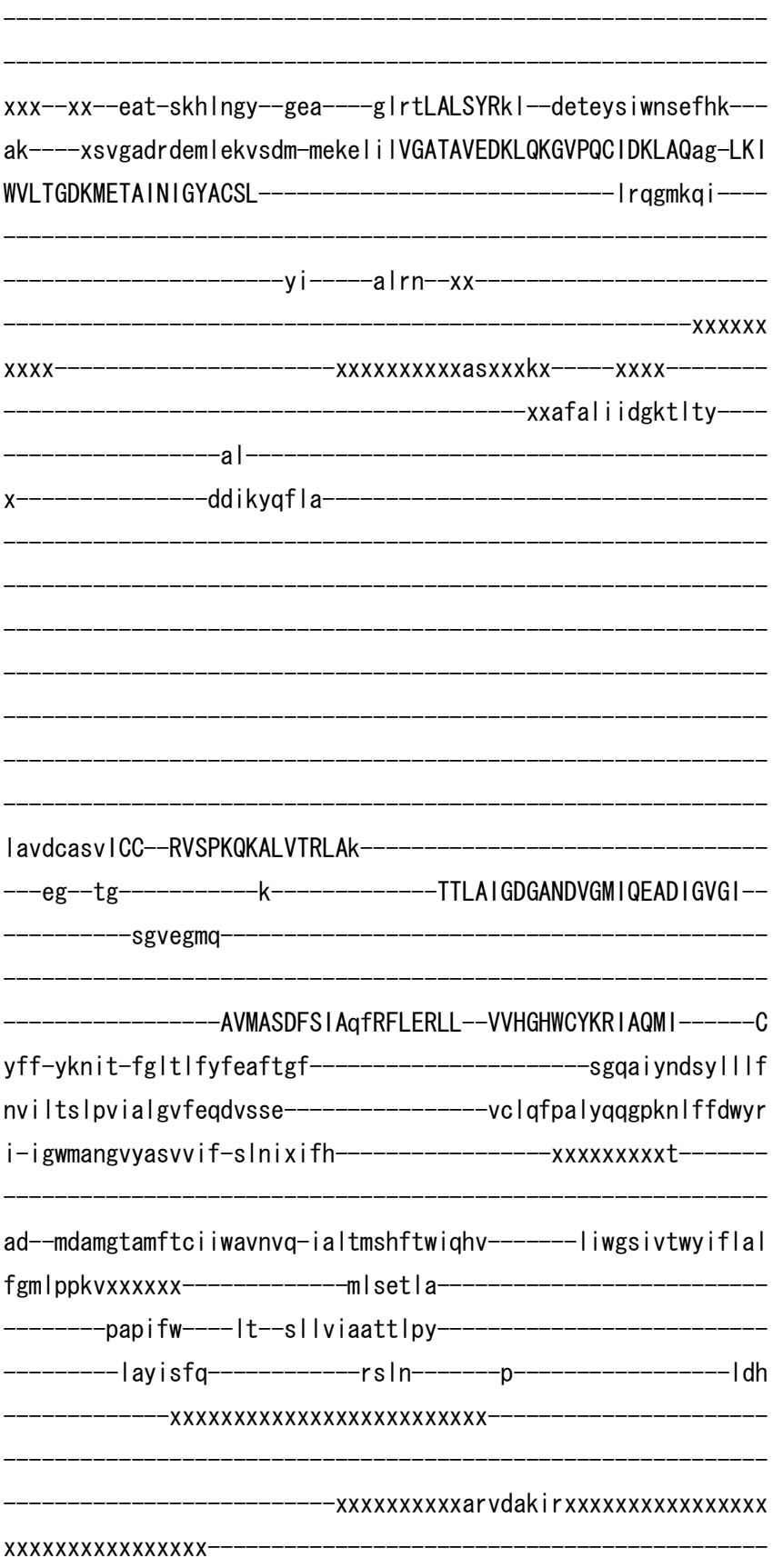
----------il--l----------l---
-c----------k----------
----------gad
s----------iiferls--k----------x---------



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m----------

----------x----gerrk--------xx----

----------xxxxxxxxxxxxxxxxxxxx--

----------x--xxxxxx----------

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-nfipkslfeqf----------

----------r-rvaniyfl----vvafv
-sfs------p-lap----------yta---p-sv----lap
lliv-i--------gatmvkegved----------lr----------rr----kq
dveannrkve--------vlg----------

---------xt-gtf----------x------e----------
----------t
k----------
----wknLRVGDLVKVhk----------
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lsp----------
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----------krskiekkmdqiiyilfsiliviaftgs
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frvlaic-----htai----------
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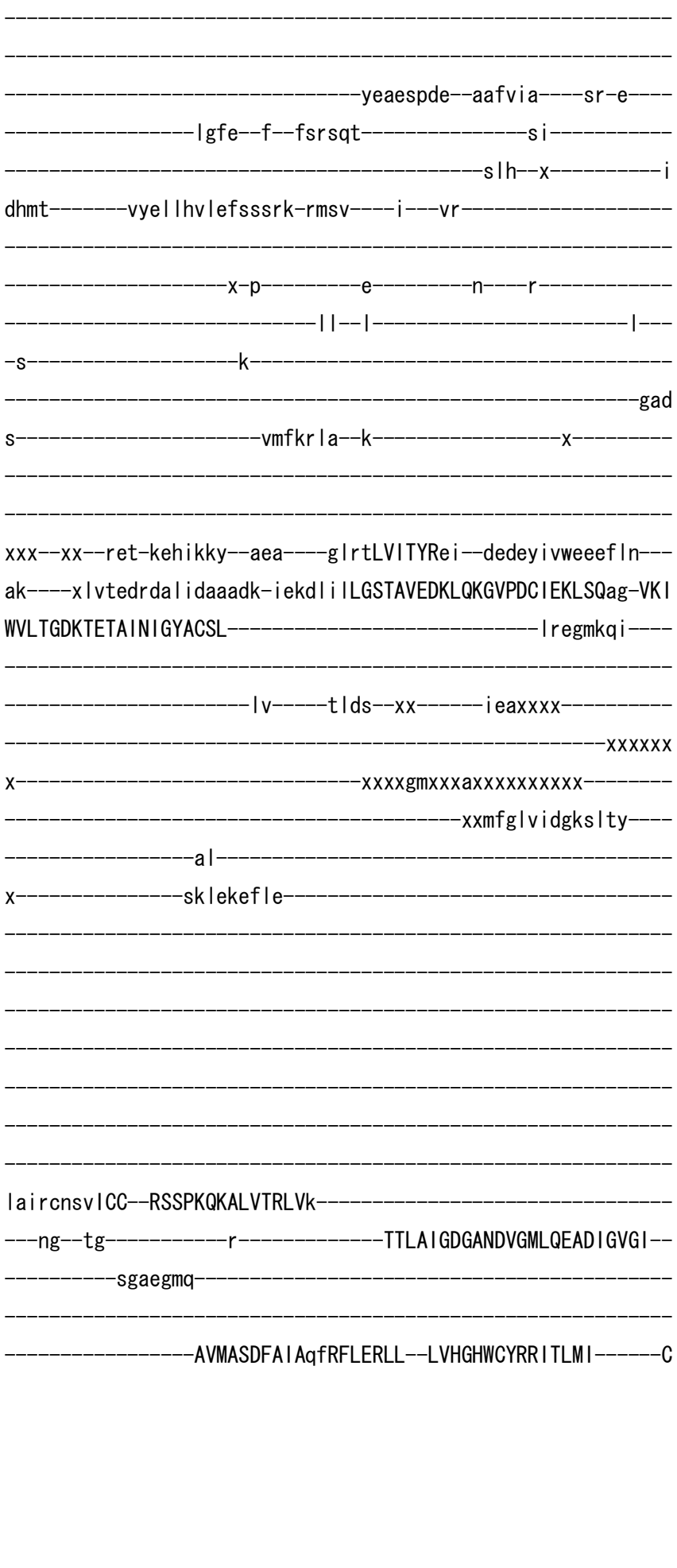

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ygslpptfxxxxxx----------vfvetsa-------------------------
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llfv-i---------gatmvkegved----------wr----------rq----kq
dnevnnrkvk---------vhr----------

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----------k
e----------
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xxxx----------fnfrder--ixngnxx--x---------
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frllavc-----htvi----------
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-c----------k----------
----------gad
n----------vmferls--k----------x---------

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----------al----------
x----------ddikhifle----------

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----------xxxxxxxxxxvgftarlexxxxxxxxxxxxx---

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k----------

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----------vk--l----------y---
-v----------k----------
----------gad
s----------slfgitkxxlx----------

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-----------------------------------------xxtlalivdgnslvy----
-----------------il-------------------------------------------
x---------------telqeelfk---------------------------------
------------------------------------------------------------
------------------------------------------------------------
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------------------------------------------------------------
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--------grpsfi-----------------------------------------------
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>osaIV_IV07 NP_001067827.1

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dkqanekevw---------ivk----------

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q----------
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lti----------
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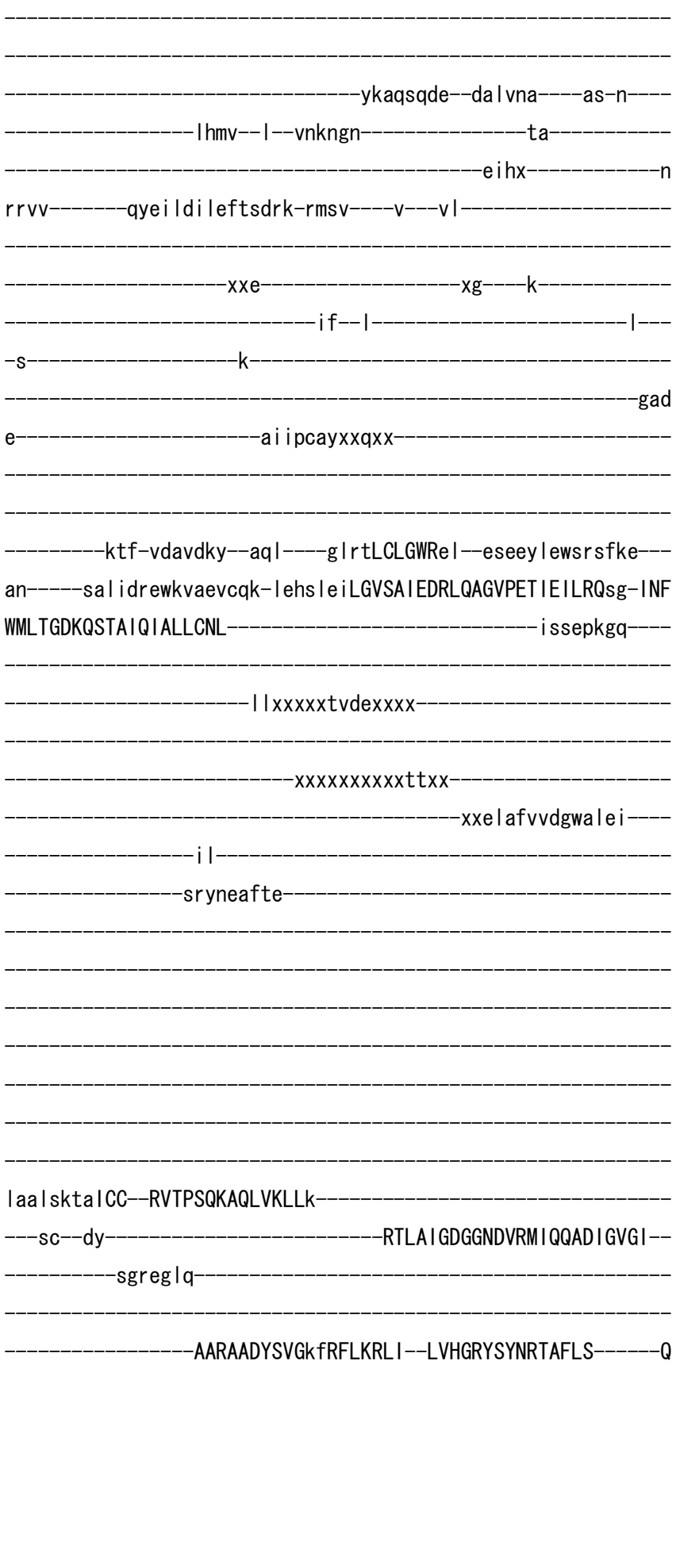

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dievnnrkvk---------vhd--------------------------------------

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--e
e---
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xxxxxx----------

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xxxx----------fnfeder--vxngnxx--x---------
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frllavc-----htai----------
----------pex--dxx----------xxx----xx-----

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----------fgfe--f--fnrtqn----------gi----------
----------sfr--x---------l
dlvs-xxxxxxvyrllnvlefnstrk-rmsv----i---vr----------

----------x-d--------d--------g----k----------
----------ll--l----------l---
-s----------k----------
----------gad
n----------vmferla--k----------x---------

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xxx--xx--akt-qehvnqy--ada----glrtLVLAYRev--deneyiefnksfne---
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----------al----------
x----------deikkmfld----------

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xxxx----------

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dnavnkkqtq--------vlr----------

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gqee-------ryellnvleftsark-rmsv----v---vr----------

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-c----------k----------
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-----------------al-------------------------------------------
x---------------fgvrqyfld---------------------------------------
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ysslwpavxxxxxxx------------geaamlf--------------------------
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>athIV_IV11 NP_172780.1

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diemnnrkvk---------vhd----------

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g----------
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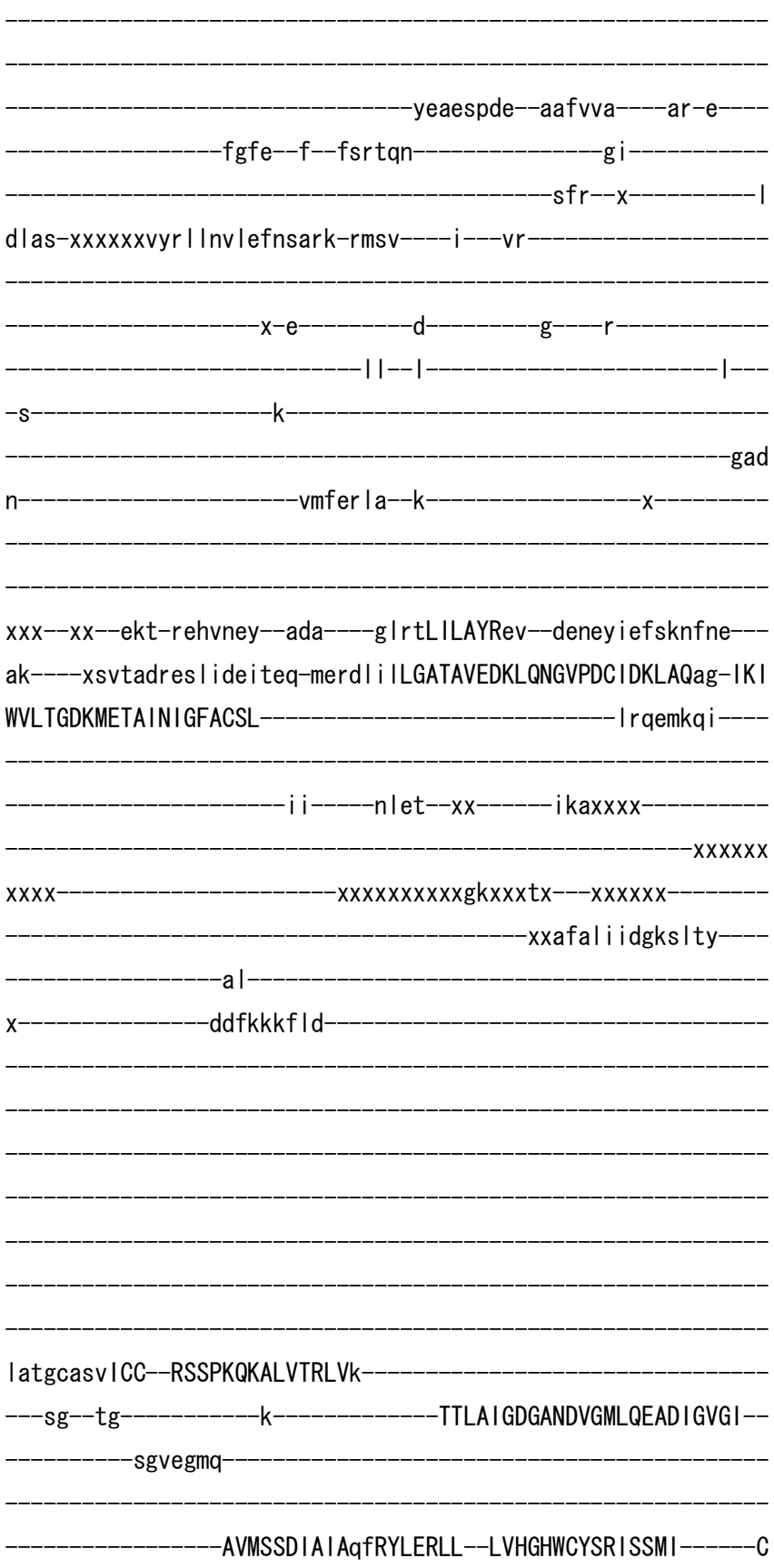

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xxxx----------

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>athIV_IV12 NP_173938.1
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dievnnrkvr---------vhr----------

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e----------
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-c----------k----------
----------gad
s----------vmferls--e----------x---------

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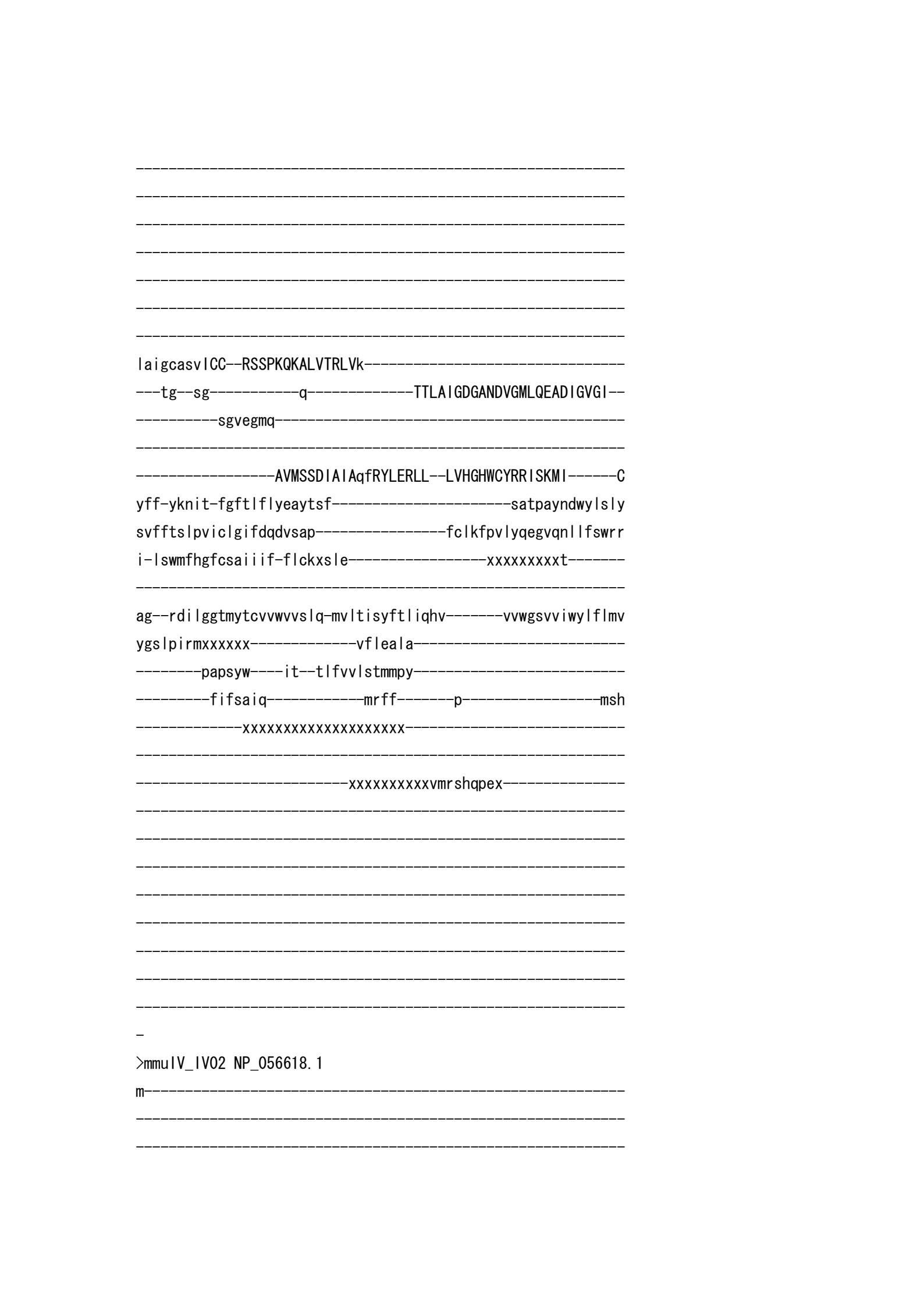

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dnavnkkkti--------vlr----------

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----------i
m----------
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lgp-----------------------------------------------------
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xxxxxx--------------------------cdfndpr--lxknixx--x----------
------xxxx-----------------------------------------xxxx-----ef
ltllavc-----htvv-----------------------------------------------
------------pexxxdx-----------------------------------xx-----
------------------------------------------------------------
------------------------------------------------------------
--------------------------------yqasspde--aalvkg----ak-k----
-----------------lgfv--f--tgrtpy---------------sv-----------
-----------------------------------------iie--x---------m
gqeq-------tfgilnvlefssdrk-rmsv----i---vr--------------------
------------------------------------------------------------
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---------------------------lr--l----------------------y---
-c-------------------k-------------------------------------
------------------------------------------------------gad
n--------------------viferls-------------------x---------
```

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WVLTGDKQETAINIGYSCRL----------------------------vsqnmali----
------------------------------------------------------------
----------------------ll-----keds----------ldaxxxx----------
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--------------------------xxxxxxxxxxllxx----------------------
-----------------------------------------xxdvaliidghtlky------
-----------------al-------------------------------------------
x---------------fevrrsfld---------------------------------------
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f-wghcinalvhslilf-wvpmxale-----------------xxxxxxxxxa-------
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ystiwptixxxxxxx------------gqatmvl--------------------------
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-------------xxxxxxxxxxxxx-------------------------------------
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--------------------------xxxxxxxxxxkrmnerdrxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxx-----------------------------------------------
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----------xxxxxxxxxxxxxxxxxxxxxxx----------

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>mmuIV_IV03 NP_001001488.2

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---twqvkand----------

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-tflpmnlfeqf----------

----------k-raanfyfl----illil
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lllv-l--------gitaikdlvdd----------va----------rh----km
dkeinnrtce--------vik----------

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----------i
k----------
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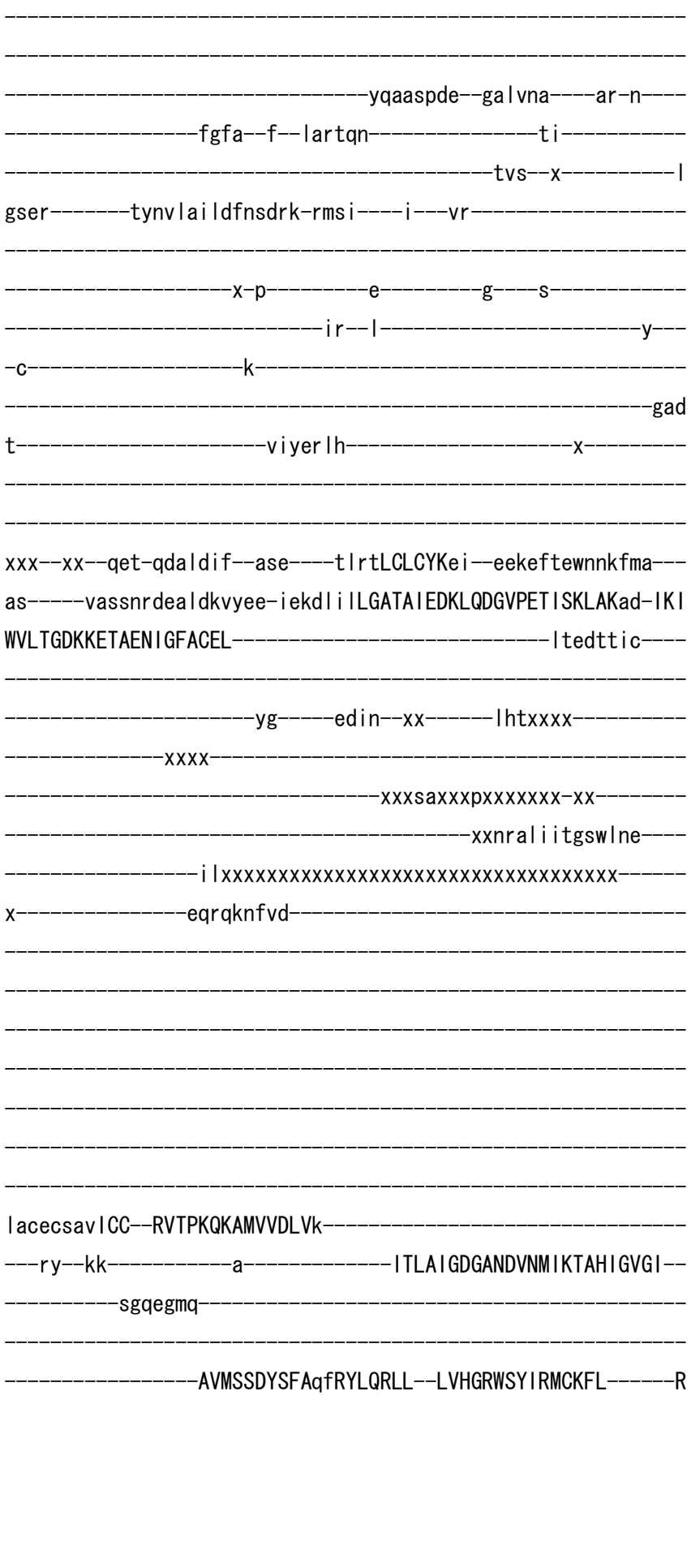

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fhsagihvxxxxxxxxx---------gtasnal----------
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lvcl-f---------viratrdlvdd----------ig----------rh----rs
dkiinnrpcq---------ilr---
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k---
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----------x-p---------e---------g----s----------
----------ic--l----------y---
-t----------k----------
----------gad
t----------vilerlr----------x---------

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x----------vqrerafvd----------

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----
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tqslwmyrxxxxxxxxx----------fadynvl----------
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k----------
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----------ik--l----------y---
-s----------k----------
----------gad
t----------ilfeklh--p----------x---------

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WILTGDKQETAINIGYACNV----------------------------ltdamdal----
------------------------------------------------------------
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--------------xxxx----------------------xxxx---------------xx
xxxx-----------------------xxxxxx---xdnxxxlxxxxxxxxxx--------
-----------------------------------------xxeyalvinghslah----
-----------------al-------------------------------------------
x---------------sdvendlle-----------------------------------
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------------------------------------------------------------
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lacvcktvVCC--RVTPLQKAQVVELVk-------------------------------
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f-ficvahgiytslalf-fipyxafy-----------------xxxxxxxxxi-------
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dkemnsqvys---------rlt----------

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----------v
k----------
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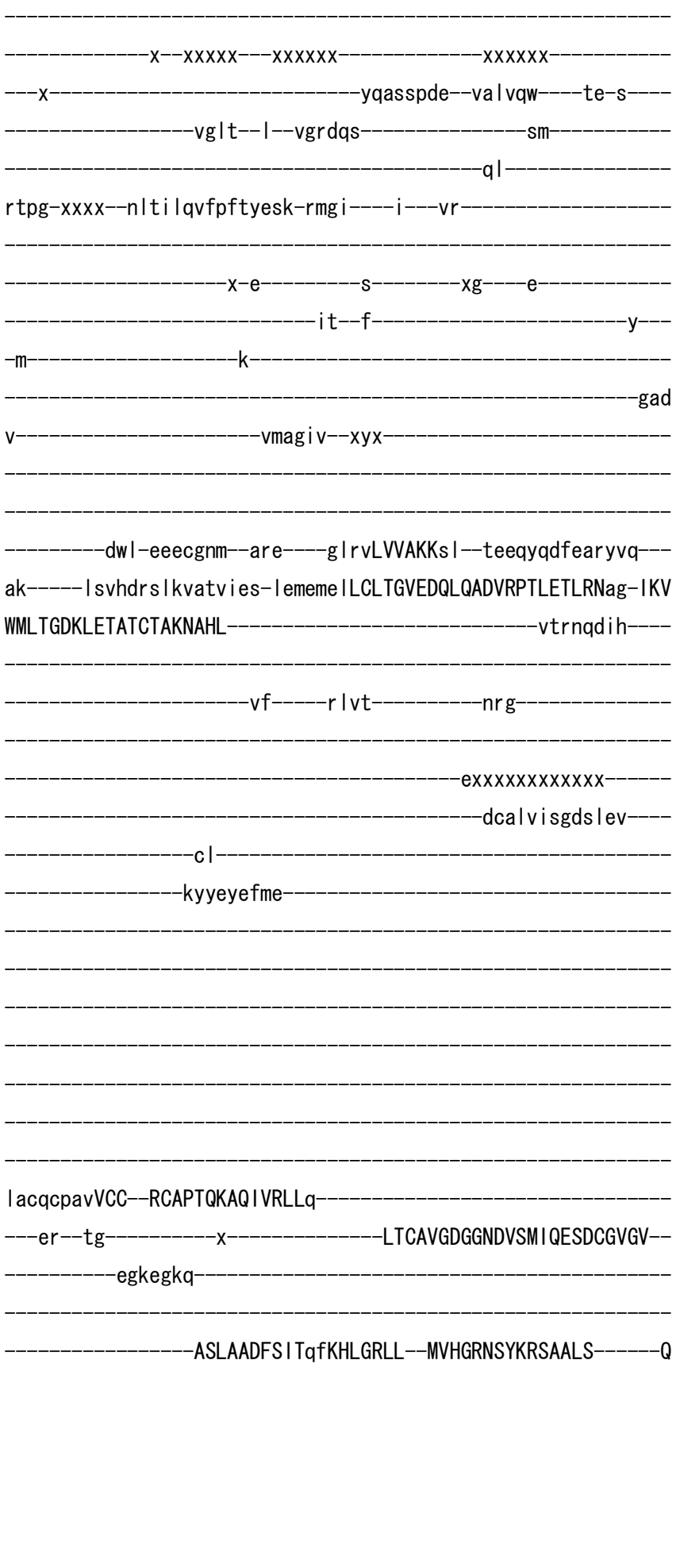

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dkemnsqlys---------klt----------
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----------v
k----------
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xx----------
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lsi----------
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------------------------------------------------------------ea
vkaialc-----hnvt-------------------------------------------
------------pvxxx-------------------------------------------
------------------------------------------------------------
-------------xx-xxxxxxxxxxxxx-------------xxxxxx-----------
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-----------------vglt--l--isrdla---------------sm-----------
-----------------------------------------ql---------------
ktps-xxxx--tycilqmfpftsesk-rmgi----i---vr-------------------
------------------------------------------------------------
--------------------x-e---------s--------xa----e------------
----------------------------it--f----------------------y---
-m-------------------k-------------------------------------
------------------------------------------------------------gad
v---------------------amstiv--xyx-------------------------
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ak-----lsihdralkvaavves-lereme lLCLTGVEDQLQADVRPTLEMLRNag-lKl
WMLTGDKLETATCIAKSSHL-------------------------vsrtqdih-----
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------------------------------------------------------------
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-------------------------------------------dcalvisgdslev----
-----------------cl-----------------------------------------
---------------ryyehelve-------------------------------------
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atiytmfpvfsl-vldqdvkpe----------mailypelykdltkgrslsfkt
f-liwvlisiyqggilm-ygal-llf----------e-------
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de--fvhvvaisftaliltellm-valtirtwhwlmvv------aeflslgcyvaslaf
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----------skl---ss----------

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vlfi-l--------avtaikdlwed----------ys----------rh----rs
dheinhlgcl--------vfs----------

--------xxe-kky----------x-----n----------
----------r
y----------
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----------sdpdg-l---chIETANLDGETNLKRRqv-

----------vrgfselvsefnpltftsviecekpnndlsrfrgyimhx-

----------ngekag
lhk----------
----------e----------NLLLR--GCTI----------r
nt----eava----------glVIYAGHETKALlnnsgpry-------

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xxxxxxxxxx----------xxxx-----df
fialtic-----ntvv----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxx--xxxxxnlxxxk-x----------xxx----xxx----
----------xxxxxx----------
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xxxxxxxxx----------xxyeaespde--aalvya----ar-a----
----------ynca--l--vdrlhd----------qv----------
----------svexxx---------l
grl--------tfellhtlgfdsirk-rmsv----v---ir----------

----------x-p---------l--------xd----e----------
----------in--v----------y---
-t----------k----------
----------gad
s----------vvmdlllxxs--xxxxxxxx----------

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xxx--xx--skt-qnylnly--ave----glrtLClAKRvl--skeeyacwlqshie---
ae-----asvesreellfqsavr-letnlhlLGATGlEDRLQEGVPETlAKLRQag-LQl
WVLTGDKQETAINlAYACKL----------------------------ldhgeevi----
------------------------------------------------------------
----------------------tl-----nads--xx------acaxxxx----------
------------------------------------------------------------x
xxxx----------------------xxxxx---xxstxxxsxxxxxxxx-xxxxxxxxx
xxxxxx--------------------------------------slvidgrslay------
-----------------al-------------------------------------------
x---------------ksledkflf---------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
lakqcrsvLCC--RSTPLQKSMVVKLVr-------------------------------
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----------sgqegmq-------------------------------------------
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nllfsslpqlvtgvldkdvpad----------------mllrepqlyksgqnmeeyrpra
f-wlnmvdaafqslvcf-fipy-lay--------------xxxxx---------------
------------------------------------------------------------
-d--vftwgtpvtaialftfllh-lgietktwtwlnwl-------acgfstflffsvali
yntscatc--xxxxxxx----------wtmqtll-------------------------
--------gdplfy----lt--cliapiaallpr-------------------------
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xxx---------------------------------------------------------
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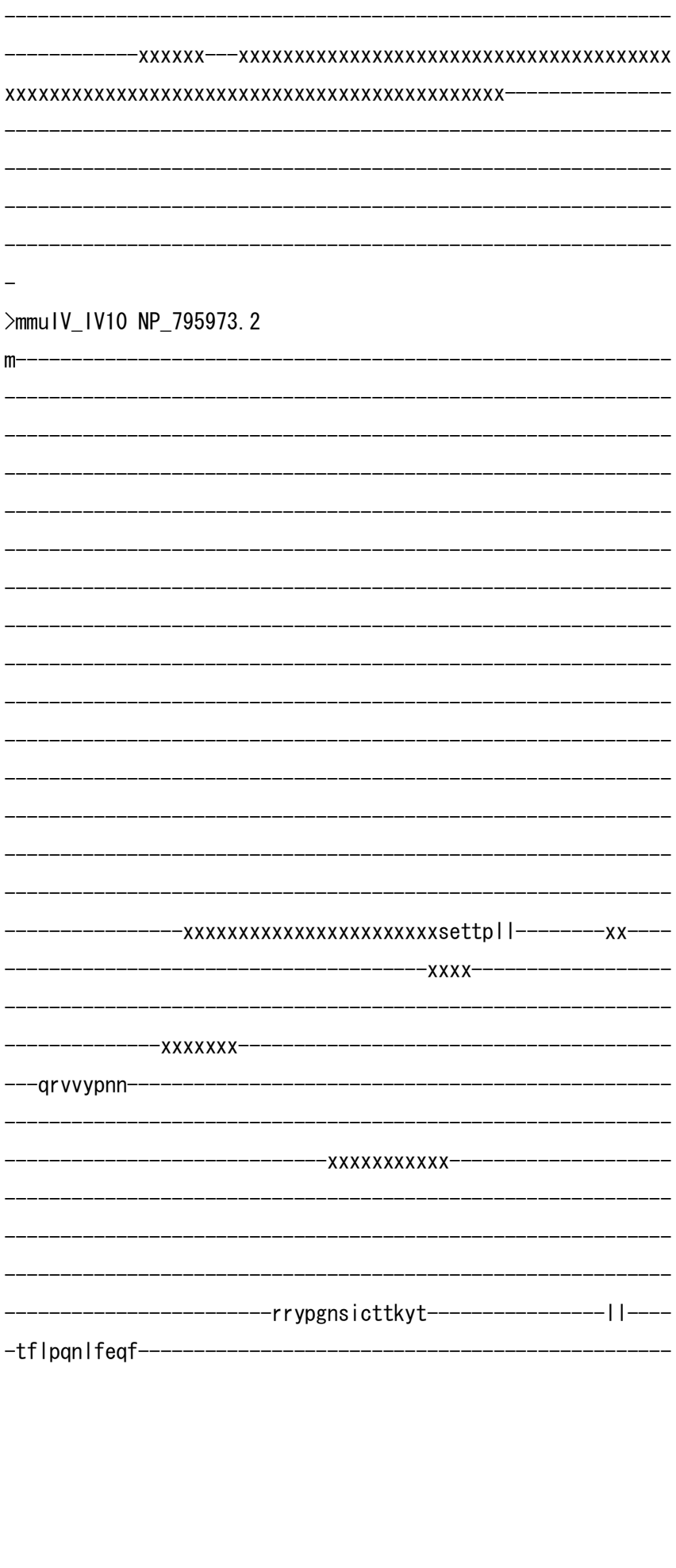

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r----------
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nt----evaa----------glVIYAGHETKAMlnnsgpry-------

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flaltic-----nsvm----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxx----xxxxx-fxxxaxx----------xxx----xxx----

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----------ysft--l--vsrtpe----------qv----------
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icl-------tfdllftlgfdsvrk-rmsv----v---vr----------

----------x-p---------l--------xd----e----------
----------ii--v----------y---
-t----------k----------
----------gad
s----------vimdllexxaxxxxxxxxxx----------

----
xxx--xx--art-qkhldly--ard----glrtLClAKKvv--deedfqrwasfrre---
ae-----asldnreellmetaqh-lenhltlLGATGlEDRLQEGVPDTlAALREag-lQL
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----------si-----nten--xx------tcexxxx----------
----------x
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----------if----------
x----------gklenkfle----------

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ynatcvtc--xxxxxxx---------wvmerql----------
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----------xxxxxxxxxxxxxxxxx----------

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>mmulV_lV12 NP_056619.1
m----------


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-----------------------------------------------------------
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-qli------id-tp-----------------------------tsp---v-ts----glp
lffv-i---------tvtaikqgyed-------------wl-----------rh----ka
dnamnqcpvh---------fiq----------------------------------
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-----------------------------------------------------------k
q-----------------------------------------------------------
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-----DETFPCDLIFLss-------------------------------------
-----------------------------------------------------------
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-----------------------------------------------------------
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xxx-----------------------------------------------------
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lgs-----------------------------------------------------
----------------------e----------NLLLR--GATL---------------k
nt----ekif----------------------gVAIYTGMETKMAlnyqsksq-------
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----------------------xxxxxxxxxxlpdssgixxixsspxxxxx---------
------xxxx-----------------------------------------------lf
fraiclc-----htvq-------------------------------------xxxxx
xxxxxxxxxxx-pd-xxsxx---------------------------------------
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--------------------------------yissspde--valveg----vq-r----
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-----------------------------------------eilxx----------e
ndie-------rfellevltfdsvrr-rmsv----i---vk-------------------
------------------------------------------------------------
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-c-------------------k---------------------------------------
------------------------------------------------------------gad
s----------------------sifprvixxk-------------------------
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WVLTGDKMETASATCYACKL-------------------------frrstqll-----
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-----------------------------------------xxdygliidgaalsl-----
-----------------im-----------------------------------xxxxxxx
x-x------------gnyrelfle-----------------------------------
```


----
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----------igkegrq----------

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nisftslpillyslmeqhvgid----------vlkrdptlyrdiaknallrwrv
f-iywtflgvfdalvff-fgayxife----------xxxxxxxxxm-------
----
fg--nwtfgtlvftvmvltvtlk-laldthywtwinhf------viwgsllfyiafsll
wggviwpf--xxxxxxx----------yvfisml----------
--------ssgpaw----lg--iillvtvgllpd----------
---------vlkkvlc----------rqlw------p----------tat
----------xxxxxxxxxxxxxxxxxxxxxx----------

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xxxxxxxxxxxxxxxxxxxxx----------

_
>mmuIV_IV13 NP_083846.2

----------xxxxxx-xxx--

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----------r-rvanfyfl----iiflv
-qlm------id-tp----------tsp---i-ts----glp
lffv-i--------tvtaikqgyed----------wl----------rh----ns
dnevngapvy--------vvr----------

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----------t
r----------
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xx----------
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lgp----------
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nt----keif----------gVAVYTGMETKMAlnyksksq-------

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----------TLTENEMQFr----------ecsinglky----------

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xxxxxxxxxxxxnlxxxqxx----------

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----------evkx----------l
grle------rykllhilefdsdrr-rmsv----i---vq----------

----------xxxg----e----------
----------kl--l----------f---
-a----------k----------
----------gae
s----------silpkcixxex----------

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nicftslpvliyslveqhidph----------vlqskptlyrdiskngllsika
f-lywtvlgfshafiff-fgsyxlvg----------xxxxxxxxxxm------

----

fg--nwtfgtlvftvmvitvtvk-malethfwtwinhl------vtwgsiifyfifslf
yggilwpf--xxxxxxx----------fvfiqll----------
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lffv-i---------tvtaikqgyed----------wl----------rh----ra
dnevnksavy---------iie----------

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----------k
e----------
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lgp----------
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lralclc-----htve----------xxxx-
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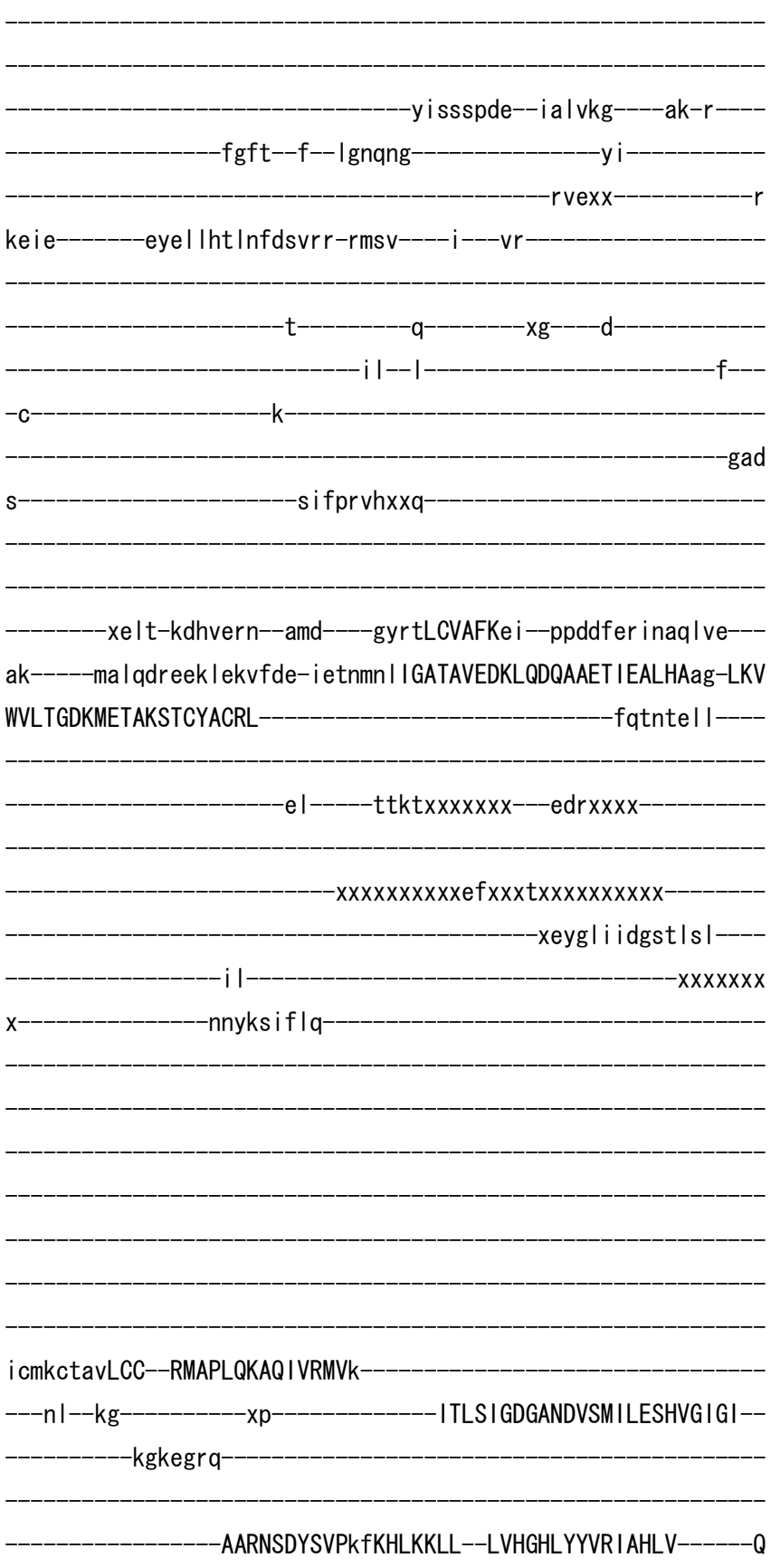

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xxxx----------

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>ggalV_lV01 XP_420729.2
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-tflprflysqf----------
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llfi-l---------avaavkeiied----------ik----------rh----ka
dnavnkkqtq---------vlr----------

----------n-gaw----------x------i----------
----------v
h----------
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ltmmavc-----htav----------
----------pexxxdx----------xx-----

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----------lr--l----------y---
-c----------k----------
----------gad
t----------viydrla----------x---------

---
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x----------fgvrqyfld----------

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----------xxxxxxxxx----------

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>ggalV_IV02 XP_417130.2

m----------

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----------i
v----------
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vgp----------
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----------pexxxnx----------xx-----

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----------lgyv--f--tgrtph----------sv----------
----------iid--x---------l
gkek------tfeilnvlefssnrk-rmsv----i---vr----------

----------x-p---------a---------g----q----------
----------lr--l----------y---
-c----------k----------
----------gad
n----------viferls----------x---------

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-------------------------------------------------------------
xxx--xx--eqt-lchleyf--ate----glrtLClAYAdl--sensyrewlnvyne---
as-----illkdrtqkleecyei-iekdlllLGATAlEDRLQAGVPETlATLMKae-lKl
WILTGDKQETALNlGYSCRL----------------------------isqsmsli----
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----------------------lv-----neds----------ldaxxxx----------
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-----------------------------------------xxdialiidghtlky-----
-----------------al--------------------------------------------
x---------------fevrqsfld---------------------------------------
-------------------------------------------------------------
-------------------------------------------------------------
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-------------------------------------------------------------
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nviftalppftlgifersctqd----------------smlrfpqlykitqnadgfntrv
f-wghcinalihsiilf-wfplxvle-----------------xxxxxxxxxg-------
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-------------xxxxxxxxxxxxx-------------------------------
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xxxkrkaaita----------

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dkeennrfay---------vlr----------

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k----------
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nt----erav----------gMVIYTGEECKIRmnanknpr-------

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ilamalc-----htcl----------
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pngqxxxxxxxvyeildviefssark-rmsv----v---vr--------------------
----
--------------------x-p---------d---------r----r------------
----------------------------ic--l----------------------f---
-c-------------------k-----------------------------------
---gad
s----------------------vlmkllkxxaxxxxxxxxxxxxxxxxxxx----xxxx
xxxxxx----------xxxxxxxxxxxxxxx-xxxxxxxxxxxxx-----xxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxx--xx--erc-fqhlndf--ate----glrtLLYAHRfl--deatyaewrcayqe---
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WMLTGDKRETAINVGHSCRL--------------------------vkdysslv----

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y-lgwtfiatceamlvy-fvmyxlfg----------xxxxxxxxi-------
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---------iivaslr----------anif-------p----------tdv
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lscl-l---------tiralrdlmdd----------ig----------rh----qs
drninsrpce---------ilc---

----------g-esf----------x------w----------
----------q
r---
----wrdVCVGDlVRLhr---
-----DSLVPADMLLLcs---

----------sepss-l---cyVETSDlDGETNLKFRqa-

----------xlvthqeltsegslaafdgrvtceepnsrmhsftgvlqw--

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ldg---
----------q---------RlLLR--GCKL----------r
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----------kktkldrmmdrlvviiflvllatslcla
-vasgfwakmfqekh------syla---------xxxxxxtpakqaffsfwsfTlLLSVl
lPMSMYlTfEFlYLVNSF-Flnwdlem----------

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-----------------------------------------x----------xx-----
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
-----------------------------------------------------x--xxxx
xxxxxx---------------------------ldpnnvg--lxeaaxx--x---------
------xx-----------------------------------------xxxx-----ef
lrllalc-----htvm-------------------------------------------
------------v----exx--------------------------xxx----xx-----
------------------------------------------------------------
------------------------------------------------------------
---------------------------------yqaaspde--ealvla----ar-s----
-----------------lgyv--f--lsrtqd---------------ti-----------
-----------------------------------------tis--x---------l
gvkr-------tyqvlamldfnsdrk-rmsv----l---vr--------------------
------------------------------------------------------------
--------------------x-p---------q---------g----t------------
----------------------------ir--l----------------------y---
-t-------------------k-------------------------------------
------------------------------------------------------------gad
t----------------------vilerlr--------------------x---------
------------------------------------------------------------
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xxx--xx--dft-eraldlf--aee----tlrtLCLASKel--seaeydewgrrhrv---
an-----vllqgraceldrlyee-meqdlelLGVTAIEDKLQEGVPETIQLLKLgn-lKV
WVLTGDKQETAMNVGYACKL---------------------------ltddmeil----
------------------------------------------------------------
----------------------ee-----keas--xx------fkaxxxx----------
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-----------------------------------------xxkralvisgdflvrxxxx
xx-xxxxxxxxxxxxxgwxxxxxxx---------------xxxxxxxxxxxxxxxxx--
x--------------slvekafvd-----------------------------------
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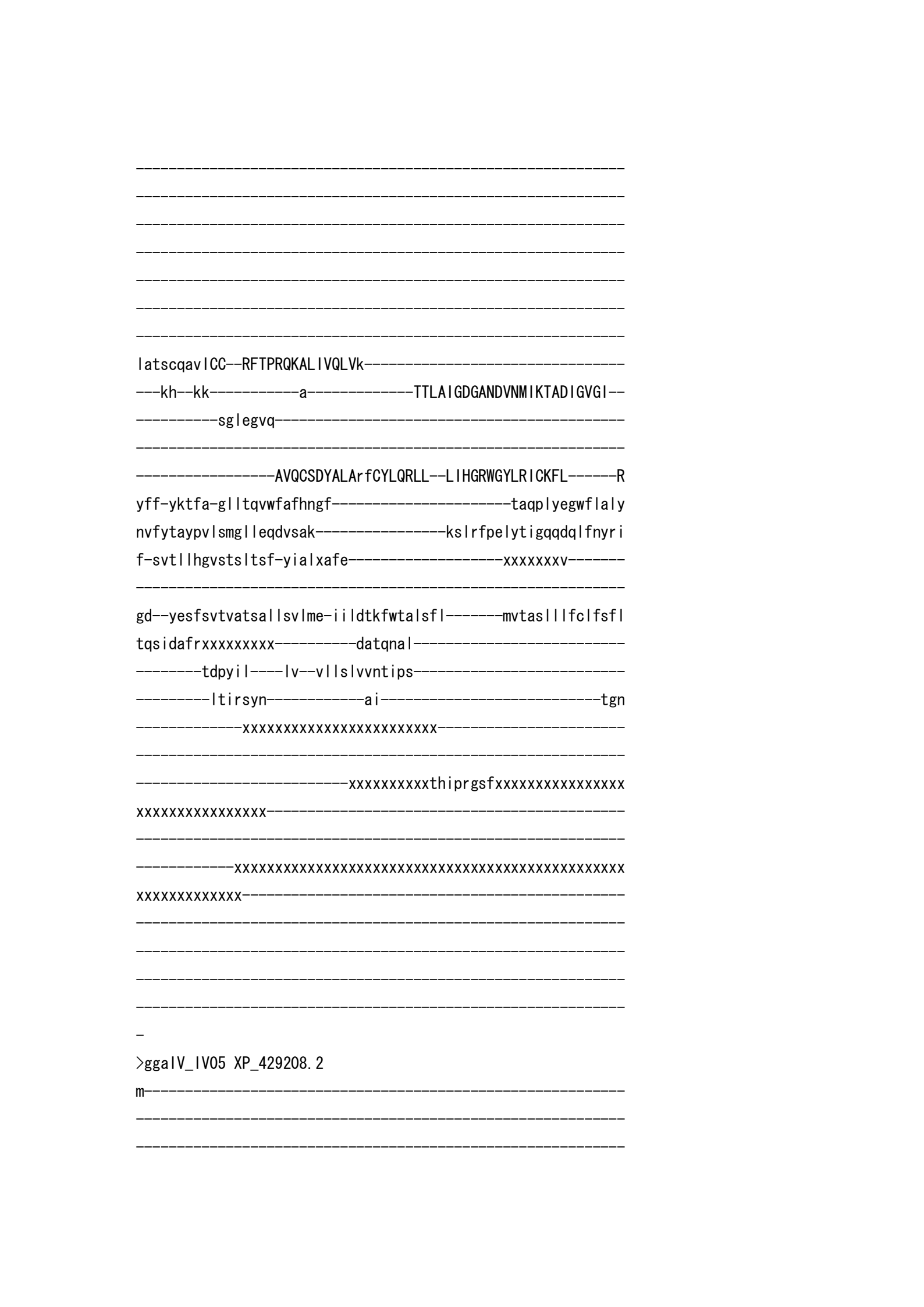

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lvlv-l--------avsgvkdaidd----------fn----------rh----ks
dnhvnnrpvq--------vli----------

----------n-gtl----------x-----d----------
----------e
k----------
----wmnlQVGDllKLen----------
-----NNFVTADLLLLss----------

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----------xtvtaelgedlqkltdfngeficeapnnkldnftgtlal--

----------rgekya
ldn----------
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----------krtsidrlmnvlvlmvmmcllshwqly
-lgnli----kgyhf-----xvylp---------xxxxxxsapfsaflmfwsyVllLNTV
VPlSLYVSvEllRLGNSF-Yldwdrkm----------
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----------TLTQNlMCFn----------kcsingksy----------
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xxxxx----------fvfydhs--lxeavxx--x---------
-------x----------xxxx-----kf
frllslc-----htvm----------
----------pe---exx----------xxx----xx-----

----------yqaqspde--galvta----ar-n----
----------fgfv--f--rartpe----------ti----------
----------tvv--x---------m
getk-------iykllaildfnnvrk-rmsv----i---vr----------

----------x-p---------e---------g----d----------
----------lt--l----------y---
-c----------k----------
----------gad
t----------ilyellh--p----------x---------

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as-----talegredklseiyee-iekdlmlLGATAIEDKLQDGVPQTIETLGKas-IKI
WVLTGDKQETAMNIGYSCNL----------------------------lyddmadv----
------------------------------------------------------------
----------------------fv-----iegs--xx------edvxxxx----------
--------------xxxx--------------------xxxx---------------xx
xxxx----------------------xxxxxxxxxxssxxxkxxx---xxxx--------
-----------------------------------------xxvyglvinghslay----
-----------------al-------------------------------------------
x---------------gnlelelvr-----------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
tacmckvvlCC--RVTPLQKAQVVELVk-------------------------------
---ky--kk-----------a-------------VTLAIGDGANDVSMIKTAHIGVGI--
----------sgqegmq-------------------------------------------
------------------------------------------------------------
-----------------AVLSSDFSFAqfRYLQRLL--LVHGRWSYIRMCKFL------K
yff-yknfa-ftlvhfwygffsgf----------------------saqtvydqwfitly
nlmytslpvlgmslfdqdvddr----------------wsllfpqlyvpgqqnlyfnkiv
f-ikcmlqgiyssllf-fipyxamy----------------xxxxxxxxxi-------
------------------------------------------------------------
ad--yqsfalmaqtcllivvsvq-igldtsywtvvnqf-------fiwgslsvyfaitft
mysdgmylxxxxxxxxx----------gtarntl-------------------------
--------sqpnvw----la--iflsialcvlpv-------------------------
---------vgfrflk-----------allr-------p-----------------tas
------------xxxxxxxx--------------------------------------
------------------------------------------------------------
--------------------------xxxxxxxxxxkrrlrrtsxxxxxxxxxxxxxxxxx
xxxxxxxxxxx-------------------------------------------------
```

----------xxxxxxxxxxxxxxxxxxxx----------

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>aniIV_IV02 EAA58087.1

m----------

----------xxxxx

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

x----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxrmrernsxxxxxxxxxx----

----------xxxxxxxxxxxxxxxxxxxx--

----------xxxxxxxxx----------

---dstvsedg----------

----------xxxxxxxxxxx----------

----------xxxxxx

xxxxxxxxxxxxxxxxxxxxxxxxvhkfvdnhvstakyn----------iv----

-tflpkflyeqf----------

----------s-kyanlffl----ftavl
-qqi------pnvsp----------tnr---y-tt----igp
lviv-l---------lvsaikelved----------yk----------rr----ss
dkslnysktq---------vlk----------

----------g-stf----------x------e----------
----------t
k----------
----wvdVAVGDIVRVes----------
-----EQPFPADLVLLas----------

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----------ipetshlvspadlsrlsgrirseqpnsslytyeatltmxx
xx----------
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lap----------
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nt----pwih----------gVVVFTGHETKLMrnatatpi-------

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-vgdliirqtekdkl------tyld----------xxxxnpgkqfimdiftyWVLYSNL
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----------aTCR-TSSLVEELGQlEYlFSDKTG----------
----------TLTCNMMEFk----------ectiggiqy----------
----------xx----------

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ltllatc-----htvi----------
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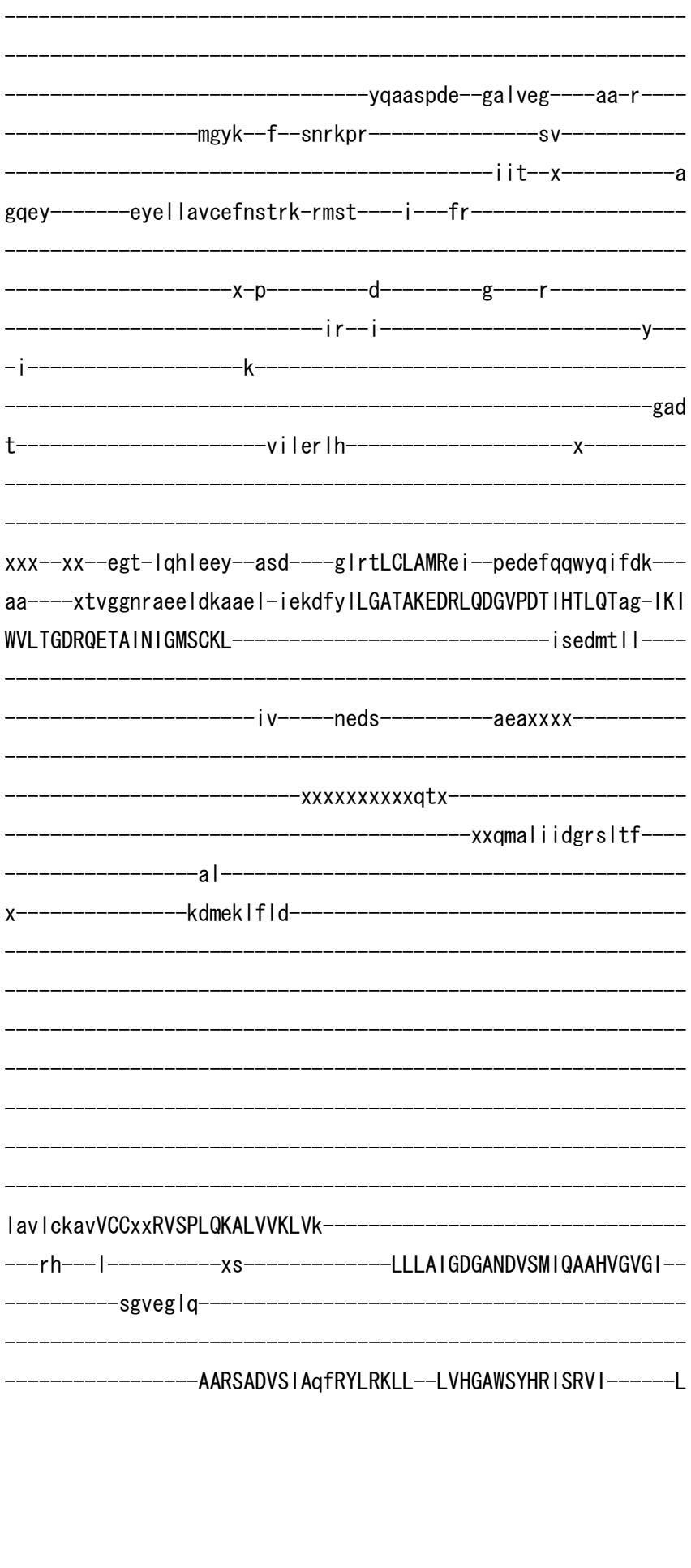

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f-wswiangfyhslllyxvsqlxfly----------xxxxxxxxv-------
---
ag--hwvwgsalytavlatvlgk-aalitniwtkytfi-------aipgsmiiwlaflpa
ygyaapai--xxxxxxx---------gtiprlf----------
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----------xxxxxxxxxxxxxxxxxxxxx----------

----------xxxxxxxxxxmrkqrgyaxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxx----------

----------xxx----------

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----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

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----------xxrakyppnivsnakyt----------pw----
-sflprtlynef----------
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-qii------pvlri----------gym---s-ty----iap
lafv-v---------sislgkealdd----------vg----------rr----rr
daeanaeefs---------vla----------

----------xxxxxxxxx
xxxxxxxxxxvxvii----------
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k----------
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----------xxxxxxxxxxxxxxxxxxxtdissxs--xtflRTDQLDGETDWKLRlp-

----------svlsqalsledftrlkitasgpdkrvnefvgnielxx
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lti----------
----------d---------NTAWA--NTVL----------
as----ntit----------xaAllYTGSQTRAAlstspsrs-------

----------kvglleyeinnltkilcaltltlsiilv
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----------pd----------
----------tVVR-TSTIPEDLGRIEYLLSDKTG----------
----------TLTQNEMELk----------kihvgtvsy----------
----------xxxxxxxxxxxxxx------

----------xx---------
---xxxxxxxxxxxxxxxxxx--xxxxxxxxigsr-vr----------
----------di
vlalalc-----hnvt----------
----------ptxxx----------

----------xxxxxxx---------
---x----------yqasspde--iaivry----te-e----
----------vglk--v--ayrdrr----------ti----------
----------vl----------
estdxxxxx-xrarildifpftsdsk-rmgi----i---ve----------

----------x-dxxxxxxxxa--------xe----e----------
----------iw--f----------y---
-q----------k----------
----------gad
t----------vmtsiv--xax----------

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WMLTGDKVETARCVAISAKL----------vargqyih----

----------tv-----akvk----------dks----------

----------axxxxxxxxxxxx------
----------dcclidgeslal----
----------ml----------
----------nqfrsafis----------

----
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fim-hrgli-isacqtmysiashf----------dpkglfinwlmvgy
atvytnapvfsl-vldrdvdeq----------lanlypelykelktgrslsyrs
f-ftwvlvsvyqgaviqxlsqi-lld----------t-------
----
is--gkrlisvsftalvmnellm-vaiavttwhpvmif------cllgtalvyaasvpf
lgey-f----------dlkyv----------
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--------waaklik----------qswn------p----------psy

----------rkvrg----------

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m----------

----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxx

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxlgarpprxxxxxxxxxx----

----------xxxxxxxxxxxxxxxxxxx--

---prtvwlgh----------

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-tflpgvlfnqf----------

----------k-yffnlyfl----llacs

-qfv------vemrl----------gal---y-ty----wvp

lgfv-l--------avtvireaaee----------ir----------cy----mr

dkevnsqiys--------klt----------

----------gxgtv----------k----------

----------v

k----------

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xx--
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lsi---
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xx---------xx--xxxxxxx--xxxxxxxxmssr-vh----------------------
--ea
vkaialc-----hnvt--
-----------pvxxx---

-------------x--xxxxx---xxxxxx-------------xxxxxx-----------
---x--------------------------yqasspde--valvqw----te-s----
-----------------vglt--l--vgrdqs---------------sm-----------
---ql---------------
rtpg-xxxx--nftilqifpftyesk-rmgi----i---vr-------------------

--------------------x-e---------s--------xg----e------------
---------------------------it--f----------------------y---
-m------------------k-----------------------------------
--gad
v--------------------vmagiv--xyx-------------------------

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----------if-----rlvt----------nrg----------

----------exxxxxxxxxxx------
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----------cl----------
----------kyyeyefme----------

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f-liwvlisiyqgsiim-ygal-llf----------e-------
----

se--fvhivaisftsliltellm-valtiqtwhwlmiv------aellslscyiaslvf
lhef-i----------dvyfi----------
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-dffpkqvwfqf----------

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llff-v---------lltivkegydd----------yk----------rh----rl
dkvenarcat---------vlr----xxx----------

----------xxxxxxxxxxxxxxx
xxxxxxxxxxq-ksw----------x------d----------
xxxxxxxx----------xx--xxx-------v
q----------
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lti----------
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----------yheasdtp--------
----------aKCN-TNTILENLGQVGYVFSDKTG----------
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----------xxxxx--xxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxpglssad--lxeyixxxxx---------
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llalalc-----htcl----------
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----------lgyq--v--vqrssh----------sv----------
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----------x-p--------d--------g----r----------
----------il--l----------i---
-c----------k----------
----------gad
s----------vilprlrxxnxxxxxxxxxxxxxxxxxxxxxxxxxxx
--xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
x--xxxxxxx---xxxxxx----xxxxxxxxxxxxxxxxxxxxx-------xxxxxxxx
xxx--xx--trc-fkhlddf--ase----glrtLVYAQKfl--sesdyaswkklysd---
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WMLTGDKRETAINIAHSARI----------ckpysdvh----

----------il-----dssk--xx----------

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----------em----------
xxx----------vhlselfys----------

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lapvvdsvICC--RASPAQKALLVRAVr----------
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--q-nianvyfl----fiiil
-gff------sifgv----------------------------d-n---pxln----tvp
livi-i---------vvtaikdaied-------------wr-----------rt----vl
dtelnnspvy---------rlvxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxx-xxxxxxxxxxxxxxx---------------xxxx--xx
xxxxxxxxxxxxx-----xx----xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxn-arf-----------------------x------r-------------
--d
y---
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iti---
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----------xxxxx--xxxx
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------xxxx----------xxxx-----hf
mlalavc-----hsvi----------
------------texxxgxx----------x-x----xx-----

----------fraqspde--aalvgt----ar-d----
----------cgft--l--lgrsnd----------dl----------
----------ivn--x---------m
geer-------tytvlntlefnstrk-rmsa----i---vr----------

----------x-p---------d---------r----s----------
----------ir--l----------f---
-c----------k----------
----------gad
s----------iiysrla-xg----------x---------

---
xxx--xx--kkt-aqhletf--are----glrtLCVADRkl--seeeyrawskehdi---
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xxxx----------x-xxxxxxxxdexxxexx--xxxxxx--------
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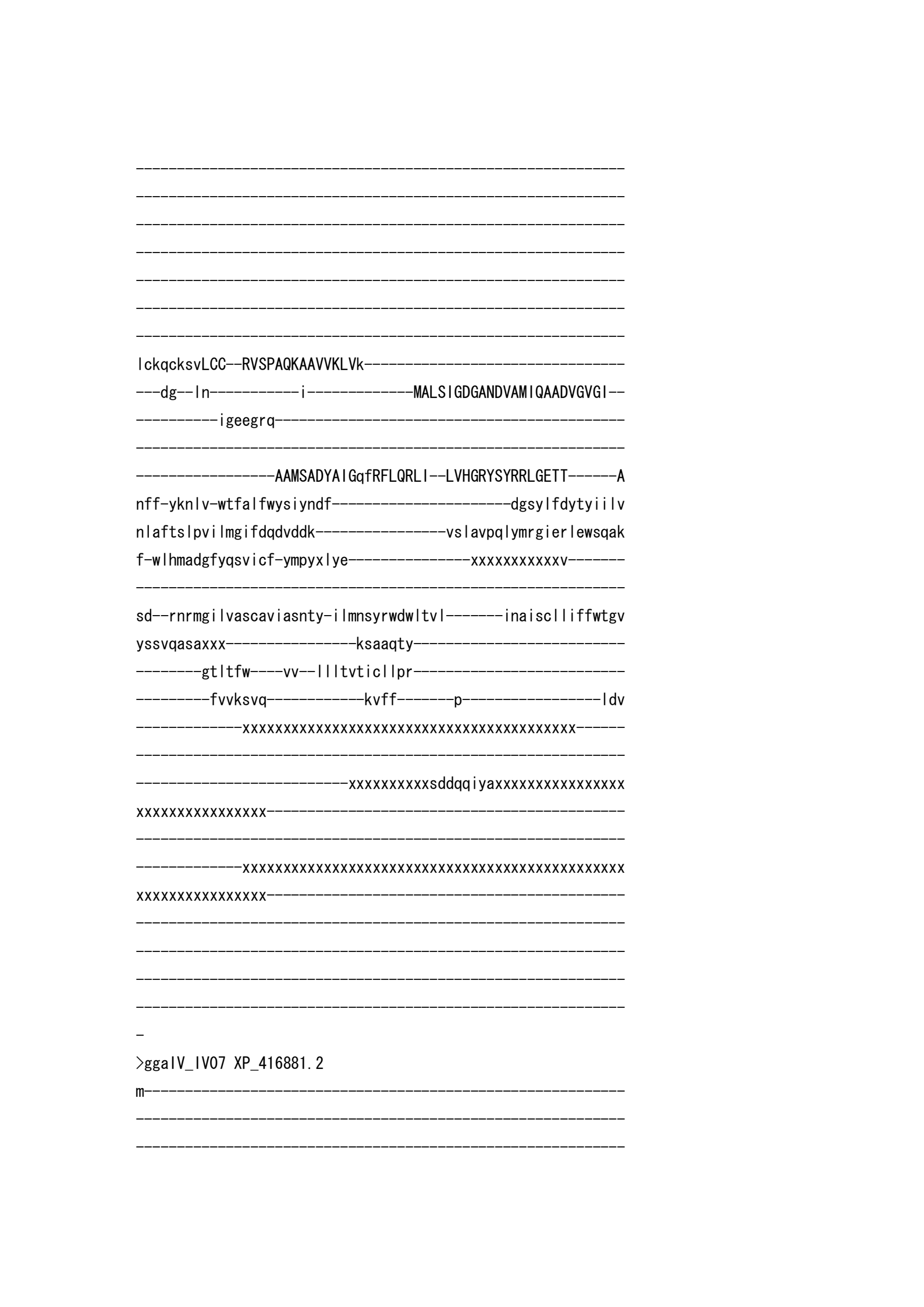

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-nfv------pavna----------fqp---e-la----lap
vlfi-l--------avtaikdlwed----------ys----------ry----rs
dqeinhmecl--------vyc----------

--------xxe-kky----------x------s----------
----------r
y----------
----wkeVKlGDFVQLrc----------
-----NEllPADlLLLss----------

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lfk---
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---ydeetdsq--------
-------------------------lQCR-ALNlTEDLGQVQFlFSDKTG----------
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---xxxxxxxxxxxxxxxxxxx
xxxxx------xxxxxxxxxxxxxxxx-------------------------------

---xxxxx--xxxx
xxxxxxxxxxxxxxxxxxxxxxx-xxxxxxxxditpdph--lxekvxxxxxxxxxxxxxx
xxxxxxxxxx-------------------------------------xxxx-----df
fialtic-----ntvv----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxslxxxk-x-------------------------xxx----xxx----
---xxxxxx-------------
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----xxxxx--------------------xxyeaespde--aalvya----ar-a----
-----------------yncs--l--vgrlsd--------------qv-----------
---svexxx---------l
gtl--------nfevlhtlgfdsirk-rmsv----v---vr--------------------
----
--------------------x-p---------l--------xd----e------------
---------------------------in--v----------------------y---
-t------------------k-------------------------------------
--gad
s---------------------vimdlllxxs--xxxxxxxx-----------------

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------------------------------------------------------------
xxx--xx--tkt-qnylnly--avd----glrtLClAKRvl--skeeyacwlkshle---
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WVLTGDKQETAVNlAYACKL----------------------------ldhdeeii----
------------------------------------------------------------
----------------------tl-----naes--xx------tcaxxxx----------
------------------------------------------------------------x
xxxx----------------------xxxxx---xxntxxxaxxxxxxxxxxxxxxxxxx
xxxx-----------------------------------------glvidgrtlay----
-----------------al-------------------------------------------
x---------------ptledkfla---------------------------------
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------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
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lakrcrsvLCC--RSTPLQKSMVVKLVr-------------------------------
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yff-yknam-fvallfwyqfycgf----------------------sgssmvdqwyliff
nllfsslpqlitgvldkdvpae-----------------vllsvpqlyksgqnmeeyqphm
f-wmnmidamyqslvcf-fipy-fty--------------xxxxx---------------
------------------------------------------------------------
-d--ifswgtpitttalftiilh-laietktwtflhws-------scifsillfffvalv
ynascpvc--xxxxxxx----------wtmerlm-------------------------
--------gdpmfy----ft--ciispvvallpr-------------------------
---------flyrtlq-----------gtlf-------p-----------------tql
-------------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxx--------------------------------------------------
--------------------------xxxxxxxxxxeslfqehtxxxxxxxxxxxxxxxx
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vispxt---------hrtsfisared-------------ip--xxxxxxxxxra----eg
qqnlevvpqq----------

----------xxxxxxxxx
xxxxxxxxxxexahi----------xxxxxx
xxxxxxxx----------xx--xxx-------d
k----------
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-----DDELPADlllLat----------

----------sdpeg-a---cylETKNLDGETNLKFRqa-

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iti----------
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nt----dwvl----------gVVLFTGHHTKlMmnsgitps-------

----------krpriarelnynvlynffilfgmcllsa
-ivngfafgtsdnsi------alfe---------xxxxxxtpamngfitfwaallLFQNL
VPlSLFlSlELVRLLQAF-Flysdvdm----------
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----------clPK-SWNlSDDLGQlEYlFSDKTG----------
----------TLTQNVMEFk----------katingqpy----------
----------xxxxxxxxxxxxxx-----

----------xxxxx--xxxx
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------xxxx----------xxxx-----rf
mlalalc-----htvi----------
----------pexxxgxx----------x-x----xx-----

--------------------------------ykaqspde--aalvst----ar-d----
-----------------mgft--v--lssnsd---------------gv----------
---rln--x---------m
geek------yypilntiefnssrk-rmsa----i---vr-----------------

--------------------x-t---------d---------g----q----------
----------------------------tv--l----------------------f---
-c-----------------k-----------------------------------
----------gad
s----------------------iiysrlk-xg-----------------x--------

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xxx--xx--tdt-aqhlemf--are----glrtLClAERvl--geqeyqawskeyav---
aa-----aavenredkmeaiadq-ieqdltlLGGTAlEDRLQDGVPQTlAVLAEag-lKL
WVLTGDKVETAINIGFSCNL-------------------------lnndmell----

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xxxx----------------------x-xxxxxxxxdexxxaxx--xxxxxx--------
----------xxthavvidgftlrw----
-----------------vl-----------------------------------
x--------------dtlkqkfll-----------------------------------

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lckqcksvLCC--RVSPAQKAAVCAMVk-----------------------------
---ng--ld----------v----------MTLSIGDGANDVAMIQEADVGVGI--
----------agvegrq---

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nllftsvpvilmgvldqdvsdt----------vslavpqlyrrgierlewtqtk
f-wlymldgtyqgvmsf-fipyxvvv----------xxxxxxxxxxxv-------
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td--rvrfgayiahpavvtinly-ilinsyqwdwlivl-------vvvlsdlfvffwtgv
ftsntysqxxx----------eaapqiy----------
--------aqpsfw----av--fiitpvmcmfpr----------
---------fsikalq----------kvyw-------p----------ydv
----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xx----------
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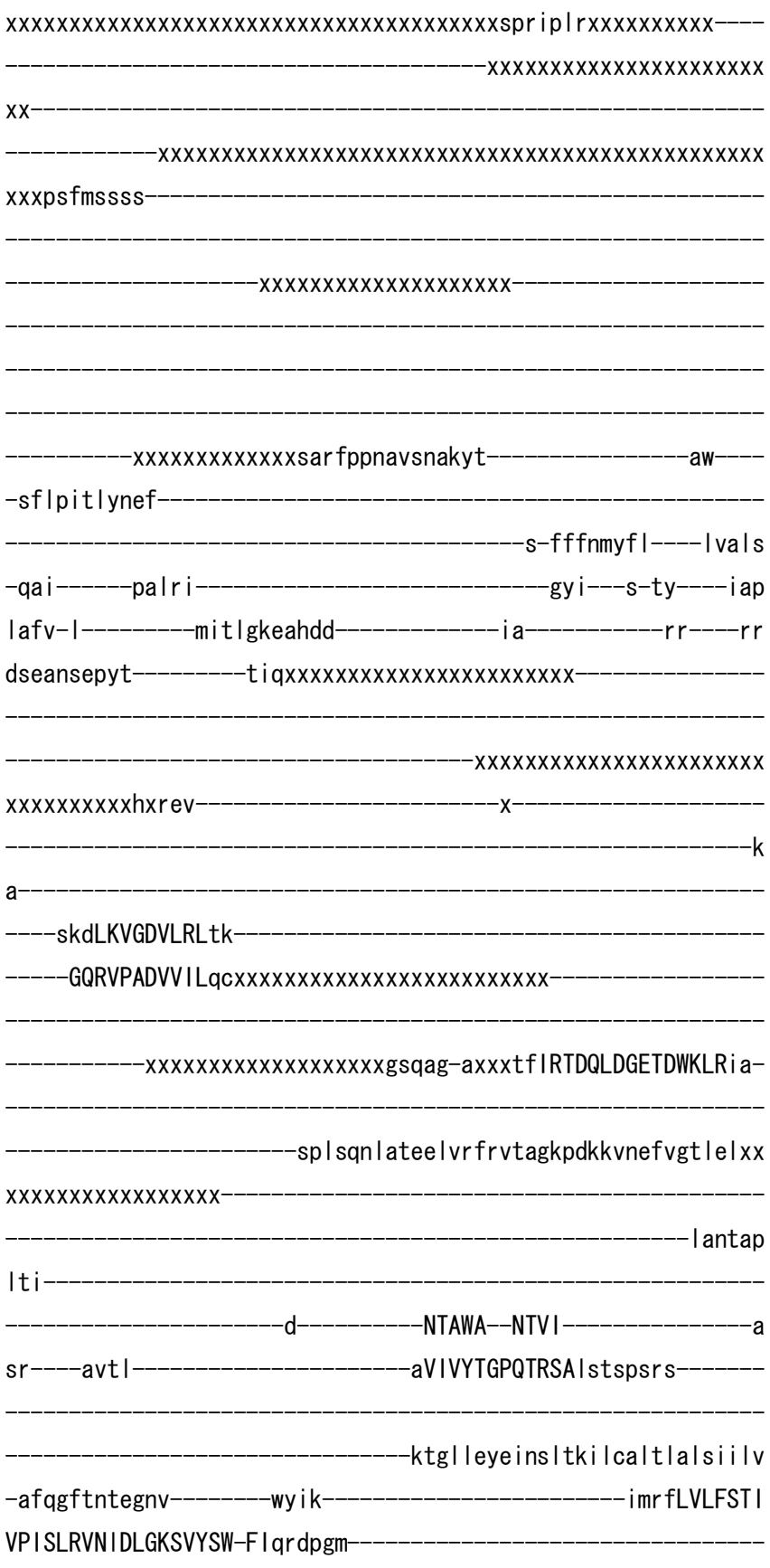

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---x----------yqasspde--iaivkw----te-a----
----------vglr--l--tyrdrq----------sm----------
----------tl----------
sfsexxxxx-xhf----------

----------x-exxxxx----g-------xg----e----------
----------tw--f----------y---
-q----------k----------
----------gad
t----------vmssiv--xax----------

---------dwl-deetanm--are----glrtLVVGRKrl--saeqyrefssryqe---
as-----laingrdagmqkvvshxlerdlelLGVTGVEDKLQKDVKPSLELLRNag-lKl
WMLTGDKVETARCVAVSSKL----------vargqyiy----

----------tl-----akmk----------rtd----------

----------sxxxxxxxxxxxx------
----------dacllidgeslal----
----------ll----------
----------qyhrldfvs----------

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vavrlptvVAC--RCSPTQKAEVARLlk----------

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----------vgkegrq----------

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atmytafpvlsl-vldkdvden----------lanlypelykeltsgrslsyrt

f-fvwvlvsiyqggiiq-glsq-llt----------e-------

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lsgy-f----------dlkfm----------

--------itlrtmxxxxyr--kvqelmvdflrl----------

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------------------------------------------------------------
--------------------vmgfssqntsfepeffqntiicelpnndlnkfkgy-----
------xxxx------------------------------------------------
------------------------------------------------------nherig
fni-------------------------------------------------------
----------------------e----------SLLLR--GCTI---------------r
nt----evai-----------------------glVIYAGHETKAMlnnngpry-------
------------------------------------------------------------
--------------------------------krskierrmnvdiflcvgllftmclvgs
-ighgiwsgsfpehp-----xydvp--------xxxxxxxspvlsgfymfltmlILLQVL
IPlSLYVSiELVKLGQVF-LIhndldl--------------------------------
-----------------------------------------ydeeadlp--------
-------------------------iQCR-ALNITEDLGQIQYIFSDKTG----------
----------TLTENKMVFr--------------rctvdghef------------------
-----------------------------------------xxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxx--xxx---------------------------------
------------------------------------------------------------
------------------------------------------------------------
-------------------------------------------------xxxxx--xxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxx-------------------------------
------------------------------------------------------------
-----------------------------------xxxxxxxxxxxxxxxxxxxxxxxx
xxx----xxxxx-fxxxq-x-------------------------xxx----xxx-----
-----------------------------------------xxxxxx--------------
-----xxxxxxxxxxxxxxx-xxx---xxxxxxxxxxxx--xxxx----xxxxxxxxxxx
xxxxxxxxx--------------------xxyeaespde--aalvya----aq-a-----
-----------------ysft--l--vsrtpe---------------qv-----------
-----------------------------------------tvrxxx---------g
tll--------tfdilytlgfdsvrk-rmsv----v---vr--------------------
------------------------------------------------------------
--------------------x-p---------l--------xk----e------------
---------------------------ii--v----------------------y---
-t------------------k--------------------------------------
------------------------------------------------------gad
s--------------------vimdllexxg-xxxxxxxxx-----------------
```

```
------------------------------------------------------------
------------------------------------------------------------
xxx--xx--dkt-qkhldcy--ard----glrtLClAKKvl--seddfqkwanfrqe---
ae-----aaidnrdellmetaqh-letkltlLGATGlEDRLQDGVPDTlAALREag-lQl
WVLTGDKQETAVNlAYSCKL---------------------------ldqrdtvf----
------------------------------------------------------------
----------------------ti-----nten--xx------tcexxxx----------
------------------------------------------------------------x
xxxx----------------------xxxxx---xxekxxxkxxxx-xxxxx--xx--xx
xxxxxx-----------------------------------------glvidgrtldi----
-----------------il-------------------------------------------
x---------------ggleerfle----------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
larlcrsvLCC--RSTPLQKSMVVKLVr-------------------------------
---rq--lk-----------v-------------MTLSlGDGANDVSMlQAADVGlGl--
----------sgqegmq-------------------------------------------
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yff-yknvs-yvnllfwyqffcgf----------------------sgntmidywqmiff
nlfftslpplvfgvldrdvsae----------------tllslpelykngqnseiyklst
f-iitmldafyqslvcf-fvpy-lay--------------xxxxx---------------
------------------------------------------------------------
-d--vfsfgnpintvsllt illh-qalemktwtlfhwi-------tiigsvviylvfsli
ynavcvac--xxxxxxx----------wimekql-------------------------
--------sepsfy----ll--clitpaiallpr-------------------------
---------yfifalr------------gtlg-------a-----------------sli
-------------xxxxxxxxxxxxxxxxxxxxxx-----------------------
------------------------------------------------------------
--------------------------xxxxxxxxxxaspapnedxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxx-------------------------------------------
```

--xxxx

----------h-rvanlyfl----flvvl
-nwv------plvea----------fqk---e-it----mlp
liav-l---------titalkdgled----------ys----------ky----km
dkqinnlltk---------vys----------

--------xxe-kky----------x------d----------
----------e
h----------
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-----NEIIPADMVLLys----------

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lsk----------
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nt----eavv----------glVVYAGHETKAMlnnsgphy-------

----------krsklerkvnsdilwcvllllmcltga
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xxxxxxx-xx----------xxx-----df
flalaic-----ntvv----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxx----xxxxxplxxxkxx----------xxx----xxx----

----------xxxxxx-------xxx-xxxx
xxxx--xxxxxxxxxxx-------xxxxxxxxxxxxxxxxxxx----xxxxxxxxxx
xxxxxxx-x--------------------xxyeaespde--aalvha----ak-a----
----------------ykci--l--qsrtpd---------------qv----------
---tvdxxx----------l
gsl-------tfqllhilpfdsvrk-rmsv----v---vr-------------------

--------------------x-p---------v--------xn----q-----------
----------------------------vv--v----------------------y---
-t-----------------k------------------------------------
--gad
s----------------------vmmdllexxs-xxxxxxxxx-----------------

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xxx--xx--ert-qkhlddy--ark----glrtLClAKKvm--sdeeytewlnnhfl---
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WMLTGDKRETAVNlAYACKL-------------------------lepddrif----

----------------------tl-----ksqs--xx------acaxxxx----------
--x
xxxx----------------------xxxxx---x-dqxxxnxxxxxxxxxx--xx---x
xxxxxx---glvidgrtleh----
-----------------vl---
x--------------dslqnafle-----------------------------------

----
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nllftsvppiiygvldkdvsae----------ilmqipqlyvmsqksvaylpst
f-witlldafyqslacf-fvpy-fty----------xxxxx----------

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fgatyrth--xxxxxxx---------rimekhm----------
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---------yflralq----------gtlf-------p----------ssv
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----------xxxxxxxxxxcrmelqvtxxxxxxxxxxxxxxxxx
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----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx----------

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----------xxxxxxxxxxxxxxxxxxx--

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dlvenrssaw---------vldxxxxxxxxxxxxxxxxxxxxxx----------

----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxnxwsh---
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q---
----wqdlRVGDVVRLqr---
-----DEQVPADLVLLsa---

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----------xpllakrcgtvagichcdatviaedpnldiysfdgsvrv--

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ltr---
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nt----reay----------gLVINSGEECKlRmnahksvr-------

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lPLSLYlSlEAlKlGQLY-MLq-diem----------

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----------TLTENVMRFq----------klslggyvw----------
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ilcmalc-----ntcl----------
----------pe---txx----------xxx----xx-----

----------yqaaspde--lalina----ar-e----
----------lgyv--m--idrdse----------ti----------
----------klqxxx---------s
gsndxxxxx--tytildvieftsdrk-rmsv----i---lg----------

----------x-p--------e--------g---r----------
----------il--l----------l---
-s----------k----------
----------gad
s----------allprlrxxqxxxxxxxxxxxxxxxxxx-------
----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxx----------
----------xxxxxxxx
xxx--xx--eac-frhiedf--ase----glrtLLFSYRyi--eeadyvawkreyhe---
ae-----tslvdrqaridsvaek-ielelelAGITAIEDKLQDGVPETIDKLRRan-IKV
WMLTGDKRETAINIGHSAKI----------cqpfsdif----

----------il-----dasaxxxx----------

----------xxxxxxxxxxevxx-----xxx----------
----------xhsvvvidgltlt-----
----------ev----------
xxx----------kaskdlfyd----------

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gtf-wkeiv-fylnqalfarynay----------tgtslfesasltvf

nalftllavvlmgvfeqdlsae----------tllafpelyvlgqqdkglnfvk

y-fgwmvlgaaealvif-ftvf----------xxxxxxxxxxxxt-------

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lalvyhrsxxxxxxxx----------sfihgfg---

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----------xxxxxxxxxxhqaeraqexxxx----------

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-qqi------pdvsp----------tgr---y-tt----lvp
llfi-l--------avaaikeiied----------ik----------rh----ka
dnavnkkqtq--------vlr----------

----------n-gaw----------x-----i----------
----------v
h----------
----wekVAVGEIVKVtn----------
-----GEHLPADLISLss----------

----------sepqa-m---cylETSNLDGETNLKlRqg-
----------lpatsdikdvdslmrisgriecespnrhlydfvgnirlx-
----------ghgtvp
lga----------
----------d---------QILLR--GAQL----------r
nt----qwvh----------glVVYTGHDTKLMqnstsppl-------
----------klsnveritnvqililfciliamslvcs
-vgsaiwnrrhsgkd------wyln----------xxxggasnfglnfltfllLFNNL
lPlSLLVTlEVVKFTQAY-Flnwdldm----------
----------hyeptdta--------
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----------TLTCNVMQFk----------kctiagvay----------
----------xxxxxxxxxxxxx-----

----------xxxx
xxxxxx----------ktfsdss--lxenlxx--x---------
------xxxx----------xxxx-----ef
ltmmavc-----htav----------
----------pexxxdx----------xx-----

----------yqaaspde--galvra----ak-q----
----------lnfv--f--tgrtpd----------sv----------
----------iid--x---------l
gqee-------ryellnvleftsark-rmsv----i---vr----------

----------x-p---------s---------g----k----------
----------lr--l----------y---
-c----------k----------
----------gad
t----------viydrla----------x---------

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------------------------------------------------------------
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as-----tsvqnrllkleesyel-ieknlqlLGATAIEDKLQDQVPETIETLMKad-IKI
WILTGDKQETAINIGHSCKL---------------------------lkknmgmi----
------------------------------------------------------------
----------------------vi-----negs----------ldgxxxx----------
------------------------------------------------------------
--------------------------xxxxxxxxxxalxx----------------------
-----------------------------------------xxdfaliidgktlky------
-----------------al-------------------------------------------
x---------------fgvrqyfld---------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
lalsckavlCC--RVSPLQKSEVVEMVk-------------------------------
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----------sgneglq-------------------------------------------
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ycf-ykniv-lyiieiwfafvngf----------------------sgqilferwcigly
nvmftamppltlgiferscrke----------------nmlkypelyktsqnaldfntkv
f-wvhclnglfhsvilf-wfplxalq-----------------xxxxxxxxxt-------
------------------------------------------------------------
sd--ylllgnfvytfvvitvclk-agletsywtwfshi-------aiwgsialwvvffgi
ysslwpaixxxxxxx------------geaamlf--------------------------
--------ssgvfw----mg--llfipvasllld---------------------------
---------vvykvik------------rtaf-------k-----------------tlv
------------xxxxxxxxx-------------------------------------
------------------------------------------------------------
--------------------------xxxxxxxxxxkslteraqxxxxxxxxxxxxxxxx
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---twqvkand----------

----------xxxxxxxxxxx----------

----------xxxxxxxeskyannaiktykyn----------af----

-tfipmnlfeqf----------

----------k-raanlyfl----allil
-qav------pqist----------law---y-tt----lvp
llvv-l--------gvtaikdlvdd----------va----------rh----km
dkeinnrtce--------vik----------

----------d-grf----------x-----v----------
----------a
k----------
----wkelQVGDVIRLkk----------
-----NDFVPADILLLss----------

----------sepns-l---cyVETAELDGETNLKFKms-

----------xeitdqylqredtlatfdgfieceepnnrldkftgtlfw--

----------rntsfp
lda----------
----------d----------KILLR--GCVI----------r
nt----dfch----------gLVIFAGADTKIMknsgktrf-------

----------krtkidylmnymvytifvvlillsagla
-ighayweaqvgnss------wyly----------xxxxxtpsyrgflifwgyllVLNTM
VPISLYVSvEVIRLGQSH-FInwdlqm----------
----------yyaekdtp--------
----------aKAR-TTTLNEQLGQIHYIFSDKTG----------
----------TLTQNIMTFk----------kccingqiy----------
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ffllavc-----htvm----------
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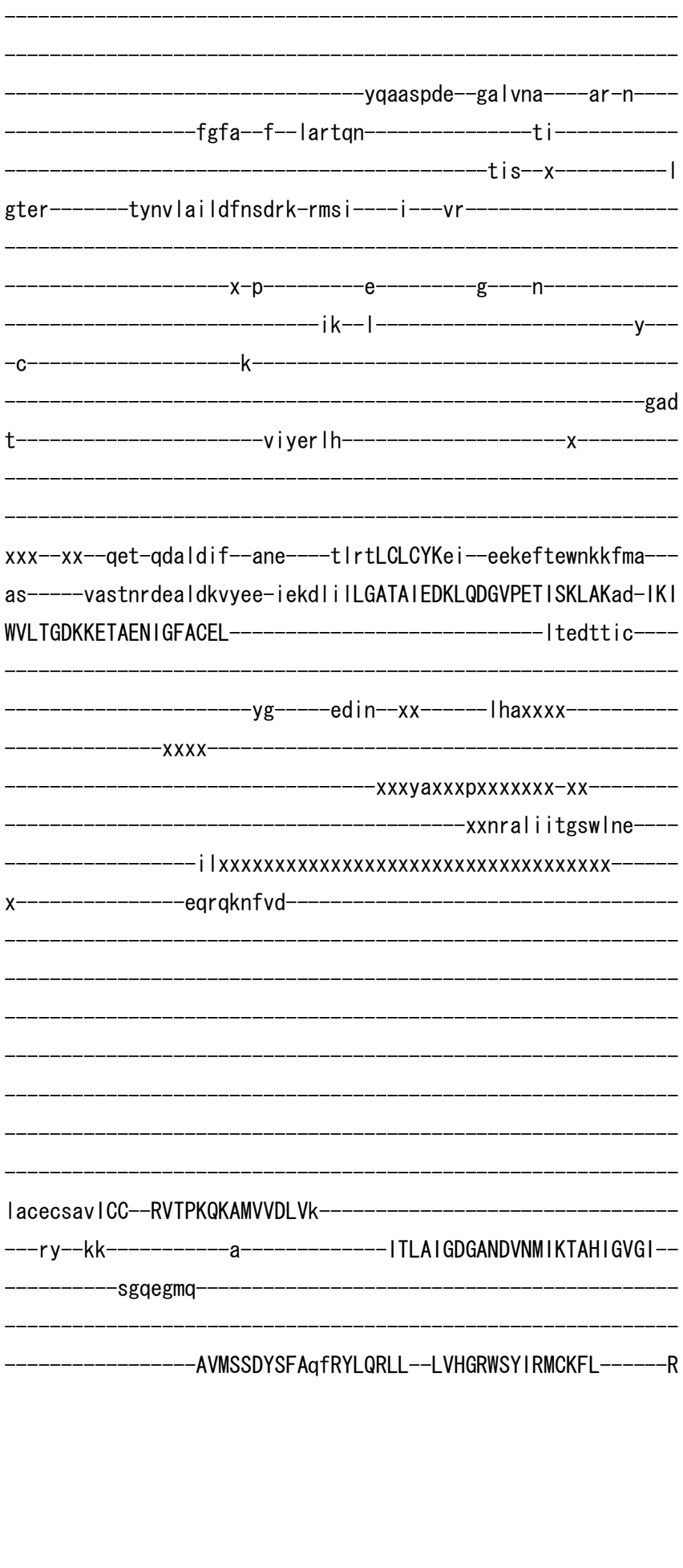

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sd--yqsfavtiasalvitvnfq-igldtsywtfvnaf-------sifgsialyfgimfd
fhsagihvxxxxxxxxx---------gtasnal----------
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--q-evantyfl----fllil
-qli------pqiss----------------------------lsw---f-tt----ivp
lvlv-l---------titavkdatdd-------------yf-----------rh----ks
dnqvnnrqsq---------vli---

----------n-gil-----------------------x------q----------
--e
q---
----wmnVCVGDIIKLen---
-----NQFVAADLLLLss---

-----------------------------sephg-l---cyIETAELDGETNMKVRqa-

-------------------xpvtselg-disklakfdgeviceppnnkldkfsgtlyw--

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lsn---
----------------------q----------NMLLR--GCVL---------------r
nt----ewcf----------------------gLVIFAGPDTKLMqnsgrtkf-------

-----------------------------krtsidrlmntlvlwifgflvcmgvila
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VPISLYVSvEVIRLGHSY-FInwdkkm---

----------fcmkkrtp-------
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----------TLTQNIMVFn----------kcsinghsy----------
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xxxxx--xxxx
xxxxx----------flfwdps--lxeavxx--x---------
-------x----------xxxx-----ef
frllslc-----htvm----------
----------se---exx----------xxx----xx-----
----------ykaqspde--galvta----ar-n----
----------fgfv--f--rsrtpk----------ti----------
----------tvh--x---------m
gtai-------tyqllaildfnnirk-rmsv----i---vr----------
----------x-p---------e---------g----k----------
----------ir--l----------y---
-c----------k----------
----------gad
t----------illdrlh--h----------x---------
xxx--xx--ntt-mdhlney--age----glrtLVLAYKdl--deeyyeewaerrlq---
as-----laqdsredrlasiyee-vennmmILGATAIEDKLQQGVPETIALLTLan-IKI
WVLTGDKQETAVNIGYSCKM----------ltddmtev----
----------fi-----vtgh--xx------levxxxx----------
----------xxxx----------xxxx----------xx
xxxx----------xxxxxxxxxxssxxxtxx----xxxx--------
----------xxeyalvinghslah----
----------al----------
x----------admelefle----------

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tacackavICC--RVTPLQKAQVVELVk----------

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f-ficiaqgiytsvlmf-fipyxvfa----------xxxxxxxxxl-------

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ad--yqsfavtvatslvivvsvq-igldtgywtainhf------fiwgslavyfailfa

mhsnglfdxxxxxxxxx----------gnaqntl----------

--------aqptvw----lt--ivlttvvcimpv----------

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----------h-rvsnlffl----iiiil

-qsi------pdist----------lpw---f-sl----stp

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k----------

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nt----dtcy----------gLVIYAGFDTKIMkncgkihl-------

----------krtkldllmnklvvvifisvvlvclvla
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IPMSMFILsEFIYLGNSV-FIdwdvqm----------
----------yykpqdvp--------
----------aKAR-STSLNDHLGQVEYIFSDKTG----------
----------TLTQNILTFn----------kccisgrvy----------
----------xxxxxxxxxxxxx-----

----------x--xxxx
xxxxx----------llfhnaa--lxhlvxx--x---------
------xx----------xxxx-----ef
wrllaic-----htvm----------
----------vrxxxrxx----------xxx----xx-----

----------yqaaspde--galvta----ar-n----
----------fgyv--f--lsrtqd----------tv----------
----------tim--x---------l
geer-------vyqvlaimdfnstrk-rmsv----l---vr----------

----------x-p---------e---------g----a----------
----------ic--l----------y---
-t----------k----------
----------gad
t----------viferlh----------x---------

```
------------------------------------------------------------
------------------------------------------------------------
xxx--xx--fat-eealaaf--aqe----tlrtLCLAYRev--aediyedwqqrhqe---
as-----lllqnraqalq----------qlLGATAIEDRLQDGVPETIKCLKKsn-IKI
WVLTGDKQETAVNIGFACEL----------------------------lsenmlil----
------------------------------------------------------------
----------------------ee-----keis--xx------letxxxx----------
------------------------------------------------------------
---------------------------xx-------nlxxxexxx----------------
-----------------------------------------xxklalvingdfldkxxxx
xxxxxxxxxxxxxxxx-awxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
x---------------vlqerafvd-----------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
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------------------------------------------------------------
laskcqavlCC--RVTPKQKALIVALVk---------------------------------
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----------agqegmq-------------------------------------------
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yff-yksma-smmvqvwfacyngf----------------------tgqplyegwflalf
nllystlpvlyiglfeqdvsae----------------qslekpelyvvgqkdelfnywv
f-vqaiahgvttslvnf-fmtlxisr------------------xxxxxxxf-------
------------------------------------------------------------
sd--hqsfavvvalscllsitme-viliikywtalcva------tillslgfyaimttt
tqsfwlfrxxxxxxxxx----------yadlsvm--------------------------
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---------lalrvif-------------------------------------------
-------------xxxxxxxxxxxxxxxxx----------------------------
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xxxxxxxxxxxxxxxx----------------------------------------
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----------xxxekklrev----------

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-tflpinlfeqf----------

----------q-rvanayfl----cllil
-qli------peiss----------ltw---f-tt----ivp
lvlv-i---------tmtavkdatdd----------yf----------rh----ks
dnqvnnrqse---------vli----------

----------n-skl----------x------n----------
----------e
k----------
----wmnVKVGDIIKLen----------
-----NQFVAADLLLLss----------

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lnn----------
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nt----swcf----------gMVIFAGPDTKLMqnsgktkf-------

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VPISLYVSvEVIRLGHSY-FInwdrkm----------
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----------TLTQNIMTFk----------rcsingriy----------
----------xxxxx-xxxxxxxxxxxx-

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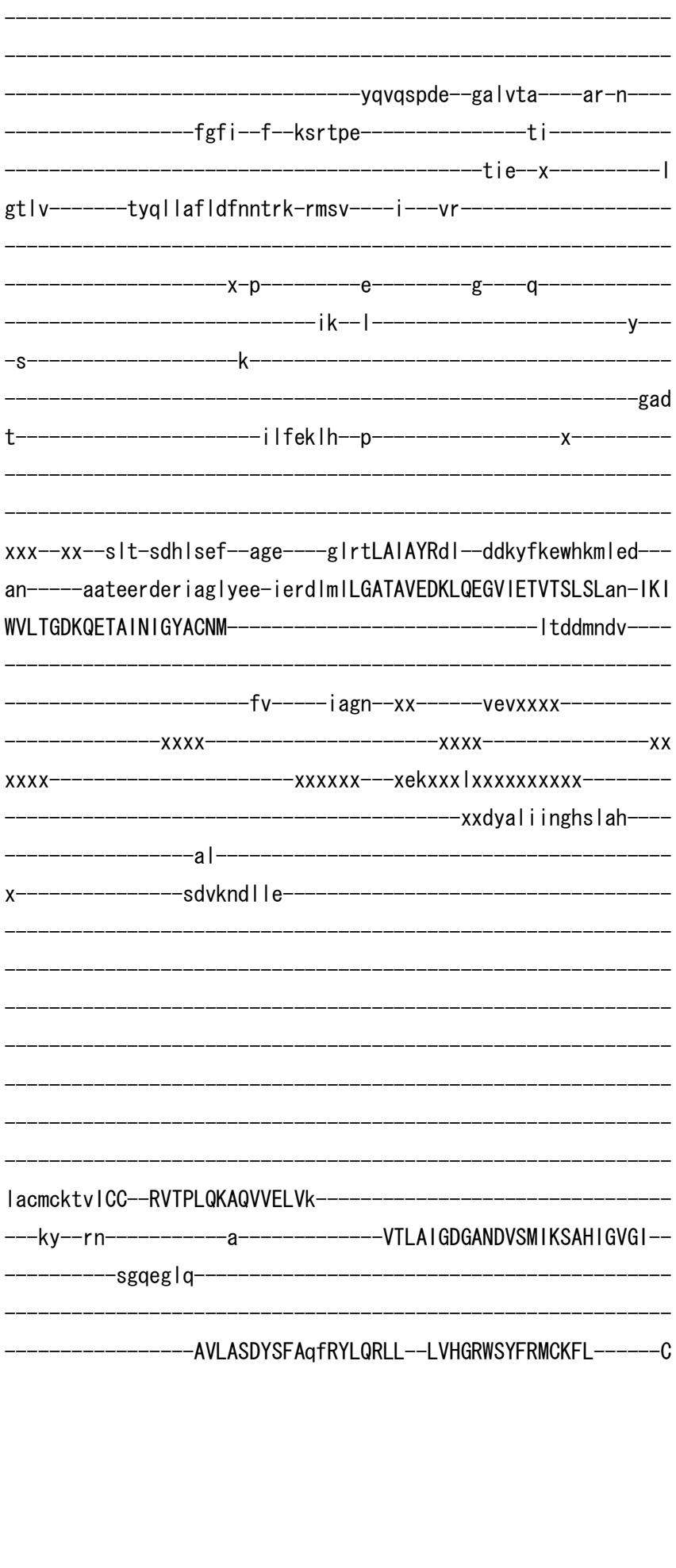
xxxxx----------fqffdhh--lxesixx--x---------
-------x----------xxxx-----ef
lrllalc-----htvm----------
----------se---exx----------xxx----xx-----



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----------k-yffnlyfl----llacs
-qfv------pemrl----------gal---y-ty----wvp
lgfv-l---------avtvireavee----------ir----------cy----vr
dkevnsqvys---------rlt---

----------axgtv----------k----------
----------v
k---
----ssnlQVGDLllVek---
-----NQRVPADMlFLrt---

----------sekng-s---cfLRTDQLDGETDWKLRlp-

----------vactqrlptaadllqirsyvyaeepnidihnfvgtftrxx
xx---
----------ppises
lsi---
----------e----------NTLWA--GTVV----------
as----gtvv----------gVVLYTGRELRSVmntsnprs-------

----------kiglfdlevncltkilfgalvvvslvmv
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lPlSLRVNlDMGKlVYSW-Vlrrdski----------

```
-------------------------------------------pg-----------
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---------TLTQNEMIFk-------------rlhlgtvay-----------------
-----------------------------------------xxxxxxxxxxxxxx------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
-------------------------------------------------xx-----xxx
xx---------xx--xxxxxxx--xxxxxxxxmssr-vh---------------------
------------------------------------------------------------ea
vkaialc-----hnvt-------------------------------------------
-----------pvxxx-------------------------------------------
------------------------------------------------------------
-------------x--xxxxx---xxxxxx-------------xxxxxx-----------
---x--------------------------yqasspde--valvqw----te-s----
-----------------vglt--l--vgrdqs---------------sm-----------
-----------------------------------------ql--------------
rtpg-xxxx--nftilqifpftyesk-rmgi----i---vr-------------------
------------------------------------------------------------
--------------------x-e---------s--------xg----e------------
---------------------------it--f----------------------y---
-m-------------------k-------------------------------------
------------------------------------------------------------gad
v---------------------vmagiv--xyx-------------------------
------------------------------------------------------------
------------------------------------------------------------
---------dwl-eeecgnm--are----glrvLVVAKKsl--aeeqyqdfearyvq---
ak-----lsvhdrslkvatvies-lemememlLCLTGVEDQLQADVRPTLETLRNag-IKV
WMLTGDKLETATCTAKNAHL-------------------------vtrnqdih----
------------------------------------------------------------
----------------------vf-----rlvt----------nrg--------------
------------------------------------------------------------
-----------------------------------------exxxxxxxxxxxx------
-----------------------------------------dcalvisgdslev----
-----------------cl-----------------------------------------
---------------kyyeyefme-----------------------------------
```


----
lacqcpavVCC--RCAPTQKAQIVRLLq----------
---er--tg----------x----------LTCAVGDGGNDVSMIQESDCGVGV--
----------egkegkq----------

----------ASLAADFSITqfKHLGRLL--MVHGRNSYKRSAALS------Q
fvi-hrslc-istmqavfssvfyf----------asvplyqgfliigy
stiytmfpvfsl-vldkdvkse----------vamlypelykdllkgrplsykt
f-liwvlisiyqgstim-ygal-llf----------e-------
----
se--fvhivaisftsliltellm-valtiqtwhwlmtv------aellslacyiaslvf
lhef-i----------dvyfi----------
--------atlsfl----wk--vsvitlvsclpl----------
---------yvlkylr----------rrfs------p----------psy

----------skl---ts----------

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>hsaIV_IVO8 NP_940933.3
m----------

----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxprarimqxxxxxxxxxx----
----------xxxxxxxxxxxxxxxxxxxxx
xxx----------

---artvwlgc----------

----------xxxxeekhprnsiknqkyn----------vf----
-tfipgvlyeqf----------
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lgfv-l--------avtmtreaide----------fr----------rf----qr
dkevnsqlys--------klt----------

----------vxgkv----------q----------
----------v
k----------
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-----NQRlPSDMVFLrt----------

```
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------------------------------------------------------------
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xx----------------------------------------------------------
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lsi---------------------------------------------------------
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as----gtvi----------------------gVVIYTGKETRSVmntsnpkn-------
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IPISLRVNIDMGKAVYGW-MMmkdeni---------------------------------
---------------------------------------------pg--------------
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-----------------------------------------xxxxxxxxxxxxxx------
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------------------------------------------------------------
------------------------------------------------------------
-------------------------------------------------xx-----xxx
xx-xxxxxxxxx--xxxxxxx--xxxxxxxxvssr-ih----------------------
------------------------------------------------------------ea
vkaivlc-----hnvt--------------------------------------------
------------pvxxx---------------------------------------------
------------------------------------------------------------
-------------xx-xxxxxxxxxxxxx-------------xxxxxx-------------
---x--------------------------yqasspde--valvqw----te-s----
-----------------vglt--l--vsrdlt---------------sm-----------
-----------------------------------------ql----------------
ktps-xxxx--sfcilqlfpftsesk-rmgv----i---vr--------------------
------------------------------------------------------------
--------------------x-e---------s--------xa----e------------
---------------------------it--f----------------------y---
-m------------------k-----------------------------------------
----------------------------------------------------------gad
v--------------------amspiv--xyx-------------------------
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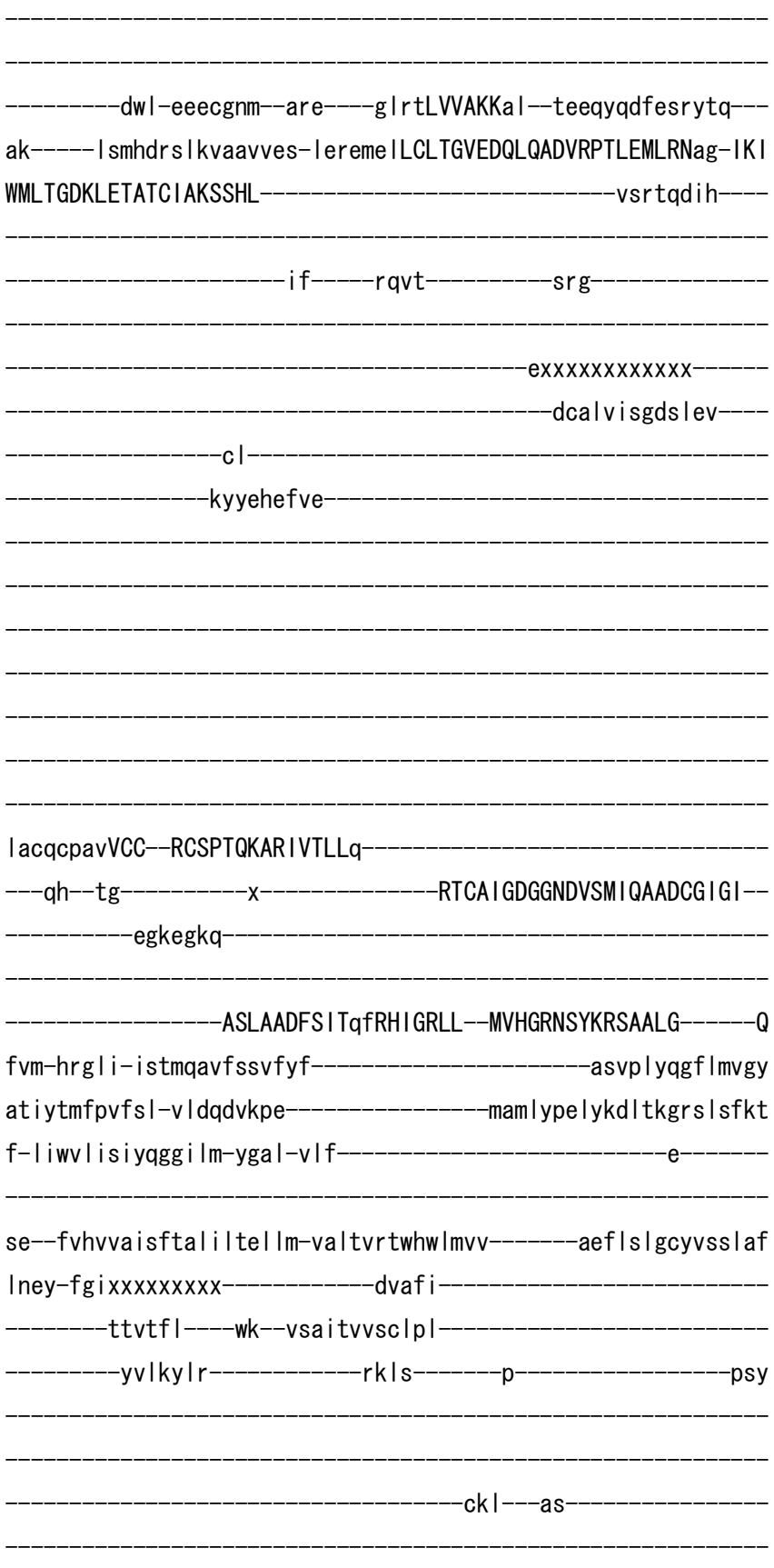

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-nfv------pavna----------fqp---g-la----lap
vlfi-l---------aitafrdlwed----------ys----------rh----rs
dhkinhlgcl---------vfs----------

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----------r
f----------
----wkelHVGDFVRLrc----------
-----NElFPADILLLss----------

----------sdpdg-l---chlETANLDGETNLKRRqv-

----------vrgfselvsefnpltftsviecekpnndlsrfrgciihx-

----------ngkkag
lyk----------
----------e----------NLLLR--GCTL----------r
nt----davv----------glVlYAGHETKALlnnsgpry-------

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lPlSLYVSiElVKACQVY-Flnqdmql----------
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----------lQCR-ALNlTEDLGQlQYlFSDKTG----------
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----------xxxxxxxxxxxxxxxxxxx
xxxxx-----xxxxxxxxxxxxxxx----------

----------xxxxx--xxxx
xxxxxxxxxxxxxxxxxxxxxxx-xxxxxxxxditpdpk--lxekvxxxxxxxxxxxxxx
xxxxxxxxxx----------xxxx-----df
fialtic-----ntvv----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxx--xxxxxslxxxk-x----------xxx----xxx----

```
-------------------------------------xxxxxx--------------
----xxxxxxxxxxx------xxxxxxxxxxxxxxxxx---xxx---xxxxxxxx----
----xxxxx--------------------xxyeaespde--aalvya----ar-a----
----------------yncv--l--verlhd--------------qv----------
-----------------------------------------svexxx----------l
grl-------tfellhtlgfdsvrk-rmsv----v---ir-------------------
------------------------------------------------------------
--------------------x-p---------l--------xd----e-----------
----------------------------in--v----------------------y---
-t-----------------k--------------------------------------
------------------------------------------------------------gad
s----------------------vvmdllqxxs--xxxxxxxx-----------------
------------------------------------------------------------
------------------------------------------------------------
xxx--xx--skt-qnylnvy--aae----glrtLClAKRvl--skeeyacwlqshle---
ae-----sslenseellfqsair-letnlhlLGATGlEDRLQDGVPETlSKLRQag-LQl
WVLTGDKQETAVNlAYACKL-------------------------ldhdeevi----
------------------------------------------------------------
----------------------tl-----nats--xx------acaxxxx----------
------------------------------------------------------------x
xxxx----------------------xxxxx---xxraxxxtxxxxxxxxxxxxxxxxxx
xxxxxx-----------------------------------------slvidgrslay----
-----------------al-------------------------------------
x--------------knledkflf--------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
lakqcrsvLCC--RSTPLQKSMVVKLVr---------------------------------
---sk--lk----------a-----------MTLAlGDGANDVSMlQVADVGVGl--
----------sgqegmq-------------------------------------------
------------------------------------------------------------
-----------------AVMASDFAVPkfRYLERLL--lLHGHWCYSRLANMV------L
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yff-ykntm-fvgllfwfqffcgf----------sastmidqwyliff
nllfsslpplvtgvldrdvpan----------vlltnpqlyksgqnmeeyrprt
f-wfnmadaafqslvcf-sipy-lay----------xxxxx----------

-d--lftwgtpivtialltfllh-lgietktwtwlnwi-------tcgfsvllfftvali
ynascatc--xxxxxxx---------wtmqall----------
--------gdpvfy----lt--clmtpvaallpr----------
---------lffrslq----------grvf-------p----------tql
----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx--xxxx

----------xxxxxxxxxxpvcsleasxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxx----------

----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxx--xxxxxxxxxxxxxxxxxxxxxxxxx------

-
>ggalV_lV10 XP_416948.2
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----------rreyeexxxxxxxxxx----
----------xxxxxxxxxxxxxxxxxxx--

----------xxxxxxxxx--
---srtiyvgh--

----------------------------xxxxxxxxxxx---------------------

----------------------pqrfpdnrivsskyt---------------fw----
-nfipknlfeqf---
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-qli------id-tp----------------------------tsp---v-ts----glp
llfv-i---------tvtaikqgyed-------------wl-----------rh----ka
dnamnqcpvh---------fiq-----------------------------------

----------h-gkl-----------------------x------r-------------
---k
q--
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-----DETFPCDLIFLss---

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--------------------vqdtkafhseqeidalhatieceqpqpdlykfvgrinvxx
xxx---
---eptarp
lgs---
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nt----ekif----------------------gVAIYTGMETKMAlnyqsksq-------

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IPVSMYVTvEMQKFLGSY-FLtwdeem-----------------------------

----------fdedtgeg-------
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---------TLTENNMEFv----------eccieghvy----------

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fralclc-----htvq----------xxxx-
--xxxxxxxxx-qlxxxsxx----------

----------yissspde--valveg----iq-r----
----------lgyt--y--lclkdn----------ym----------
----------eilxx----------e
nnre------kfellevlsfdsvrr-rmsv----i---vk----------

----------s--------s-------xg---d----------
----------if--l----------f---
-c----------k----------
----------gad
s----------sifprvkxxk----------

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WVLTGDKMETAAATCYACKL----------frrntqil----

----------el-----ttkk--xx------eqsxxxx----------

----------xxxxxxxxxxhsxxxtxxxxxxxxxx--------
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----------im----------xxxxxxx
x----------gnyrelfle----------

----------xxxxx--xxx--

----------xxxxxxxxx----------
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----------x-xxxxxxxxx----------

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-nflpknlfeqf----------
----------r-rianfyfl----iiflv
-qvi------vd-tp----------tsp---v-ts----glp
lffv-i--------tvtaikqgyed----------wl----------rh----ra
dnevnksnvf--------iie----------

----------n-akq----------x-----q----------
----------k
e----------
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-----DETFPCDLIFLas----------

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xxx----------
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lgp----------
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----------ydeemeeg--------
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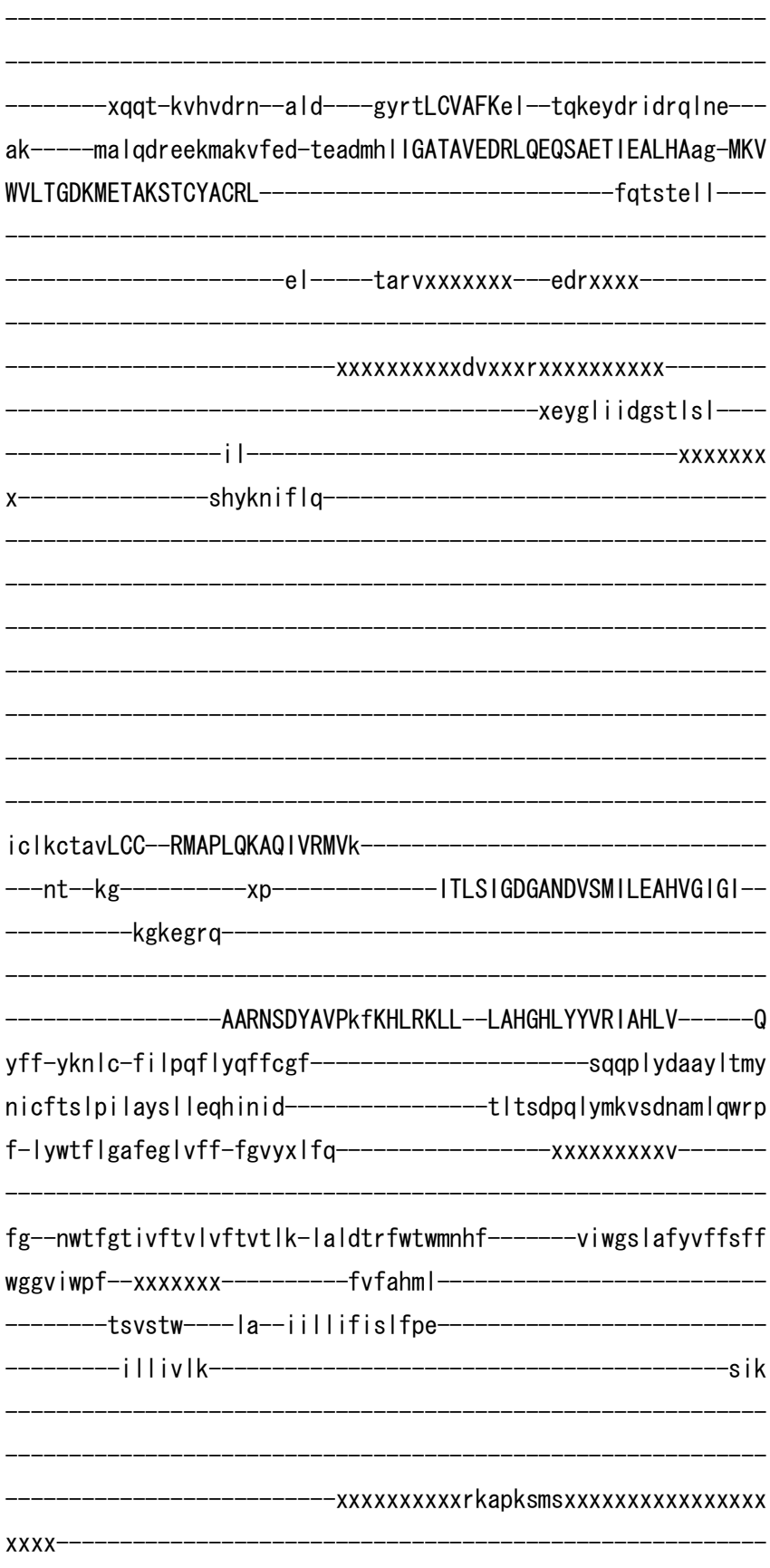
----------TLTENSMEFi----------eccidghky----------

----------xxxxxxxdgfsqtdxxl-kyyxxxxx---------
------xxxx----------lf
lralclc-----htvr----------xxxx-
-----xxxxxxxghxxxkxx----------

----------yissspde--ialvkg----ae-k----
----------ygft--f--lglend----------fv----------
----------kirxx----------k
nete-------myqllhtlnfdpvrr-rmsv----i---vr----------

----------t--------t--------xg----k----------
----------ll--l----------f---
-c----------k----------
----------gad
s----------sifprvqxxe----------



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x----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
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----------xxxxxxxxxxx----------

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-tflprnlfeqf----------

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laiv-l---------fvimikdgmed----------fk----------rh----rf
dkaincsnir---------iye----------

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----------k
c----------
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----------sdpng-i---chLETASLDGETNLKQRcv-

----------vkgfsqqevqfepelfhntivcekpnnhlnkfkgymehx-

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fgc----------
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xxxxxxxxxxxxxxxxxxxxxxxxxxx----------

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xxxxxxx-xx----------xxxx-----df
flaltic-----nsvm----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxx----xxxxx-fxxxaxx----------xxx----xxx----

----------xxxx----------
-------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxx----------xxyeaespde--aalvha----ah-a----
----------ysft--l--vsrtpe----------qv----------
----------tvrxxx---------g
tcl-------tfsllctlgfdsvrk-rmsv----v---vr----------

----------x-p---------l--------xg----e----------
----------iv--v----------y---
-t----------k----------
----------gad
s----------vimdllexxaxxxxxxxxxx----------

----
xxx--xx--art-qkhldly--ard----glrtLClAKKvv--seedfrrwasfrre---
ae-----asldnrdellmetaqh-lenqltlLGATGlEDRLQEGVPDTlATLREag-lQL
WVLTGDKQETAVNlAHSCRL----------lnqtdtvy----

----------ti-----nten--xx------tcexxxx----------
----------x
xxxx----------xxxxx---xxqkxxxkxxxxxxxxxx--xxxxxx
xxxxxx----------glvidgktlna----
----------if----------
x----------gklekkfle----------

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ltqycrsvLCC--RSTPLQKSMlVKLVr----------
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nlfftslpplvfgvldkdisae----------tllalpelyksgqnsecynlst
f-wismvdafyqslicf-fipy-lay----------xxxxx----------

-d--vftfgtpintislttillh-qamemktwtifhgv-------vllgsflmyflvsll
ynatcvic--xxxxxxx---------wvmegql----------
--------snptfy----lv--cfltpvvallpr----------
---------yfflslq----------gtcg-------k----------sli
----------xxxxxxxxxxxxxxxxx----------

----------xxxxxxxxxxpvpeva----------xxxxxx
xxxxxxxxxxxxxxxx----------

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xxxxxxxxxxxxxxxxxxxxx----------

-
>hsaIV_IV11 NP_065186.2
m----------

----------xx

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxtpklsgr----------

---hrivvphi---

----------xxxxxxxxxxx----------

----------gayvnnrirttkyt----------ll----
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----------h-raanlyfl----flvvl
-nwv------plvea----------fqk---e-it----mlp
lvvv-l---------tiiaikdgled----------yr----------ky----ki
dkqinnlitk---------vys---

--------xxe-kky----------x------d----------
----------r
c---
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lsk---
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fialaic-----ntvv----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxx----xxxxxslxxxkxx----------xxx----xxx----
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xxxx--xxxxxxxx---x-------xxxxxxxxxxxxxxxxxxx----xxxxxxxxxx
xx-xxxxxx----------xxyeaespde--aalvya----ar-a----
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gpl--------tfqllhilpfdsvrk-rmsv----v---vr----------

----------x-p--------l-------xn---q----------
----------vv--v----------y---
-t----------k----------
----------gad
s----------vimellsxxs-xxxxxxxxx----------

----
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----------al----------
x----------eslqkqfle----------

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f-witlldafyqslvcf-fvpy-fty----------xxxxx----------

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fgamcvtc--xxxxxxx----------wimqehm----------
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_
>hsaIV_IV12 NP_056020.1
m----------

----------xxxxxxxxx-xxx--

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dnamnqcpvh--------fiq----------

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----------k
q----------
----srkLRVGDIVMVke----------
-----DETFPCDLIFLss----------

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xxx----------
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lgs----------
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--xxxxxxxxx-pdxxxsxx----------

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----------eilxx----------e
nhie-------rfelleilsfdsvrr-rmsv----i---vk----------

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----------iy--l----------f---
-c----------k----------
----------gad
s----------sifprvixxk----------

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------------------------------------------------------------
----------------------el-----ttkr--xx------eqsxxxx----------
------------------------------------------------------------
--------------------------xxxxxxxxxxhsxxxtxxxxxxxxxx--------
-----------------------------------------xxdygliidgaalsl-----
-----------------im-----------------------------------xxxxxxx
x---------------gnyrelfle-----------------------------------
------------------------------------------------------------
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------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
icrscsavLCC--RMAPLQKAQIVKLlk-------------------------------
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----------igkegrq-------------------------------------------
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nisftslpillyslmeqhvgid----------------vlkrdptlyrdvaknallrwrv
f-iywtllglfdalvff-fgayxvfe-----------------xxxxxxxxxi-------
------------------------------------------------------------
fg--nwtfgtlvftvmvftvtlk-laldthywtwinhf-------viwgsllfyvvfsll
wggviwpf--xxxxxxx----------yvfiqml--------------------------
--------ssgpaw----la--ivllvtisllpd---------------------------
---------vlkkvlc------------rqlw-------p-----------------tat
------------xxxxxxxxxx-------------------------------------
------------------------------------------------------------
--------------------------xxxxxxxxxxsqtsssIsx---------------
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m----------

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xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxlmssheaxxxxxxxxxx----
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---frviqvgq----------

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-tflpkclyeqf----------

----------r-yfynmyfl----lvsls
-qli------pplki----------gyl---s-ty----iap
lifv-l--------litltkeavdd----------lk----------rr----rr
dsyanneiyt----------

-------xxdxpca----------

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-----DQRlPADMILLet----------

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----------nnqkrp
isv----------
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as----dgvy----------gVVVYTGKDTRQSmnsskakt------

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----------pg----------
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vlalslc-----hnvt----------
----------psxxxdxxxx----------

----------yqaaspde--vaivkw----ts-t----
----------lglv--l--tnrtrd----------ai----------
----------tlnxx----------
----------vykilnifpfksetk-rmgi----i---vq----------

----------s---------p--------xe----k----------
----------it--f----------y---
-l----------k----------
----------gad
s----------imqnfvkxx----------

---------fwl-eeecgnl--are----glrtLVVAKKdl--saeeysafslahsd---
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----------exxxxxxxxxxx------
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----------ci----------
----------gylqnefid----------

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stmytmlpvfsi-vydrdvsek----------lvflfpelykemreqkcfsykn
f-iscvlisvyqgliiqxftfyxigf----------
---
ee--egkmlavcfsclifnelim-valqintweqtivm-------selltlmmyilsvpf
ltny----------felkfl----------
--------lglkfy----wv--salilfisllpv----------
---------wcgkalk----------rklk-------p----------ssy

----------aklqr----------

-
>hsalV_lV13 NP_055431.1


```
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----------------------------xxxxxxx--xx----------------------
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-nfvpknlfeqf----------------------------------------------------
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lffv-i---------tvtaikqgyed-------------wl-----------rh----ns
dnevngapvy---------vvr-----------------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
----------s-ggl-------------------------x------k--------------
-------------------------------------------------------------t
r--------------------------------------------------------------
----sknlRVGDlVRlak----------------------------------------------
-----DElFPADLVLLss----------------------------------------------
--------------------------------------------------------------
------------------------------drldg-s---chVTTASLDGETNLKTHva-
--------------------------------------------------------------
--------------------vpetallqtvanldtlvaviecqqpeadlyrfmgrmiixx
xx--------------------------------------------------------------
-----------------------------------------------------eeivrp
lgp-------------------------------------------------------------
----------------------e----------SLLLR--GARL---------------k
nt----keif----------------------gVAVYTGMETKMAlnyksksq-------
--------------------------------------------------------------
------------------------------krsaveksmntfliiylviliseavist
-ilkytwqaeekwde-----xwynq-------xxxxxxxxskilrfisdflafLVLYNFl
lPlSLYVTvEMQKFLGSF-Flgwdldl-------------------------------
```

----------yheesdqk-------
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----------TLTENEMQFr----------ecsingmky----------

----------xxxxxx--xxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxrtspenexxlxkehx----------
----------lf
fkavslc-----htvq----------xxxx
xxxxxxxxxxxxnlxxxqxx----------

----------yyasspde--kalvea----aa-r----
----------igiv--f--ignsee----------tm----------
----------evkx----------l
gkle------rykllhilefdsdrr-rmsv----i---vq----------

----------xxxg----e----------
----------kl--l----------f---
-a----------k----------
----------gae
s----------silpkcixxex----------

---------ekt-rihvdef--alk----glrtLCIAYRkf--tskeyeeidkrife---
ar-----talqqreeklaavfqf-iekdlilLGATAVEDRLQDKVRETIEALRMag-IKV
WVLTGDKHETAVSVSLSCGH----------fhrtmnil----

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----------reheklfme----------

----

vcrncsavLCC--RMAPLQKAKVIRLlk----------

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yff-yknvc-fitpqflyqfyclf----------sqqtlydsvyltly

nicftslpiliysslleqhvdph----------vlqnkptlyrdisknrllsikt

f-lywtilgfshafiff-fgsyxlig----------xxxxxxxxxxm-------

----

fg--nwtfgtlvftvmvitvtvk-malethfwtwinhl------vtwgsiifyfvfslf

yggilwpf--xxxxxxx---------fvfiqll----------

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xxxxxxxxxxxxxx----------

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>spolV_IVO2 NP_592849.1

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----------xx------

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livv-v--------gitavkdaied----------fr----------rt----ml

dihlnntptl---------rlsxxxxxxxxxxxxxxxxxxxxxxx-------xxxxxxxx

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----------t

y----------

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-----NDElPADlVllns----------

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isl---
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nt----kwvi----------------------gVVVFTGDDTKIMlnsgappl-------

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------xxxx---xxxx-----ef
flalalc-----hsvv--
------------adxxxdx-----------------------------------xx-----
----

--------------------------------ykaqspde--aalvgt----ar-d----
-----------------vgfv--f--ldqrrd--------------im-----------
---vtr--x---------l
getq-------rfklmdtiefssark-rmsv----i---vk--------------------
----
--------------------x-p---------d---------n----r------------
---------------------------yv--l----------------------i---
-c-------------------k-----------------------------------
--gad
s--------------------iiferlexxe-------------------------

```
------------------------------------------------------------
------------------------------------------------------------
xxx--xx--ktt-sehlrif--ale----glrtLClAKRel--teeeyyewkekydi---
aa-----saienreeqieevadl-ieshltlLGGTAlEDRLQEGVPDSlALLAQag-lKL
WVLTGDKMETAlNlGFSCNL----------------------------ldagmdmi----
------------------------------------------------------------
----------------------kf-----dv----xx------evsxxx-----------
------------------------------------------------------------xxxx
xxxx----------------------xxxxxxxxxxvexxxaxx--xxxxxx--------
-----------------------------------------xxshalvidgsvlkr----
-----------------vl-------------------------------------------
x---------------gpmrtkfll---------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
lckrckavLCC--RVSPAQKADVVQLVr-------------------------------
---es--le-----------v-------------MTLAlGDGANDVAMlQKADlGVGl--
----------vgeegra-------------------------------------------
------------------------------------------------------------
-----------------AAMSADYAlGqfRFLSKLV--LVHGRWDYNRVAEMV------N
nff-yksvv-wtftlfwyqiynnf----------------------danylfdytyvmlf
nlifsslpvivmgvydqdvnad----------------lslripqlykrgilqlnsarki
f-igymldgfyqsvicf-ffsfxvin--------------xxxxxxxxxxxt-------
------------------------------------------------------------
ma--vqdlgvyvaaptimvvdty-vilnqsnwdvfsig------lwalscltfwfwtgv
ysqslytyxxx----------------ksasrif--------------------------
--------rtpnfw----av--lcgtivsclfpk--------------------------
---------flfmttq-----------klfw-------p-----------------ydv
-------------xxxxxxxxxxxxxxxx-----------------------------
------------------------------------------------------------
--------------------------xxxxxxxxxxspdwasstxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxx-------------------------------------------
```

----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx--

-
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----------xxxxxxxxxx--

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----------x-xxxxxxxxx----------

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----------r-rianfyfl----iiflv
-qvt------vd-tp----------tsp---v-ts----glp
lffv-i---------tvtaikqgyed----------cl----------rh----ra
dnevnkstvy---------iie----------

----------n-akr----------x------r----------
----------k
e----------
----sekIKVGDVVEVqa----------
-----DETFPCDLILLss----------

----------cttdg-t---cyVTTASLDGESNCKTHya-

----------vrdtialctaesidtlraaieceqpqpdlykfvgrinixx
xxx----------
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lgp----------
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nt----ekiy----------gVAVYTGMETKMAlnyqgksq------

----------krsaveksinaflivylfilltkaavct
-tlkyvwqstpynde-----xwynq-------xxxxxxxxlkvlkmftdflsfMVLFNFl
lPVSMYVTvEMQKFLGSF-Flswdkdf----------
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lralclc-----htve----------xxxx-
-----xxxxxxxesxxx--x----------

----------yissspde--ialvkg----ak-r----
----------ygft--f--lgnrng----------ym----------
----------rvexx----------r
keie------eyellhtlnfdavrr-rmsv----i---vk----------

----------t--------q-------xg----d----------
----------il--l----------f---
-c----------k----------
----------gad
s----------avfprvqxxe----------

--------xelt-kvhvern--amd----gyrtLCVAFKei--apddyerinrqlie---
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WVLTGDKMETAKSTCYACRL----------fqtntell----

----------el-----ttktxxxxxxx---edrxxxx----------

----------xxxxxxxxxxefxxxtxxxxxxxxxx--------
----------xeygliidgstlsl----
----------il----------xxxxxxx
x----------nnyksiflq----------

----
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----------kgkegrq----------

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f-lywtflaafegtvff-fgtyxlfq----------xxxxxxxxxv-------
---
yg--nwtfgtivftvlvftvtlk-laldtrfwtwinhf-------viwgslafyvffsff
wggiiwpf--xxxxxxx---------fvfaqml----------
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xxxx----------

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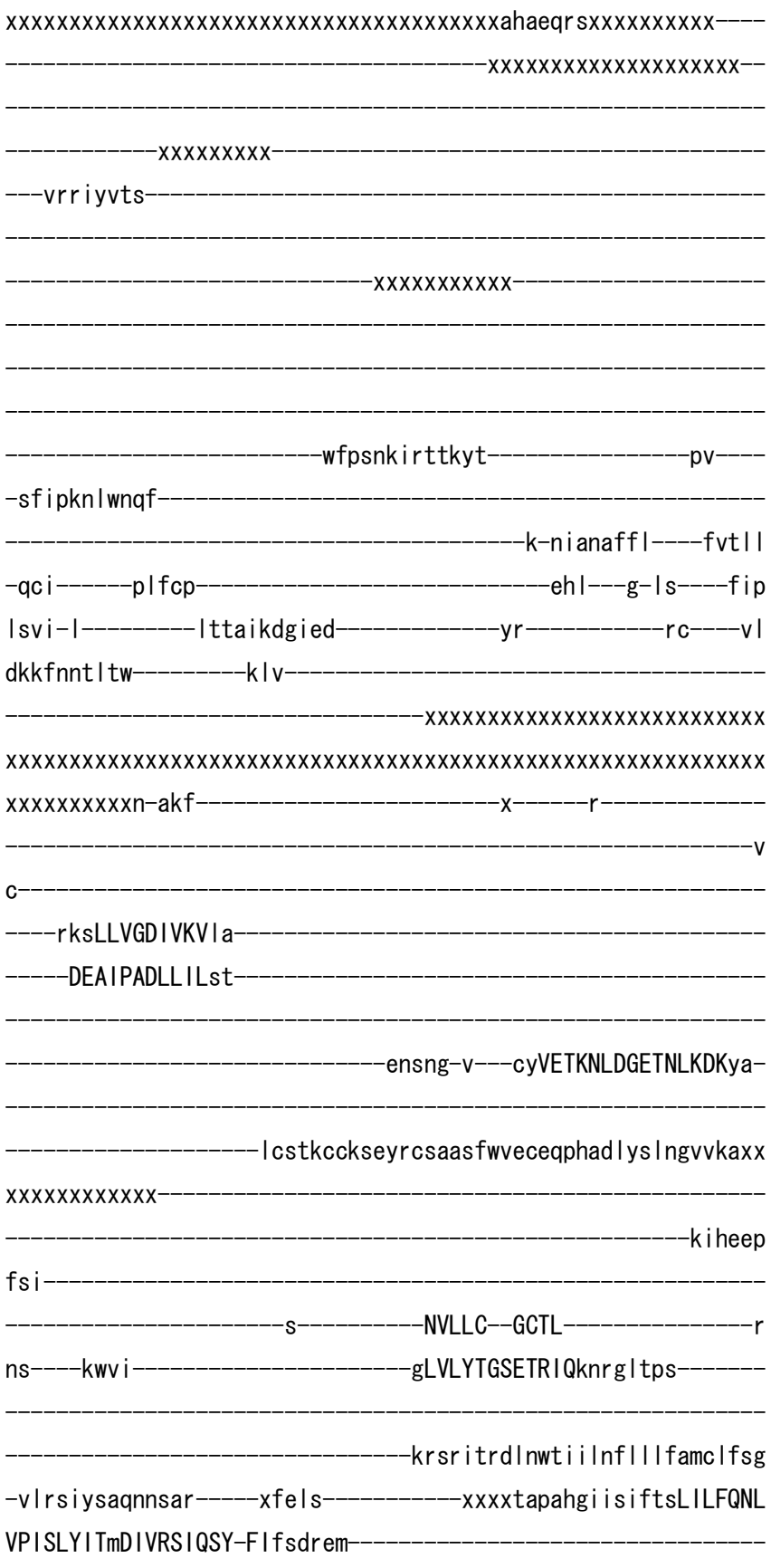

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----------xxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxx----------

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------xxxx----------xxxx-----ef
fkalalc-----hsvv----------
----------t----dxx----------xxx----xx-----

----------ynaqspde--ealvkv----ar-d----
----------fgft--l--lntknr----------ry----------
----------tir--x---------r
genk------nfrvldiipftstrk-rmsv----i---ir----------

----------x-e--------d--------g---i----------
----------ih--l----------i---
-c----------k----------
----------gad
t----------vifprls--s----------x--------

----
xxx--xx--ekt-kkhlasf--sse----gfrtLCIARRti--dkqdylewkvnfne---
an-----saihernekvskvsem-ieqelelLGGTAIEDKLQENVPETIALLAlag-IKL
WVLTGDKVETAINIGYSCNL----------ldpnmtif----

----------ri-----dansxxxxxxxxxxirnx----------

----------xxxxxxxxxxdexxxfxxxxxxxxxx--------
----------khaividgdalnf----
----------vl----------
x----------eqvsflflm----------

---

lckqcktvLCC--RVSPSQKAAVVALVk---

---ks--ln----------v----------VTLAIGDGANDVSMIQEADVGVGI--

---------kgvegqa---

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fff-yknvi-wtfilfwyqfynef----------dgnyifdytyvmlf

nllftslpviiagcfdqdvdas----------vsmknpslyqrgilglewngkr

f-wsymldgiyqslvcfxvalfxfkf----------xxxxxxxxxxi-------

---

ec--iediglfissptifvinif-ilmnqerlnlisli------twmfsigvfwiwtfi

ysevgpsyxxx----------ksasrtc---

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----------xxxx---

----------xxxxxxxxxxtssssfaxxxxxxxxxxxxxxxxx

xxxxxxxxxxxxxxx---

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>tanIV_IV01 XP_955173.1

m---

----------xxxxxxxxxxxxxfkkpdee----------

---irniklni----------

----------xxxx----------

----------pcsnrvkttkyt----------py----
-nfifknlyeql----------
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-qst------pqvss----------tqg---yxiv----llp
liiv-l--------lfsalkdgyed----------yq----------ry----ls
dnqlnnnivq--------ivnxxxxxxxxxxxxxxxxxxxxxx----------
----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxn-kvl----------x-----n----------
----------k
y----------
----wkdLKVGEYVFLqn----------
-----KDIAPADLVLLat----------

------------------------------seeng-f---ayVDASSLDGETNIKKKes-

--------------xxxxxxelgsdfehvitevqrllghfkcegpnknlisfdghlkyxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxknines
ket---
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----
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VPISAIVTINAVKLIQGF-FIqfddsm-----------------------------------
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---xxxxxxxxxxxxxxxxxx-

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flhlain-----nwav---
------------pd---sxx-------------------------xxx-----------

--------------------------------ymcpspde--lcfvna----aa-f-----
-----------------cgfr--l--lqrnsn---------------fv-----------
---lis--x---------f
nqiy-------kikiiaqadfdykrk-cstt----i---isxxxxxxxxxxxxxxxxxxx
xxxxxxxxx-----xxx-------------xxxxxxxxxx-----------------xxx
xxxxxxxxxxxxxxxxxxxxxxt---------e--------xn----r------------
---------------------------ii--l----------------------y---
-c-------------------k-------------------------------------
--ggd
n--------------------imikklkxxk-------------------------

```
------------------------------------------------------------
------------------------------------------------------------
x----xx--vvt-lrnmkky--svg----glrtLVFAKRei--elkefnewlkeynr---
ik-----ltiesrdeklaecvsk-lecdlelQGVTGIEDKLQTGVSECIEQLLMag-IRI
WMLTGDNLDTSINIGIATNL--------------------------vnmlsdri----
------------------------------------------------------------
----------------------ml-----dsntxxxx----------------------
------------------------------------------------------------
------------------------xxxxxxxxxxxxidxxxnx-----------------
-----------------------------------------xxhrclildsisiey----
-----------------ifxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxtvteeifie-----------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
ilkrvhsvICC--RMTPYLKGAVVTFVk---------------------------------
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----------kgregsq-------------------------------------------
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ymf-yknvi-liiplffyayislf----------------------sgqkiyyslfvaiy
nvvftsipvgifgivdqdynre----------------fsvkyphvyqlgqinhyfnvik
f-sgwilnaiiqsavif-fmmt-vgl--------------xxxxxxxxxxxxi-------
------------------------------------------------------------
ad--aptlgimllssvfiivsck-lvletwyftkitll-------shlisifffiitvcs
fssspiysxxxx---------------gsafvlf--------------------------
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---------yfykvfk-----------ysfc-------p-----------------qyy
------------xxxxxxxxxxxxxxxxx-------------------------------
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```


-
>tanIV_IVO2 XP_951951.1
m----------

----------xxxxxxxxxxxxxxxxxxxxxxlkdrmtfxxxxxxxxxx----

---yksircis----------

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lslv-v--------avcmikegied----------yk----------rh----vr
drehntqkfs---------vyqxxxxxx----------

----------v
s----------
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xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxkkives
lnv----------
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as----gtih----------gLTIYIGKDARAClnskraki-------

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VPLSLRISIEIAKYVYNR-GIvmdkki----------
----------pn----------
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----------xxxxxxxxxxxxxx------

----------xxxx---xxxx
xxxxxxxxxx---xxxxxxxxxxxxxxxxxxxlenr-ly----------
----------ls
llslavc-----hnvr----------
----------pvxxx----------xxxx----

----------xxxxxxxx----------
---xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx----------
---x----------fqgsspde--ialvrf----an-q----
----------cnvk--l--verddy----------km----------
----------vlm----------v
n----xxxx--nlrilfmipfssetk-rmgi----i---ve----------

----------x-e----------xg----h----------
----------kh--f----------f---
-l----------k----------
----------gae
v----------vvipmllxxgx----------

---------vwl-seecdnl--arm----glrtLVFAYRsi--sdseysnfvqkyne---
an-----lslydrvkkirkvtgt-lehgmllVGLTGVRDKLQRNVGSTLESLKNad-lKl
WMLTGDKlDTAKCVAlSSGM----------iqrnnsif----

----------qi-----svdk----------

----------xxqixxxsxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxktlllldsfvini----
----------si----------xxxxxxxxxxxx
xxx----------kalkrlfik----------

----
slllanniLFC--RCTPQMKADlVKLLk----------
---se--nk----------lVCSlGDGDNDVPMlSEANVGlGl--
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fli-hrgvi-isvmqaifstiyyf----------mpiaffqgwllvgf
tsyynmipifcl-vldeeisee----------dvmlfpelyvelkkgrelnikt
f-liwiwisifqgailm-vgai-ilf----------e------
---
ns--lvslisigctslflleiln-liselhhwhrltii------glvctcivyfysllv
frn----------nfdmefi----------
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-qqi------pevsp----------tgr---y-tt----lvp
lmfi-l---------svsaikeiied----------ik----------rh----ra
dneinhrsie---------rld---

----------s-gsw----------x------t----------
----------v
r---
----wseLTVGDllKVgi---
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lgn---
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nt----awvf----------glVVYSGQETKLMknstsapl-------

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lellsvc-----htvi----------
----------pe---rxx----------xxx----xx-----

----------yhaaspde--ralveg----aq-k----
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----------ein--x---------l
gvrk------ryevlnvleftssrk-rmsl----i---vr----------

----------x-p--------e--------n----k----------
----------ik--l----------f---
-c----------k----------
----------gad
t----------viyerla--p----------x---------

---
xxx--xx--eqt-lrhleef--asd----glrtLCLAVAdi--rpdvyqewsqtfdk---
as-----valqnreskledaanl-iennlrlLGATAIEDRLQDGVPETIASLLDag-lYI
WVLTGDKQETAINIGYSCRL----------ishsmdii----

----------il-----nees---------ldaxxxx----------

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----------al----------
x----------cdlrndfqd----------

----
lcilcrvvICC--RVSPMQKAEVVEMVt----------
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f-wiwifnallhsvflf-wlplxayt----------xxxxxxxxxt-------
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sd--yllmgnlvytyvivtvclk-aglitnswtwlthl------aiwgsivlwfgflli
yshvwpmfxxxxxxx----------gmdiqll----------
--------stpvfy----fc--lmlvpittllid----------
---------vicklvh----------ntvf------k----------tlt
----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
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>dmelV_lV02 NP_723806.1
m----------

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dhevnsqkyk--------rls----------

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p----------

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lsv----------
----------e----------NTLWA--NTVV----------
aa----gtat----------glVlYTGCETRSVmnnsqprs-------

----------kvglldmeingltkvlfcavlglslvmm
-mlkgfggp----------wyry----------mfrfVLLFSYl
lPlSLRVNlDMGKAFYSW-QMqndsni----------
----------qg----------
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----------TLTQNEMVFk----------kihlgivsh----------
----------xxxxxxxxxxxxxx------

----------xx-----xxx
xxxxxxxxxxxxxxxxxxxxx--xxxxxxxxegwr-ew----------
----------ea
vralalc-----hnvt----------
----------pvxxx----------

----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx----------
---x----------yqaaspde--ialvkw----te-q----
----------vglt--l--iardln----------tm----------
----------tlq----------v
ktpsxxxxxxxhyqilqlfpftsesk-rmgi----i---vr----------

----------x-s---------k--------xg----q----------
----------it--f----------y---
-l----------k----------
----------gad
v----------vmssiv--xyx----------

---------dwl-seesgnm--are----glrtLVVAKKvl--teeqysdfetryna---
ar-----lsitdrvakvaavtes-lerelelLCLTGVEDRLQENVRPTLELLRNag-VRV
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----------vl-----rsvk----------trt----------

----------dxxxxxxxxxxx------
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----------cl----------
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stlytmfpvfsl-vldqditse----------tavtypelykdlskgrslsykt
f-fiwvlisiyqggvim-ygal-ilf----------v-------
----

de--fihivaisfsalimtelim-valtvrtwhrlmvl------aelfslalylislav
lhey-f----------dwefi----------
--------wsydfl----wk--vslitlvsclpl----------
---------yiikflr----------kkcs-------p----------psy

----------lkl----s----------

-

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x----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

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---xxxxxxxxxxx---

---xxxxxxxxxxxx-------

---xxxxxxxx

xxxxxxxxxxxxxxxxxxxxxxxxngqfvgnkirttkyt----------ll----

-sfipknlleqf---

----------h-rvanlyfi----fivll
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vlfv-l---------gvtavkdlfed----------rr----------rr----as
dkrinnttcr---------vyd----------

--------xxt-ery----------x------k----------
----------v
k----------
----wqeLRVGDlVHLsn----------
-----NETVPADlLLLrt----------

----------sdpqg-v---cylDTCDLDGETNLKRRev-

----------vrgfeemqsifvpskfvsrveadapttklyrfhgalihx-

----------tgervp
ist----------
----------e----------CLLLR--ESRL----------k
nt----dyie----------glVVYAGHETKSMlnnsgpry-------

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----------fdaetnkq--------
----------tECR-AMNlTEELGQlQHlFTDKTG----------
----------TLTENKMlFr----------rcvvngsdy----------

----------xxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxgtyltphxxrxq----------
----------ef
lvvlaic-----ntvixxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxqpxxxsxx----------

----------xxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxyeaespde--lalvna----a-------
----------ysydxxl--lnrspn----------qix----------
-----xxxxxxxxxx---
----------eyeilkvlpfdssrk-cmsi----v----------------------

----------vxxxxx----------xxxxxy---
-t----------k-----------------------------------
--gad
s----------simpvlvxxs----------------------------

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----------il-----------------------------------
xxx----------sklilpflr----------

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----------AVMAADFTLPrfRYLERLL--LAHGYWCYDRLSRMl------L

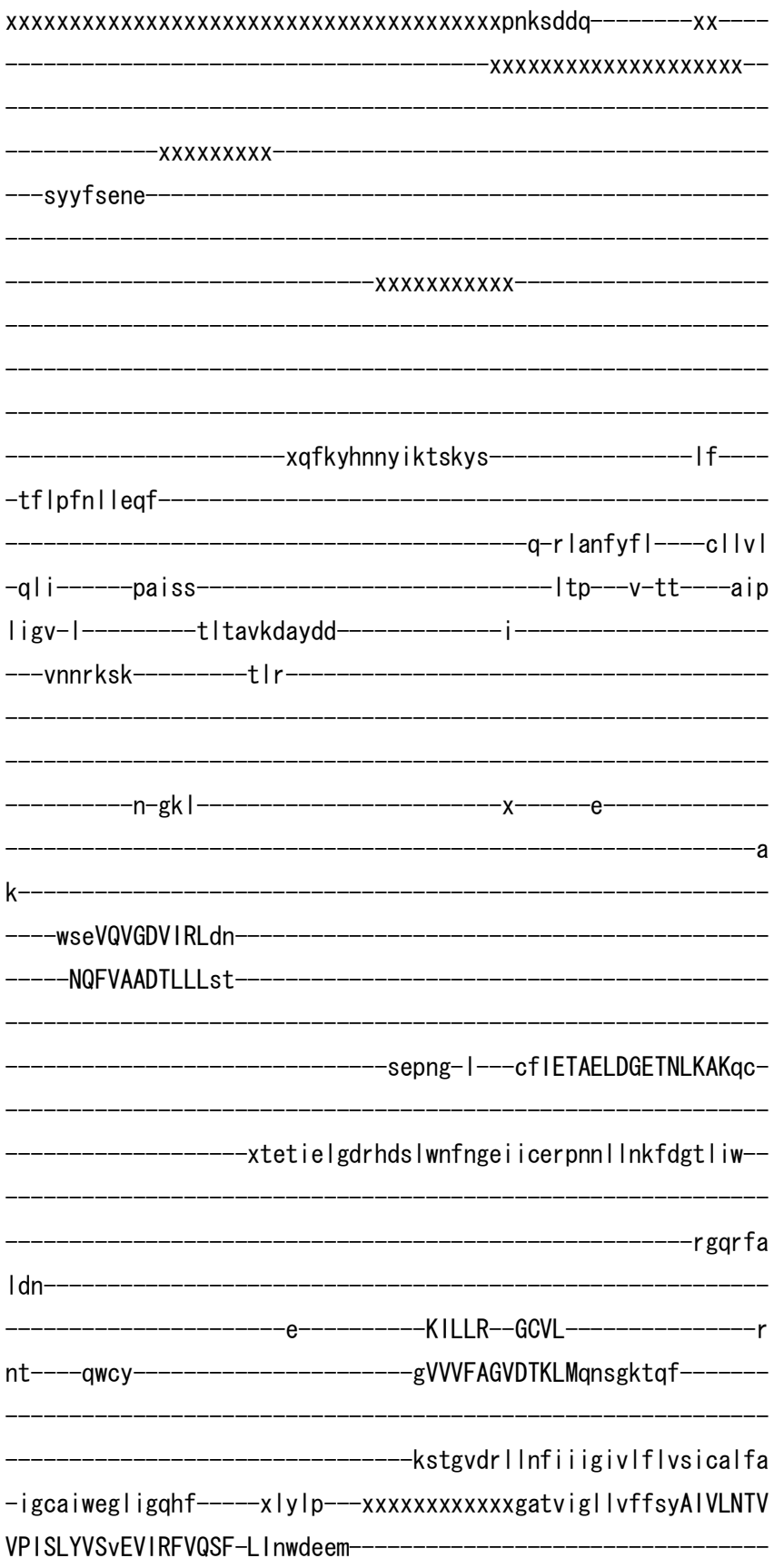
yff-yknaa-fvflifwyqlycgf----------sgqvmmdqmylmly
nliftslpplaigvydkrvaed----------lllknpylykngrlgvayrphd
f-wlilldalyqslvif-fval-cay----------xxxxxx----------

----iwefgttitasclfanlvh-caieirswtvlhvl-------sivlslgsfylfaiv
ydsvcmncxxxxxxx----------wvifvcf----------
--------asavhw----lv--imlstvvavlpr----------
---------llttvr----------islc-------p----------dds
----------xxxxxxxxxxxxxxxxxxxxxxx----------

----------xxxxxxxxxxygsknqiixxxx----------

-
>dmelV_lV04 NP_731669.1
m----------

----------xxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
x----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx



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----------aKAR-TTTLNEELGQIQYIFSDKTG----------
----------TLTQNIMTFn----------kcsingrsy----------
----------xxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx--xxxx
xxxxx----------frwydrt--lxdavxx--x---------
-------x----------xxxx-----vf
frllalc-----htvm----------
----------ae---t-x----------xxx----xx-----

----------yqaqspde--aalvsa----ar-n----
----------fgfv--f--rtrtpn----------si----------
----------tie--x---------m
gqte------eyellnildfnnvrk-rmsv----i---lr----------

----------x-g--------d--------s----m----------
----------v---l----------y---
-c----------k----------
----------gad
n----------viydrlh--g----------x---------

----
xxx--xx--art-qdhlnkf--age----glrtLALAERrl--teqyyndwrsrqqe---
aa-----lsmdsreqklnaiyee-iesemqlVGVTAIEDKLQDGVPKSIANLQNag-lKI
WVLTGDKQETAINIGYSCQL----------ltdeladv----

----------fi-----vdgn--xx-----eevxxxx----------
----------xxxx----------xxxxxxxxxxxxxxxxxxxx
xxxx----------xxxxxxxxxxtsxxxqxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxgfalvvnghslvh----
----------cl----------
x----------pelenkfld----------

----------xxxxxxxxxxx----------

----------xxxxxxxxxxx----------

----------qkplnrvtttkyt----------x
xtflplnfyeqf----------
----------rravyfyfxxxxivsff
xnet----------isxxxxllp
llfv-m--------iitalkegled----------ys----------rs----ks
dklvnt----------

----------arv----------
---xxxxx----------xx--xxx-------i
n----------
----sqflVPGDLVVVrn----------
-----DGDVPCDLVLLqs----------

----------ssadr----xcfVNTANLDGETNLKTlcv-

----------ptnyllagdhelqgkdcivcepssadlytfngrlelxx
xxxxxxxx----------
----------agdalp
lti----------
----------d---------NLLLR--GVRV----------k
st----ervv----------gCAlYTGMHTKLQlnsrytgn-------

----------ksassekyinrfmvalivgmivvvvvly
-lierhkeakivptmxxxxxxtnfn--------xxx--------qifedflsfLLLFNYM
VPlSAYMNiEVYRlFGMH-FMhndlhl----------
----------ydeetdqp--------
----------cRVN-ASNLNEELGQVNlLFSDKTG----------
----------TLTKNLMKFv----------ncyvpgtny----------

----------xxxxxxxvsegtdexxexeklxxxxx---------
----------vl
fealavc-----htve----------xxxxx
xxxxxxxxxxxxeqxxxmxxxxxxx----------

----------yqasspde--kalleg----ca-s----
----------lglv--y--egqend----------vl----------
----------sicxxx---------s
aekv-------qfkrlhvlefsserq-rmsv----i---vr----------

----------d---------q--------xd----t----------
----------iw--l----------y---
-s----------k----------
----------gae
s----------aifprckxxp----------

```
-------------------------------------------------------------
-------------------------------------------------------------
-------xxeqt-daqitky--aqn----glrtMAVGRRml--tddelfhfeelyrk---
an-----tqlsnrneliascyet-veneldlLGATALEDALQEHVGETLEALQAag-LKl
WVLTGDKVETAYNIGLACRH---------------------------iprgskqh----
-------------------------------------------------------------
----------------------fi-----inttxxxx-----------------------
-------------------------------------------------------------
--------------------------xxxxxxxxxxdexx---------------------
---------------------------------------------vlivdgttita----
-----------------||--------------------------------------
----------------ehtprqfad-----------------------------------
-------------------------------------------------------------
-------------------------------------------------------------
-------------------------------------------------------------
-------------------------------------------------------------
-------------------------------------------------------------
-------------------------------------------------------------
-------------------------------------------------------------
lalrcravLCC--RLSPLQKSElVTLlk-------------------------------
---rr---k----------xy-------------lTAAlGDGANDVSMlQEAHlGlGl--
----------tgregkq--------------------------------------------
-------------------------------------------------------------
-----------------AARCADFSlArfEMLRRLF--LVHGHYNSQRLAFLV------L
fyc-yknii-itgcmalyqvydly---------------------satnvynsiylwlf
divyisfsftvlaicdkdysee----------------tllshpelykplahnrqasmgv
f-slwilngfvqcfiif-fftyxmln---------------xxxxxxxxxxt-------
-------------------------------------------------------------
as--fqtfgtmlitiivivgnlk-lllvahymtyrnfa------milasiaafmlttyl
ynlytsgexx-----------------dvynqfl-------------------------
--------sslpiw----lf--tiicsvacllpd-------------------------
---------fvikvvn-------------------------------------------
------------xxxxxxxxxxxxxx---------------------------------
-------------------------------------------------------------
-------------------------------------------------------------
-------------------------------------------------------------
```


-
>dmelV_lV06 NP_573125.1
m----------

----------xxxxxxxxxxxxxxdrlgahr--------xx----
----------xxxxxxxxxxxxxxxxxxxx--

----------xxxxxxxxx----------
---wlqiqigg----------

----------xxxxxxxxxxx----------

----------qnrikstkyt----------li----
-tflpqnlleqf----------

----------r-rianfyfl----vmtii
-sll------id-sp----------vsp---m-ts----llp
lvfv-i--------avtaakqgyed----------il----------ry----rt
dnvvnsspvt--------vir----------

----------d-gke----------x------i----------
----------i
k----------
----sqdVIPGELIVVer----------
-----DCDVPCDLVLLrs----------

----------tdphg-k---cfITTANLDGESNLKTLmv-

----------prdlptvdlpemhklgiiecespttdlysfngkielxx
x----------
----------egrvlp
lst----------
----------e----------NVLLR--GSRV----------k
nt----ecvi----------gCAVYTGMISKLQInsrltrn-------

----------knassetyinrflivilvaliaivtlly
-flkrynelfvipklxxxxxxtdsy--------xxx--------qflqdylsfLILFNYL
IPISLYVTiELQRVIGSW-FMewdlel----------
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----------xxxxxxxedeetkaxxdxnkfxxxxx---------
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fqalsic-----htvq----------xxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxeexxxaxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxyqasspde--kalvea----ca-n----
----------------lgmv--y--tgddde--------------tl----------
---rvrxxxxxxxxxxxxxk
pree------tfqrlhvleftsdrk-rmsv----i---vr-------------------

----------------------d---------t--------xg----k-----------
---------------------------kw--i----------------------y---
-t-----------------k-----------------------------------
--gae
s----------------------yvfplca-----------------------------

----
xxx--xxxxtkt-dahisdf--arl----glrtLAlARRli--seeeyqdflvelaq---
an-----sslenrkqlseecyak-iesnldlLGATAVEDALQDDVADTLVSLQAag-lKl
WVLTGDKVETALNlALSCGH-------------------------ippdakky----

----------------------fi-----meckxxxx-----------------------

--------------------------xxxxxxxxxxeixxxi------------------
---xxecallidgkslgv----
-----------------al-------------------------------------
---------------aeassefrd-----------------------------------

----
vavkctavLCC--RLSPLQKSEVVSLlk---------------------------------
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----------mgregrq---

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nviytslpilfiaisekpytee----------klmrtpqlykkntdnkqlhwpy
f-lmwvlfaiyhsviif-yfafxffy----------xxxxxxxxxxt-------
---
va--fscfgtllmwtvvvvvnlk-lwlesmylsfwyif-------tiiisilgfvvttvi
ynvinldyxxxxx----------waynnll----------
--------aslpvw----lw--iivtcvaclvpd----------
---------ytirmlq----------raln----------

----------xxxxxxxxxxqrklkmrexxxxxxx---------

-
>pfalV_IVO2 XP_001350596.1
m----------

----------xxxxxxxxxxxgkneddk----------
---dvkining---
----------x----------
----------nkrtcnnsvitskyt----------vf----
-nfiflnmyeqf---
----------h-kisnvyff----figil
-qvi------pqfta----------tng---ixtv----ffp
lliv-l---------tanaikdafed----------wn----------rh----kt
dkiennrmcyxxxxxxxxxiyqxxxxxxxxxxxxxxxxxxxxxx----------
----------xxxxxxx---
----------xxxxxxxxxxxxxxx
xxxxxxxxxxe-gtv----------x----------
----------k
r---
----wkdIKAGDIILCrr---
-----SEFFCADILLLct---

----------shkng-i---afVETSSLDGETNLKVKea-

----------xxxxxxilgndrnsaidnvknlkgfilsdkpnkdlstmygtiyfxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxx----------nyirip
fde---
----------k---------QFVLR--GCKL----------k
nt----dwim----------glVIYVGRETKIQmnssksik------

----------ktskleiltnkmtiiiwviqmiiclisa
-yynaiivsssrknr-----xrylp--------xxxxxxxkpyivgiisffswVVITGNF
VPISLIVTmSFVKVVQAY-FIscdknmxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxgnnkqyssxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxaVPR-TSSLIEELGQIEYIFSDKTG----------
----------TLTCNIMEFr-------------kcaingisy----------------
---xxxxxxxxxxxxxxxxxx-

----------------xxxxxxxxxxxxxxxvniidnd--ixnhlxxxxx---------
------xxxx-----------------------------------xxx------nf
flhlain-----havi---
------------ce---kxx-------------------------xxx----xx-----

--------------------------yssspde--ealvna----ak-h----
----------------fdit--f--lyrreg---------------ky----------
---gis--x---------f
gkiy------eidtlatieftskrk-mssv----i---crxxxxxxxxxxxxxxxxxx-
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxs---------k--------xs----k-----------
---------------------------im--l----------------------f---
-c-----------------k-------------------------------------
---gag
s---------------------iilkklaxxt-------------------------

---
x----xx--eit-iehmety--ade----glrtLCIAQRel--seesfaewyhlyke---
as-----lsikdreeklesvaey-iendlilQGITGIEDKLQEGVSSTIEDLRMag-IHI
WMLTGDKIETAMNIGIAANL-------------------------idnyseqf----

----------------------iy-----teeyxxxxxxxxxxiddxxxx---------

-----------------------xxxxxxxxxxxxddxxxnxxxxxxxxxxxxxxxxxxx
xxxxxxxxxx-------------------xxxxxxxxxxxxxnyvlvvdgsvidl----
-----------------ll-------------------------------------
x--------------ekmerkffy---------------------------------

----
ladkcssvICG--RVSPYQKGAIVSSAn----------
---rI--In----------k----------ITLAIGDGANDRNMINTANIGIGI--
----------rgqegvq----------

----------AFNSSDYGISqfRFLKNLL--LVHGRLSYRRISKLV------V
ymf-yknmv-lifpIfifgsisly----------sgqkiyfefIIhIf
nvIftaipvvihavIdqdisIn----------tamekpnIykIgihhyyfnirt
f-iswvmnsIfhgsvvfxiplyxIsy----------xxxxxxxxxp-------
----
yd--iwtvgcatyfItvIivnfk-iIfetyyInilpis------gialsifsfvIIvta
fsfmcvgsxxxx----------gtivyIv----------
--------qsIrfw----Iv--vilgIftaIIrd----------
---------yvfkvyk----------rnfn------p----------eiy
----------xxxxxxxxxxxxxxxxxxx----------

----------xxxxxxxxxxiriekssxxxxxxxxxxxxxxxx
xxxxxxx----------

_
>pfaIV_IV03 XP_001350631.1
m----------

---xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxnkknkkr----------

---erfvnihg---

----------xxxpnffcdnkikstkyt----------il----
-tfiplflfyqf---
----------a-dflnlfyl----cvsll
-qii------pifnt----------gyxxxxvap
llfi-i--------fislinevvdd----------lk----------rf----ik
dlennneiyy---

-----xxxxxgxfqk---
----------i
y---
----skdlRVGDllLlks---
-----KQRVPADCILLrnxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxnettnxtxxxtyVKTDKIDGETDWKIKyp-

--------------------inifqnlkrlkdfftidilfileqpkndiykiegsfvixx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxdqvqne
kkkxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxnxxxxxxxxxxNFILF--NSVI----------------
ts----sdvi----------------------cLVIYTGSDTRVNmstqiski-------

-------------------------------krgmideklnlitlflfiiltlfsiymc
xvklnnl-------------wyln-----------------------firfMLLFSSV
IPISLSVNINIAKIYYTL-LIqrdkev---------------------------------
---es--------------
-------------------------tlIK-NSGIIENFGDIDYIFTDKTG----------
----------TLTENVMVLkxxxxxxxxxxxxxxknsiqgnnm-----------------
---------------------------------------xxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx-------

---xxxxx--xxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxknykqnnxxlxqnmxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxqt
flsflic-----nnir---
-------xxxxxssxxxkxx-------------------------xxxxxxxxxx----
---------------------------------------xxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx----------------------
---------------------------------yqcsspde--laflky----at-n----
-----------------cgfi--l--kkktas---------------ki-----------
---eikx-----------k
niml-------eydillhipfssetk-rmsi----f---vr--------------------
---
--------------------x-v---------k--------xr----n------------
---------------------------iy--f----------------------f---
-i-------------------k-----------------------------------
---gad
n--------------------vlikkch-----------------------------

```
--------------------------------------------------------------
--------------------------------------------------------------
xxx--xxxxyee-sdhlsni---------glrvLVHGCLnv--eeqffhnfsalynk---
---------nkdvkgqleniley-veknikvLAITGVEDKLQEGVGKTIEMLYNsg-IKV
WVLTGDKIETAICICKNANI---------------------------kkkkhniy----
--------------------------------------------------------------
----------------------if-----rhenxxxxxxxxxxfnsxxxx----------
--------------------------------------------------------------
--------------------------------------------------------------
-----------------------------------------xxsyvlffdniiiqn----
-----------------ci-------------------------------------------
----------------kyipnafvd---------------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
--------------------------------------------------------------
faanaravVCC--RCSPIEKKEIAILlk-------------------------------
---ti---k----------xk-------------KILCIGDGGNDVAMIQSADIGIGV--
----------lgkegkq-----------------------------------------
--------------------------------------------------------------
-----------------VVHDSDIIVSkfKNIKKLI--LYYGNNTFLQTSSLC------S
fli-hrgfi-ltylqfiysyiffs----------------------ipvsifqgwlqigy
ttyyttapflsl-lldikikkn----------------liylypeiyknkkhkrkldlks
f-fiivwisifqgtvvm-lgal-klf-------------------------n-------
--------------------------------------------------------------
dn--ynnlinisfsslivleimn-ihleveswhplmis------anicsfivyifsmfi
lrny-----------------------fdimqi-------------------------
--------msvmfw----yk--vilivifawlpf-------------------------
---------fiikkvk-----------niit-------p-----------------sqf
--------------------------------------------------------------
--------------------------------------------------------------
-----------------------------------fkla---------------------
--------------------------------------------------------------
```


-
>tpaIV_IV01 XP_765339.1
m----------

----------xxxxxxxxxxxxxxxxxxxxxxlrdritfxxxxxxxxxx----

---yksircis----------

----------xxxxxxpklflynglvnskyn----------ff----
-tfvplvlysqf----------

----------r-vfinlfyl----smclt
-qlv------pilrv----------esxxxxlfp
lslv-v--------avcmlkegied----------yk----------rh----vr
drehntqkfs---------vyqxxxxxx----------

----------v
s----------
----aerLKLGQLITLkq----------
-----GQRVPADLLLLkt----------

----------sdpng-a---sfVRTDQLDGETDWKLKra-

----------vattqamstvkeilslysvatveepkddfynftgkicfxx
xxxxxxxxxxxxx-xxxxxxxxxxxxxxxxxxxxxxxx---xxxxxx-xxxxxxxxxxx
xxxxx-----xxxxxxx------xxxxxxxxxxx-xxxxxxxxxxxxxxxxxxxkrives
lnv----------
----------d----------NIVWM--NSIV----------
as----gtih----------gLTIYIGKDARAClnskrakm-------

----------kyglfekelnrlfivlilimlvmcvmml
-cpngfmsm----------wyvt----------flkyLLLFSTV
VPLSLRISIEIAKYVYNR-AIvldnki----------
----------pq----------
----------tMPR-TTMIPEELGRINYLLTDKTG----------
----------TLTQNVISLe----------klyitrgyy----------
----------xxxxxxxxxxxxxx------

----------xxxxx--xxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxlenr-ly----------
----------ls
llslavc-----hnvr----------
----------pixxx----------xxxx----

----------xxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxx----xxxxx----xxxxxxxxxxxxxxxxxxxx----------
---x----------fqgsspde--ialvkf----an-l----
----------cnvk--l--verddy----------km----------
----------ilm----------v
n----xxxx--nlrilfmipfssetk-rmgi----i---ve----------

----------x-e----------xg----r----------
----------kh--f----------f---
-l----------k----------
----------gae
v----------vvipmllxxgx----------

---------vwl-seecdnl--arm----glrtLVFAYRai--sdseydnfvqkyne---
an-----lslydrvkkirkvtgt-lehgmllVGLTGVRDKLQRNVGSTLESLKNag-lKl
WMLTGDKlDTAKCVAlSCGM----------iqknnsif----

----------qi-----svdk----------

----------xxqlxxxsxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxktlllldsfvini----
----------av----------xxxxxxxxxxxx
xxx----------ktlrrlfvk----------

----
slllannvLFC--RCTPQMKADlVKLLk----------
---se--nk----------lVCSlGDGDNDVPMlSEANVGlGl--
----------vgkeglq----------

----------ASLSSDYSLVefSHlKRLL--LWHGRNSYKRSSTMS------N

fli-hrgvi-isvmqaifstiyyf----------mpiaffqgwllvgf
tsyynmipifcl-vldeeicee----------dvmlfpelyvelkkgrelnikt
f-liwiwisifqgailm-igai-ilf----------e------
---
ns--lvslisigctslflleiln-lvselhhwhrltii------glvctcivyfysllv
frn----------nfdmefi----------
--------arksff----wk--vlaismlgwlpi----------
---------yvikylt----------kilk-------p----------pqy

----------iklivt----------

-
>tpalV_lV02 XP_763506.1
m----------

----------xxxxxxxxxxxxxfkkpdee----------
---lrviklni---
----------xxxx----------
---vcsnrvkttkyt----------py----
-nfifknlyeql---
----------c-ipsnlyfv----fiavl
-qst------pqvss----------tqg---yxvv----llp
liiv-l---------lfsalkdgyed----------yq----------ry----ls
dnqlnnnivq---------ivnxxxxxxxxxxxxxxxxxxxxxx----------
----------xxxxxx----------
----------xxxxxxxxxxxxx---------xxxxxxxx-----xxx
xxxxxxxxxxn-kvl----------x------n----------
----------k
y---
----wkdLKVGEYVFLqn---
-----KDIAPADLVLLat---

----------seeng-f---afVDASSLDGETNIKKKesx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxelgsdfehvitevqrllghfkcegpnknlisfdghlkyxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxx----------eirdaq
vsl---
----------n---------NLLLR--GCKLxxx----------
------qwvi----------gFVVYTGHDTKIYkniskapy-------

----------kvsnlqrkmmrttflicviqfvlcliat
-fynlymhthkvyek-----xpyls----------xxxxxsglyivfvyyfswMALTANF
VPISAIVTINAVKLIQGF-FIqlddsm----------

```
-------------------------------------------yceelkmn--------
-------------------------aKAR-NTMLNEELGQVKHLFSDKTG----------
------xxxxTLTCNKMEFr-------------kfsimghsy-----------------
-----------------------------------------xxxxxxxxxxxxxxxxxx-
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------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
-----------------xxxxxxxxxxxxxxxvnlvddt--lxqelxxxxx---------
------xxxx-----------------------------------xxx------df
ffhlaln-----nwai-------------------------------------------
------------pd---sxx-------------------------xxx-----------
------------------------------------------------------------
------------------------------------------------------------
--------------------------------ymcpspde--lcfvna----aa-f-----
-----------------cgfr--l--lqrnsn---------------fa-----------
-----------------------------------------tvs--x---------f
nkiy------kvkiiaqadfdyrrk-cstt----i---vaxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxx-------------xxxxxxxxxx-----------------xx-
-----------------xxxxxm---------s--------xy----r-----------
----------------------------ii--l----------------------y---
-c-------------------k-------------------------------------
------------------------------------------------------------ggd
n---------------------vmvsklkxxs--------------------------
------------------------------------------------------------
------------------------------------------------------------
x----xx--svt-lrnmkny--svg----glrtLVFAKRel-------------------
----------kgrdeklaecvgr-lecglelQGVTGIEDKLQDGVSECIEKLLMag-lRI
WMLTGDNLDTSINIGIATNL-------------------------vnmlsdri-----
------------------------------------------------------------
----------------------ml-----dsnt--------------------------
------------------------------------------------------------
--------------------xxxxxxxxxxxxxxxxidxxxnx-----------------
-----------------------------------------xxhrciiidsitiel----
-----------------lf-------------------------------xxxxxxxxxx
xxx------------telsvlfle-----------------------------------
```

----

lvrrvhsvICC--RMTPYLKGAVVSFVk----------

---sr--lg----------g----------ITLAVGDGANDCNMIQTAHVGVGI--

---------kgregsq----------

----------AFNASDFGIGqfRFLSPLI--LHHGRCCYRNTSKCI------S

ymf-yknvi-liiplffyayislf----------sgqkiyyslfvaiy

nvvftsvpvgifgivdqdynks----------lsakyphvyqlgqrnyyynvvk

f-sgwilnaviqsaiifxmmtlxlgd----------xxxxxxxxxxi-------

----

ad--aptlgimllsavfiivsck-lvletwyftkitll------shlisifffivtvcs

fsaspvysxxxxxxxxxxxxxxxxxxcvvyelp----------

--------vldraaxxxxav--nvqglllqgvqv----------

--------lvlpall----------p----------

----------xxxxxxxxxxnpdtkpllxxxxxxxxxxx----

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>drelV_lV01 XP_683800.1

m----------

----------xxxxxxxxrkkekev----------

---erkirand----------

----------xxxxx----------

----------sfkyatnciktskyn----------pf----
-sflplnlfeqf----------
----------q-rianayfl----flllil
-qvi------paiss----------lsw---f-tt----vvp
lvlv-l--------svtaakdaidd----------in----------rh----rs
drqvnnrkvn--------vli----------

----------s-gkl----------x------s----------
----------e
k----------
----wmnVQVGDlIKLen----------
-----NQFVTADLLLLss----------

----------sepln-l---vylETAELDGETNLKVKqs-

----------xtvtgdmghnlealaafngevcceppnnrldrftgtltf--

----------dtqkys
ldn----------
----------e----------RVLLR--GCTL----------r
nt----dwcf----------gLVLFAGPETKLMqncgkstf-------

----------krtsidrlmnvlvlfifallalmciila
-vghgiwenytgskf-----xvflp----------xxxnaafsafltfwsylllLNTV
VPlSLYVSmEVlRLGNSY-Ylnwdrnm----------
----------yhtrtdtp--------
----------aEAR-TTTLNEELGQlKYlFSDKTG----------
----------TLTQNlMTFn----------kcsingksy----------
----------xxxxxxxxxxxxxxxxxx-

----------xxxxx--xxxx
xxxxx----------flfydhs--lxeavxx--x---------
-------x----------xxxx-----af
frllalc-----htcm----------
----------ae---exx----------xxx----xx-----

----------yqaqspde--galvta----ar-n----
----------fgfv--f--rsrspe----------ti----------
----------tie--x---------m
giqr-------tyellaildfnnvrk-rmsv----i---vr----------

----------x-p---------e---------g----k----------
----------ls--l----------y---
-c----------k----------
----------gad
t----------iiyerlh--p----------x---------

```
------------------------------------------------------------
------------------------------------------------------------
xxx--xx--evt-tehlnef--age----glrtLVLAYKdl--dedyfaewkqrhhe---
ss-----vamedreekldkvyee-iekdmmllGATAlEDKLQDGVALTlELLAKae-lKl
WVLTGDKQETAENlGYSCNL----------------------------lreemndv----
------------------------------------------------------------
-----------------------fi-----vaah--xx------eevxxxx----------
--------------xxxx--------------------xxxx---------------xx
x--x----------------------xxxxxxxxxxlgxxxkxxx---xxxx--------
-----------------------------------------xxeyglvinghslaf----
-----------------al-----------------------------------------
x---------------ssmeleflr-----------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
tacmcktvlCC--RVTPLQKAQVVELVk-------------------------------
---ry--kk-----------a-------------VTLAlGDGANDVSMlKAAHlGVGl--
----------sgqegmq-------------------------------------------
------------------------------------------------------------
-----------------AVLSSDFSFAqfRFLQRLL--LVHGRWSYLRMCKFL------R
yff-yknft-ftfvhfwyaffcgf----------------------saqtvydegfitly
nlvytalpvlgmslfdqdvnan----------------wslefpqlyvpgqlsqyfskra
f-mmcalhscysslvlf-fvpyxtty-----------------xxxxxxxxxg-------
------------------------------------------------------------
ad--yqsfalitqtcltvtvcvq-lgldlsywtvvnhl-------fvwgslgmfffltft
mytdglfkxxxxxxxxx----------gtarncl-------------------------
--------nqpnvw----lt--valtallcvlpv-------------------------
---------vayrfiy-----------cqiy-------p-----------------tin
------------xxxxxxx-----------------------------------------
------------------------------------------------------------
-------------------------xxxxxxxxxxrprltrrsxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxx-------------------------------------------
```

---

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx----------

-

>drelV_lVO2 XP_687715.2

m---

----------q-rfanayfl----vllil
-qli------peiss----------lsw---f-tt----ivp
lvlv-l---------aitavkdatdd----------yf----------rh----ks
dqqvntrqsq---------vli----------

----------k-gkl----------x------n----------
----------e
k----------
----wmnVRVGDVIKLen----------
-----NQFVAADLLLLss----------

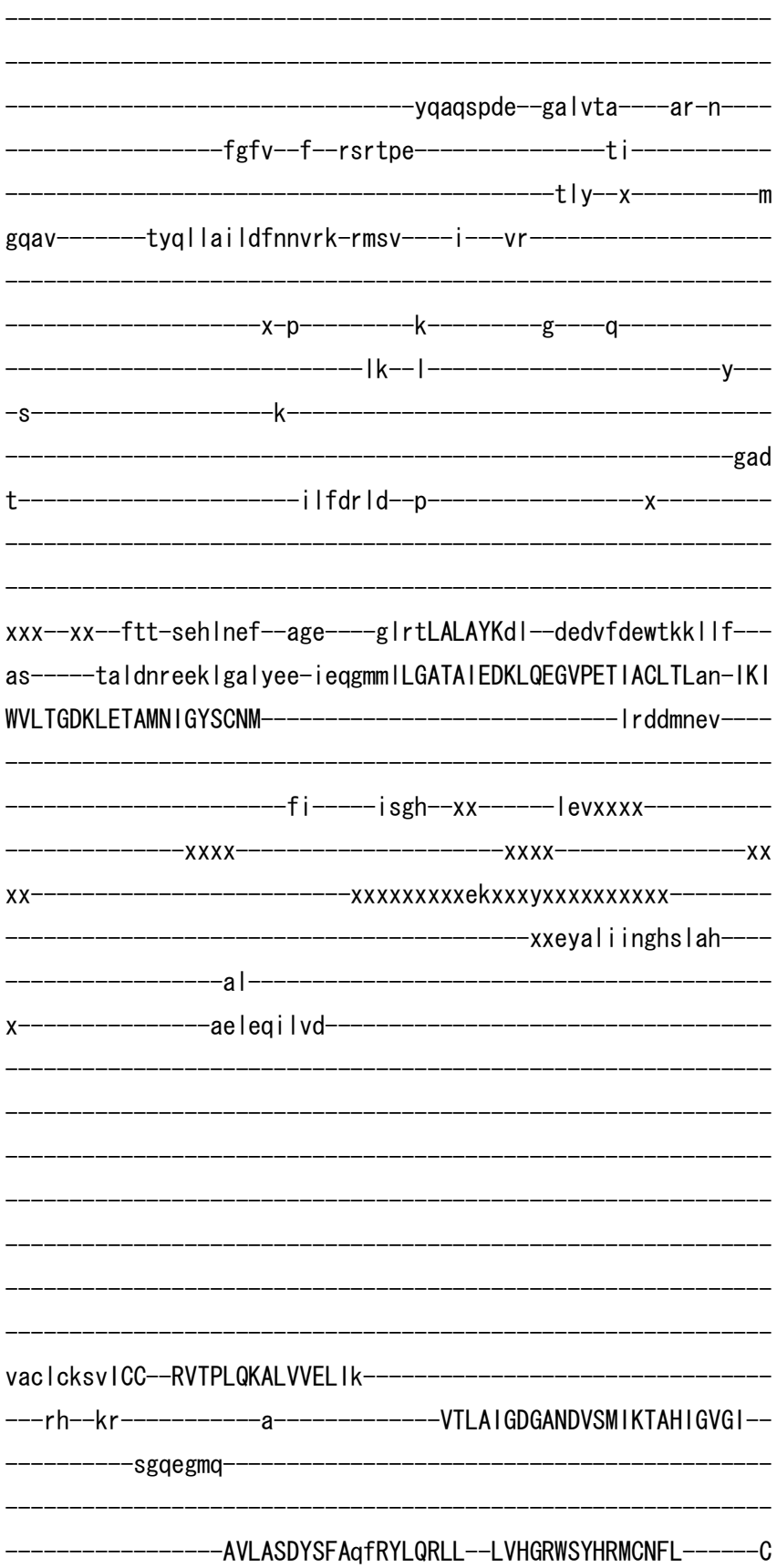
----------sepyg-l---cylETAELDGETNLKVRqa-

----------xtvtsdlgddvakladfngeviceppnnkldkfigtlyw--

----------kdnkyp
ldn----------
----------e----------KMLLR--GCVL----------r
nt----ewcf----------gLVIFAGLQTKLMqncgrtkf-------

----------krtsidklmntlvlwifgflicmgiila
-igntiweqsvgsdf-----xaylq---------xxxxxxnavfsgfltfwsyllILNTV
VPISLYVSvEVLRLGHSY-FInwdrrm----------
----------yysrkdtp--------
----------aEAR-TTTLNEELGQVEFIFSDKTG----------
----------TLTQNIMVFn----------kcsingkty----------
----------xxxxx-xxxxxxxxxxxx-

----------xxxxx--xxxx
xxxxx----------frfhdss--lxeaixx--x---------
-------x----------xxxx-----ef
frllalc-----htvm----------
----------pe---exx----------xxx----xx-----



yff-yknfa-ftlvhfwygflcgf----------saqtvydqwfitlf
nivytslpvlamglfdqdvneq----------yslrypnlyrpgqlnqlfnkrk
f-ftctlqgvytsfilf-fipyxafm----------xxxxxxxxxi-------
----
sd--qqafavtiatslvivvsvq-igldtnywtavnhf-------fiwgslavyfailfa
mnsngiftxxxxxxxxx---------gsarnsl-----------------------
--------nqkivw----lv--illntvvcimpm-----------------------
---------lavrfik----------tdly-------p----------------tht
------------xxxxxxxxx-------------------------------------

-------------------------xxxxxxxxxxlrrvrrtsxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxx--

-------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx--------------

-
>drelV_lVO3 XP_691382.2
m---

----------xxxxxxgekqmre----------
----------xxxxxxxxxxxxxxxxxxx--

----------xxxxxxxxx----------
---srtvyigh----------

----------xxxxxxxxxx----------

----------pqrfpdnrivsskyt----------fw----
-nfipknlfeqf----------
----------r-rianfyfl----iiflv
-qli------id-tp----------tsp---m-ts----glp
lffv-i---------tvtaikqgyed----------wi----------rh----ka
dnsvnqcpvh---------ivq----------

----------h-gkv----------x------r----------
----------k
q----------
----sqkLRVGDIVQVke----------
-----NETFPCDLILLst----------

----------sredg-t---cfVTTASLDGESSHKTYya-

----------vqdtkafstaeevdtlhatieceqpqpdlykfvgrinixx
xxx----------
----------epiarp
lgs----------
----------e----------NLLLR--GATL----------k
nt----eyih----------aVAIYTGMETKMAlnyqsksq------

----------krsaveksmnaylivylciliskalint
-vlkyvwqadpnrde-----xwynq-------xxxxxxxxhvliraftdflafMVLFNYI
IPVSMYVTvEMQKFLGSY-FIlwdddm----------

----------fdeevger--------
----------pLVN-TSDLNEELGQVEYVFTDKTG----------
----------TLTENNMELr----------eccvdghvy----------

----------xxxxxxxxxxlpgaagmxxixsspxxxxx---------
------xxxx----------lf
fralclc-----htvq----------xxxx-
--xxxxxxxxxhqxxxtxx----------

----------yissspde--valveg----mk-r----
----------lgft--y--lrlkds----------hm----------
----------eilxx----------e
deme-------rfelldvlnfdsvrr-rmsv----i---vr----------

----------s--------n--------xg----e----------
----------yy--l----------f---
-c----------k----------
----------gad
s----------svfprvvxxk----------

--------xeqv-rarvehn--ave----glrtLCVAYKrl--sqeeyeetcrllts---
ak-----lalqerdkklaeaydv-iekdfilLGATAVEDRLQDKAADTIESLHKag-IKV
WVLTGDKMETAAATCYASKL----------fhrntqil----

----------el-----ttkr--xx------eqsxxxx----------

----------xxxxxxxxxxqhxxxtxxxxxxxxxx--------
----------xxdygliidgatlsa----
----------vl----------xxxxxxx
xxx----------gnykeifle----------

----
icrncsavLCC--RMAPLQKAQIVKLlk----------
---as--ke----------xp----------ITLAIGDGANDVSMILEAHVGIGI--
---------mgkegrq----------

----------AARNSDYAITkfKHLKKML--LVHGHYYYIRIAELV------Q
yff-yknvc-fifpqflyqffcgf----------sqqplydtayltly
nisftslpillyslmeqhinmd----------ilkrdpslyrdiaknslltwpt
f-iywtflgvfdavvff-fgafxlfd----------xxxxxxxxxm-------
----
fg--nwtfgtlvftvlvftvtlk-laldthywtwinhf------viwgsllfyvifsll
wggiiwpf--xxxxxxx---------yvfmqml----------
--------ssgpaw----ls--iillliivsllpd----------
---------vlkkvlc----------ralw------p----------ttt
----------xxxxxxxxxx----------

----------xxxxxxxxxxsqtsssvsx----------

_
>drelV_IV04 XP_691903.2
m----------

----------xxxxxxxxxxxkkkkvee----------

---errlrand----------

----------xxxxx----------

----------sfkyannaiktskyn----------vf----
-tflplnlfeqf----------
----------q-rlanayfv----fllil
-qli------pqiss----------lsw---f-tt----vvp
lllv-l--------sitlakdlsdd----------it----------rh----kn
dkqvnnrkve--------vli----------

----------d-gel----------x-----t----------
----------e
r----------
----wmnVQVGDlVKLen----------
-----NEFVTADLLLLss----------

----------sepln-l---iylETAELDGETNLKVKqa-

----------xtltgelcndiqrlaafkgevrceppnnrldkftgtlvv--

----------ggetfa
ldn----------
----------e----------RILLR--GCTL----------r
nt----ewcf----------gLVLFGGPDTKLMqnsgksif-------

----------krtsidhlmnvlvlfifgflafmctils
-ignaiweyqegnsf-----xvflp----------xxxxxnaslsafltfwsyVIILNTV
VPISLYVSvEILRLGNSY-FIdwdrkm----------
----------yhvksdtp--------
----------aQAR-TTTLNEELGQIKYIFSDKTG----------
----------TLTQNIMTFn----------rcsingksy----------
----------xxxxx-xxxxxxxxxxxx-

----------xxxxx--xxxx
xxxxx----------fffhdhk--lxeavxx--x---------
-------x----------xxxx-----af
frllalc-----htvm----------
----------pe---exx----------xxx----xx-----

----------yqaqspde--galvta----ar-n----
----------fgfv--f--rartpe----------ti----------
----------svv--x---------m
giet------tyellavldfnnvrk-rmsv----i---vr----------

----------x-p---------e---------g----k----------
----------lm--l----------y---
-c----------k----------
----------gad
t----------iiyerlh--p----------x---------

```
------------------------------------------------------------
------------------------------------------------------------
xxx--xx--evt-tehlney--age----glrtLALAYKdl--dedkfaewrrrhhe---
as-----ialedreekldaiyee-iekdlllGASAVEDKLQDGVPQTIEQLAKad-IKI
WVLTGDKQETAENIGYSCNM----------------------------lreemtei----
------------------------------------------------------------
----------------------fi-----vaan--xx------eevxxxx----------
--------------xxxx--------------------xxxx---------------xx
x--x----------------------xxxxxxxxxxlgxxxqxxx---xxxx--------
-----------------------------------------xxeyglvinghslaf----
-----------------al-------------------------------------
x---------------kdmqvellr-----------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
tacmcqtvlCC--RVTPLQKAQVVELVk-------------------------------
---kh--kk-----------a-------------VTLAIGDGANDVSMIKTAHIGVGI--
----------sgqegmq-------------------------------------------
------------------------------------------------------------
-----------------AVLSSDFSFAqfRYLQRLL--LVHGRWSYLRMCTFL------R
yff-yknft-ftfvhfwyaffcgf----------------------saqtvydewyitly
nlvytalpvlgislfdqdvndr----------------wsfqypqlyapgqmnqyfskma
f-akillhscysslilf-fvpwxamw----------------xxxxxxxxxi-------
------------------------------------------------------------
ad--yqsfallaqtclliavsvq-lgldtyywtavnhf-------flwgslsvyfavtft
mysngmylxxxxxxxxx----------gtarnsl-------------------------
--------nqpnvw----lt--iflttilcvlpv-------------------------
---------vakrflf-----------iqfk-------p-----------------tin
------------xxxxxxxxx---------------------------------------
------------------------------------------------------------
-------------------------xxxxxxxxxxrfprrrisxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxx-------------------------------------------
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----------xxxxxxxxxxxxxxxxxxxxxxxxxxxx----------

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>drelV_lVO5 XP_692383.2

m----------

----------xxxxxxxxxxxxxxxhrdqdrp----------

---irkvvsnl----------

----------xxxxxxxxxxx----------

----------nrqyegnaiktnkyr----------lw----

-sflpmnlfeqf----------

----------h-rlaniyfv----glail
-nfi------pvvna----------fqp---e-va----lip
icii-l---------altavkdgwed----------fr----------ry----qt
dqqlnnmpcf---------ifr----------

--------xxl-mcf----------x------e----------
----------r
r----------
----wkdVRVGDFVKVls----------
-----NEllPADILLLht----------

----------sdpng-v---chMETANLDGETNLKQRkv-

----------vpgfstlgepfqpqtfdstvvcenpnnnlnlfkgf-----
------xxxx----------
----------dkrrsg
fgi----------
----------d----------SLLLR--GCTV----------r
nt----ddaa----------glVVYAGHETKSMlnnngpry-------

----------krskierkmntdvlfcvlllffmcliga
-lghaiwletfstmp-----xyivp--------xxxxxxxssalagfymfftmlILLQVM
lPVSLYVSiELVKMGQIF-Fltqdael----------
----------ydqeldsr--------
----------vQCR-ALNlTEDLGQIQYVFSDKTG----------
----------TLTENKMVFk----------rctimgtey----------
----------xxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxx-xxxxxxxxxxxxx----------

----------xxxx
xxxxxxxxxxxxxxxxxxxxxxx-xxxxxxxxvvvpdrk--lxlevxxxxxxx-------
--------xx----------xxxx-----df
flalaic-----ntvv----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx----
-------xxxxxhnxxxhxx----------xxx----xxx----

```
----------------------------------------xxxxxx---------xxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx---------------
---xxxxxx--------------------xxyeahspde--aaliha----ak-a----
-----------------ygft--m--vertpr---------------yv-----------
-----------------------------------------------tvkxxx----------e
tll-------kfevldvltfdstrr-rmsi----i---vr--------------------
------------------------------------------------------------
--------------------x-p---------h--------xn----e------------
----------------------------ii--m----------------------y---
-t-------------------k-----------------------------------
------------------------------------------------------------gad
s----------------------avmeklgxxfxxx---xxxx------------------
------------------------------------------------------------
------------------------------------------------------------
xxx--xx--vrt-qkdldmy--ard----glrtLCFAKKvi--seqefkawftsrqe---
al-----saidekeerlmetand-iennltlLGATGIEDRLQENVPETIQALRRag-MQV
WVLTGDKPETAVNIAYSCKL--------------------------ldhedlvf----
------------------------------------------------------------
----------------------tf-----ttnk--xx------vckxxxx----------
------------------------------------------------------------x
xxxx---------------------xxxxxxxxxxdpxxxgxxxxxxxxxx--------
-----------------------------------------xxsiglvidgptlnm----
-----------------al-------------------------------------
x--------------edlveqfve-----------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
lckhcravLCC--RVTPLQKSSVVKVlr-------------------------------
---qk--lr-----------v------------MTLAVGDGANDVNMIQAADVGIGV--
----------sgqegmq-------------------------------------------
------------------------------------------------------------
-----------------AVMASDFAITrfKHLQRLL--LVHGHWCYSRLANMV------I
```

yff-yknva-yvnllfwyqffcgf----------sgtamidywlmiff
nlfftsappimfgimdkevsds----------tllslpelyrrgqhsegyrrst
f-wiaildafyqslvcf-fipy-wty----------xxxxx----------

-g--ifsfgtpmntvslftiilh-laieikswtvvhwv-------imvgsvlvyfiltla
ysaicisc--xxxxxxx---------wimhkqm----------
--------adpmfy----lv--cvlttvvallpr----------
---------ytlrvlk----------gtla-------p----------slh
----------xxxxxxxxxxxxxxxxx----------

----------xxxxxxxxxxisaslsstxxxxx----------

-
>drelV_lV06 XP_693773.2
m----------

----------xxxxxxxxxxxxxxxxxxxxxxxxx

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxadpvdat----------

---artvllnr---

---xx---

---ttkycdnhvstakyg----------il----
-tflprflyeqi---
---r-raanaffl----fialm
-qqi------pdvsp---tgr---y-tt----lvp
lifi-l---------tvagikeiied----------yk----------rh----ka
dntvnkkktt---------vlr---

----------n-gaw---------x------t----------
---i
i---
----wkqVAVGDlVKVtn---
-----GQHLPADMVlVss---

---sepqa-m---cyTETSNLDGETNLKlRqg-

---lsltasfqsledlialsgrlecegpnrhlydftgtlrlx-

---nhnpap
lgp---
---d---------QVLLR--GAQL----------r
nt----qwvv---------glVVYTGHDSKLMqnstkapl-------

---krsnvervtnmqilvlfgillvmalvss
-igaaiwnkqhtdea-----xwyls----------xxxdislnfaynlltflILYNNL
lPlSLLVTlEVVKFTQAL-Flnwdvem---

----------yyaetdtp-------
----------aMAR-TSNLNEELGQVKYLFSDKTG----------
----------TLTCNVMHFk----------kctiagity----------
----------xxxxxxxxxx---------

----------xxxxx--xxxx
xxxxxx----------tefddpa--lxqnixx--x---------
------xxxx----------xxxx-----ef
ltmmavc-----htvv----------
----------pexxxnx----------xx-----

----------yqasspde--galvkg----ak-s----
----------lgfv--f--tartph----------sv----------
----------iie--x---------r
gkeq------tyellnvlefssnrk-rmsv----i---vr----------

----------x-p--------t--------g---n----------
----------lr--l----------y---
-c----------k----------
----------gad
n----------viferln----------x---------

---
xxx--xx--elt-vahleqf--ate----glrtLCFAYVdl--eegaylewlkeynr---
is-----tvlkdraqkleecyel-ieknlllLGATAIEDRLQAGVPETIATLMRad-lKl
WVLTGDKQETAINIGYSCRL----------vshgmsli----

----------iv-----neds---------ldaxxxx---------

----------xxxxxxxxxxslxx----------
----------xxelaliidgqtlky----
----------al----------
x----------fevrqafld----------

---

lalsckavICC--RVSPLQKSEIVDMVk----------

---kh---v----------xa----------ITLAIGDGANDVGMIQTAHVGVGI--

----------sgnegmq----------

----------ATNSSDYSIAqfSYLEKLL--LVHGAWSYNRVTKCI------L

ycf-yknvv-lyiielwfafvngf----------sgqilferwcigly

nviftalppftlgifdrpcsqq----------nmirfpqlyritqnaegfntkv

f-wghcinalihsiilf-wfplxale----------xxxxxxxxxs-------

---

vd--ylfvgnivytyvvvtvclk-agmettawtrfshl------avwgsmvlwmlffav

ysaiwptixxxxxxx----------gqiy----------

--------epashf--------tvtctchtvtra----------

---------pgfyglp----------

_

>drelV_IV07 XP_694281.2

m----------

----------xxsttengi----------

---kwevrang----------

----------xxxxxxxxxxx----------

----------xxxxxwgryadnvvrsykyt----------pl----
-tffplnlyeqf----------
----------q-raanlffl----livil
-qcv------pviat----------ipw---y-tt----mlp
lliv-l--------fvrgckdlatd----------vg----------rr----rs
daqinrrpcd--------ilt----------

----------p-egf----------x-----t----------
----------v
k----------
----wkdVCVGDILRVhk----------
-----DQVIPADLLLLcs----------

----------tepys-l---cyVETADIDGETNLKFRqa-

----------xxxxhtelngdsteqnlaafdaivrceepngnlhsfrgefhw--

----------kgerhl
lgt----------
----------d---------HLLLR--GTVL----------r
nt----dyay----------gLTIYTGSDSKILqncgrlkl-------

----------kkthveillnktvlvillfmlttallla
-igagifeyrispny------dvvs---------xxxxxxspayqgfltfwgyllLLSPS
MPMSLYITfEVIHMVHCL-Llgwdvem----------
----------ywedtncp--------
----------aHAR-TTTLNEELGQVGHLLSDKTG----------
----------TLTQNRLLFr----------qcfiaghiy----------

----------xxxxxxxx--xxxx
xxxxx----------lkfsdqr--lxdklxx--x---------
------xx----------xxxx-----ef
ftalalc-----htvm----------
----------s----exx----------xxx----xx-----

----------yqaaspde--ealvca----ar-e----
----------lgwv--f--lsrtrd----------tl----------
----------tis--x---------m
gltr------nyqllalldftskrr-rmsv----l---vr----------

----------x-p---------g---------g----q----------
----------lk--l----------y---
-s----------k----------
----------gad
i----------vilerlq----------x---------

```
------------------------------------------------------------
------------------------------------------------------------
xxx--xx--est-dralelf--aqs----clrtLCVAVRpv--pealwtewsralnl---
------xgtatgnqetlleeiydxmekdlmlLGVTAIEDRLQEGVPETIASLRRag-VKV
WVLTGDKTETAVNVGYACKL---------------------------mdpdttli----
------------------------------------------------------------
----------------------qg-----eels--xx------qscxxxx----------
------------------------------------------------------------
------------------------------------------------------------
-----------------------------------------xxrteltk-----------
------------------------------------------------------------
x---------------sewgakfva----------------------------------
------------------------------------------------------------
------------------------------------------------------------
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------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
lsgqcqsvLCC--RVTPAQKAEVVEMVr-------------------------------
---kh--sa-----------s-------------ITMAIGDGANDVNMIKTAHIGVGL--
----------cgvegsq-------------------------------------------
------------------------------------------------------------
-----------------AVLNADFALAqfSFLRKLL--LVHGHWSYYRISILL------R
yfl-yktta-falvhtwysfyngf----------------------saqpmyeswyislf
tttytslpiqctgifeqdisar----------------sclcwpeiysigqkkqlfnpsv
l-astllysfyssiiff-fvpm-gil-------------xxxxx---------------
------------------------------------------------------------
-d--fqtlaitietsvlfattle-vilctkywtkwnva------avifslaafflstla
lhstrlft--xxxxxxxxxx-------asq-nay--------------------------
--------stpevw----lt--ifvttcvavlps--------------------------
---------ittrala-----------ne---------p-----------------vel
-------------xxxxxxxxxxxxxxxxxxxx------------------------
------------------------------------------------------------
-----------xxxxxxxxxxxxxxxxxxxxxxxxeslknespxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxx---------------------------------------------
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----------xxxxxxxxxxxxxxx----------

----------xxxxxxxxx----------

---------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

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x

>drelV_lV08 XP_695556.2

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----------xxxxxxxxxxxxxxxxxxxxxkskkesk----------

---trtvhani----------

----------xxxxxxxxxxx----------

----------nrhyannkikttkyt----------ll----

-sflpknlfeqf----------

----------h-rfanvyfv----fiall
-nfv------pvvna----------fqp---e-la----lap
vvfi-l---------svtaikdlwed----------yr----------rh----rs
dkeinhmdcl---------vyc----------

--------xxe-kry----------x------e----------
----------k
y----------
----wkeLRVGDFlRLrc----------
-----NElLPADVLLLst----------

----------sdpdr-l---chlETATLDGETNLKQRqv-

----------vrsfidldcefdplkynsviecekpnndlnrfrgyiihx-

----------sgrrdg
lyk----------
----------d----------NLLLR--GCTl----------r
nt----eeav----------glVlYAGHETKAMlnnngpry-------

----------krsklerqmnvdvfwcviillvmclfsa
-ighglwmfqygdkr----xxfdvl--------xxxxxxxspvvsaiylfltmllVFQVL
lPlSLFVSiElVKlCQVY-Flhqdlel----------
----------ydeetdsh--------
----------lQCR-ALNlTEDLGQMQYlFSDKTG----------
----------TLTENKMVFr----------rctvagvey----------
----------xxxxxxxxxxxxxxxxxxx
xxxxx-----xxxxxxxxxxxxxxx----------

----------xxxxx--xxxx
xxxxxxxxxxxxxxxxxxxxxxx-xxxxxxxxditpdpq--lxdkvxxxxxxxxxxxxxxx
xxxxxxxxxx----------xxxx-----df
fialtic-----ntvv----------xxxxxxxxxxxx-xxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxslxxxrxx----------xxx----xxx----

```
-------------------------------------xxxxxx--------------
----xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx--------------
-----------------------------xxfeaespde--aalvya----ar-a----
-----------------ykca--l--vgrlpd--------------qv----------
-----------------------------------------tvexxx----------l
gkl-------sfellhtlgfdstrk-rmsv----v---vk-------------------
------------------------------------------------------------
--------------------x-p---------l--------xe----q-----------
----------------------------it--v----------------------y---
-t-----------------k--------------------------------------
------------------------------------------------------------gad
s----------------------vimdlirxxt---xxxxxxx-----------------
------------------------------------------------------------
------------------------------------------------------------
xxx--xx--ykt-qnylnly--aad----glrtLClAKKvl--skeeyaswlqrhle---
ae-----taiqrreellfesalr-letnlqlLGATGlEDRLQDGVPETlASLRKag-LQl
WVLTGDKQETAINlAYACKL-------------------------ldpeeeii----
------------------------------------------------------------
----------------------tl-----nads--xx------acaxxxx----------
------------------------------------------------------------x
xxxx----------------------xxxxxxxxxxagxxxaxxxxxxxxxx--xxxxxx
xxxxxxxxx-------------------------------xxrlglvidgrtlay----
-----------------al-----------------------------------------
x--------------ksledkfla---------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
varscrsvLCC--RSTPLQKSMVVKLVr-------------------------------
---nk--lk-----------v------------MTLAlGDGANDVSMlQVADVGVGl--
----------sgqegmq-------------------------------------------
------------------------------------------------------------
-----------------AVMASDFALPrfRYLQKLL--LVHGHWCYSRLANMl------L
```

```
yff-yknam-fvalifwyqfycgf----------------------sgsamvdqwyliff
nlmfsafpqlitgtldkdvsae----------------tlqelpqlymngqnseeykpym
f-wmnmidafyqslicf-fipy-fay--------------xxxxx---------------
------------------------------------------------------------
-d--lftwgtpittlalftillh-lgietktwtwmnwv-------sigfsmalfftvalc
ynascptc--xxxxxxx----------wtmqrll-------------------------
--------gdplfy----ll--cvvtpvaallpr-------------------------
---------ycyracq------------gtlf-------p-----------------npv
-------------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxx-------------------------------------------------------
--------------------------xxxxxxxxxxekalaspixxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxx-----------------------------------------------
------------------------------------------------------------
------------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxx------------------------------------------
------------------------------------------------------------
--------------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
------------------------------------------------------------
------------------------------------------------------------
x
>drelV_lV09 XP_698351.2
m-------------------------------------------------------------
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----------------------------------------------xxxxxxxxxxx
x----------------------xxxxxxxxxxxxx---------------------
```

----------xxxxxxxxxxxxxxxxxxxxxxxptkdvfg--------xx----
---xxxxxxxxxxxxxxxxxxxx--

-----------xxxxxxxxx---
---srtiyvgh---

----------------------------x-xxxxxxxxx---------------------

----------------------ppkfcdnrivsskyt----------------vw----
-nflpknlfeqf---
---r-rianfyfl----iiflv
-qvi------vd-tp-----------------------------tsp---v-ts----glp
lffv-i---------tvtaikqgyed-------------wl-----------rh----ka
dnevnkypvt---------vle-------------------------------------

----------d-grs-------------------------x------k-----------
---k
e--
----sekIKVGDVVEVve---
-----DETFPCDLILLqs---

-------------------------------sredg----xcfVTTASLDGESNHKTHyt-
----
--------------------vpdier-----dlqvltaaieceqpqpdlykfvgr-----
--xxxxxxxx---
---eeavrs
lgp--
----------------------e----------NLLLK--GATL---------------k
nt----keiy----------------------gVAVYTGMETKMAlnyqgksq-------

-------------------------------krsaveksinafllvylciliskavvct
-tlkyvwqskegqde-----xwyne-------xxxxxxxxnmylkmftdflsfMVLFNFl
lPVSMYVTvEMQKFLGSF-Flkwdndf--------------------------------

----------fdpeieeg-------
----------aLVN-TSDLNEELGQVEYVFTDKTG----------
----------TLTQNNMEFi----------eccidgfqy----------

----------xxxxxxxxxdgftvtdxxlxklqxxxxx---------
------xxxx----------lf
lralclc-----htvq----------xxxxx
xxxxxxxxxxxxpkxxxexx----------

----------fiasspde--valvkg----am-e----
----------ygft--f--lglenk----------nm----------
----------kirxx----------q
ndie-------eykllhvlnfdpvrr-rmsv----i---vq----------

----------t--------k-------xg---d----------
----------tl--l----------f---
-c----------k----------
----------gad
s----------sifprvrxxe----------

-------xdri-rlhvern--atd----gyrtLCVAYKql--saeeyaladtglre---
ar-----lalqdreeklmamynq-vetgmsllGATAVEDRLQEEAAETMEALQGag-MKl
WVLTGDKMETAKSTCYACRL----------fqrgtell----

----------el-----tvrt--xxxxxxxxedrxxxx----------

----------xxxxxxxxxxdaxxxkxxxxxxxxxx--------
----------xeygfiidgatlsl----
----------vm----------xxxxxxx
x----------slyrglflq----------

```
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
icqnctavLCC--RMAPLQKAQIVKMVk-------------------------------
---nc--kg----------xp-------------ITLSIGDGANDVSMILEAHVGIGI--
----------kgkegrq-------------------------------------------
------------------------------------------------------------
------------------AVRNSDYAIPkIKHLKKLL--LAHGHLYYVRIAHLV------Q
yff-yknlc-filpqflyqffcgy----------------------sqqplydaayltmy
nicftsmpilayslleqhiaie----------------illdnatlyreiaknamlrwrp
f-lywtvlgifqgllff-fgvrxlfs-----------------xxxxxxxxxv-------
------------------------------------------------------------
fg--nwsygtivftvlvftvtlk-laldtrhwtwinhf-------viwgslafyvffsff
wggiiwpf--xxxxxxx----------fvfanml--------------------------
--------ssvsaw----lv--iiiliillsllpe--------------------------
---------illavlr-------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
-----------------------------xxxxxxxrqtaavtpxxxxxxxxxx------
------------------------------------------------------------
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_
>cellV_IV01 NP_503858.1
m-----------------------------------------------------------
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```


----------xxxxxxxxxxxxxxxxxxxxxxxxxxxnddvatrxxxxxxxxxx----
-----------------------------------xxxxxxxxxxxxxxxxxxx--

----------xxxxxxxxx----------
---srtvrigy----------

----------------xxxxxxxprtfppntvrnqkyn----------if----
-sfvpvvlfqef----------
----------k-fflnlyfl----imafs
-qlv------pifki----------gal---v-ty----wfp
lgfi-l--------titlireaied----------fa----------rf----lr
drelnsekye---------klt----------

---------xdxtrv----------e----------
----------i
k----------
----sadlKVGDVlVMhk----------
-----DRRVPADVVLLrt----------

----------sdkss-s---cfIRTDQLDGETDWKLKip-

----------ipftqhlaneseimelncevyaekpqkdiysfvgtvkixx
xx----------
----------kihegs
ldv----------
----------e----------NVLWA--NTVV----------
ss----gtai----------gVVVYTGCETRSVmnttvpey-------

----------kvglldleinnltkllfcfvlllasvmv
-lmkgptsl----------wyly----------larfILLFSYI
IPISLRTNvDMAKLFYSW-QIghdhhi----------
----------pe-------
----------tVVR-SSTIPEELGRISFLLSDKTG----------
----------TLTKNEMHFk----------kihlgtvaf----------
----------xxxxxxxxxxxxxx------

----------xx-----xxx
xx----------xxxfsak-lk----------
----------na
veslalc-----hnvt----------
----------pvxxx----------

----------x----------xx----------
---x----------yqaaspde--valvkw----te-t----
----------vgvk--l--ahrdlh----------tm----------
----------tld----------v
qpsn-xxxxxxqfqilhvfpftserk-rmgi----i---vk----------

----------x-e---------t--------xg----e----------
----------vt--l----------y---
-i----------k----------
----------gad
t----------vmsdmv--xyx----------

```
------------------------------------------------------------
------------------------------------------------------------
---------dwl-deectnm--are----glrtLVFAKKil--sraeleafdqayh----
aa----xmsitnrtqnmanvvknxlerdlqllCLTGVEDRLQDQVTTSLELLRNag-IKI
WMLTGDKLETAICIAKSSGL----------------------------fsksdhih----
------------------------------------------------------------
----------------------vf-----gsvq----------trt--------------
------------------------------------------------------------
-------------------------------------------dxxxxxxxxxxx------
-------------------------------------------nialvmpgsslni----
-----------------cl-------------------------------------------
----------------qyyeeevae-----------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
lvcastavVCC--RCSPEQKAQIVQLLr---------------------------------
---ky--ra----------xl-------------RVAAIGDGGNDVSMIQAAHAGIGI--
----------danegkq-------------------------------------------
------------------------------------------------------------
-----------------ASLAADFSITqfSHICRLL--LVHGRFSYKRSCTLA------Q
fim-hrgll-isivqaifscvfyf----------------------vavslyqgvlmvaf
tscytllpvfsl-iadrdvtat----------------naltypelykelvkgrtlsykt
f-fiwvfisiyqgavim-ygal-lif-------------------------d-------
------------------------------------------------------------
td--ilhivsisfsaliatelim-valtvhtwhwlmlv------aqalslglyvvslit
ldqf-f----------------------drkfv-------------------------
--------fswvfi----tk--ttaitvvsslpl-------------------------
---------yfiktlr-----------rkfs-------p-----------------psf
------------------------------------------------------------
------------------------------------------------------------
-----------------------------------akv----k----------------
------------------------------------------------------------
```

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>cellV_IV02 NP_001021458.1

m---

-------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxcrslfsrxxxxx---------

---

---srtvrvgy---

----------------xxxxxxxnvtftpntvcnqkyn----------------if----

-sfvpivlfqqf---

----------k-fflnlyfl----lmacs
-qfi------paiqi----------gap---i-ty----wgp
lgfv-l---------titlireafdd----------fv----------ry----lr
drdlnsekye---------klt----------

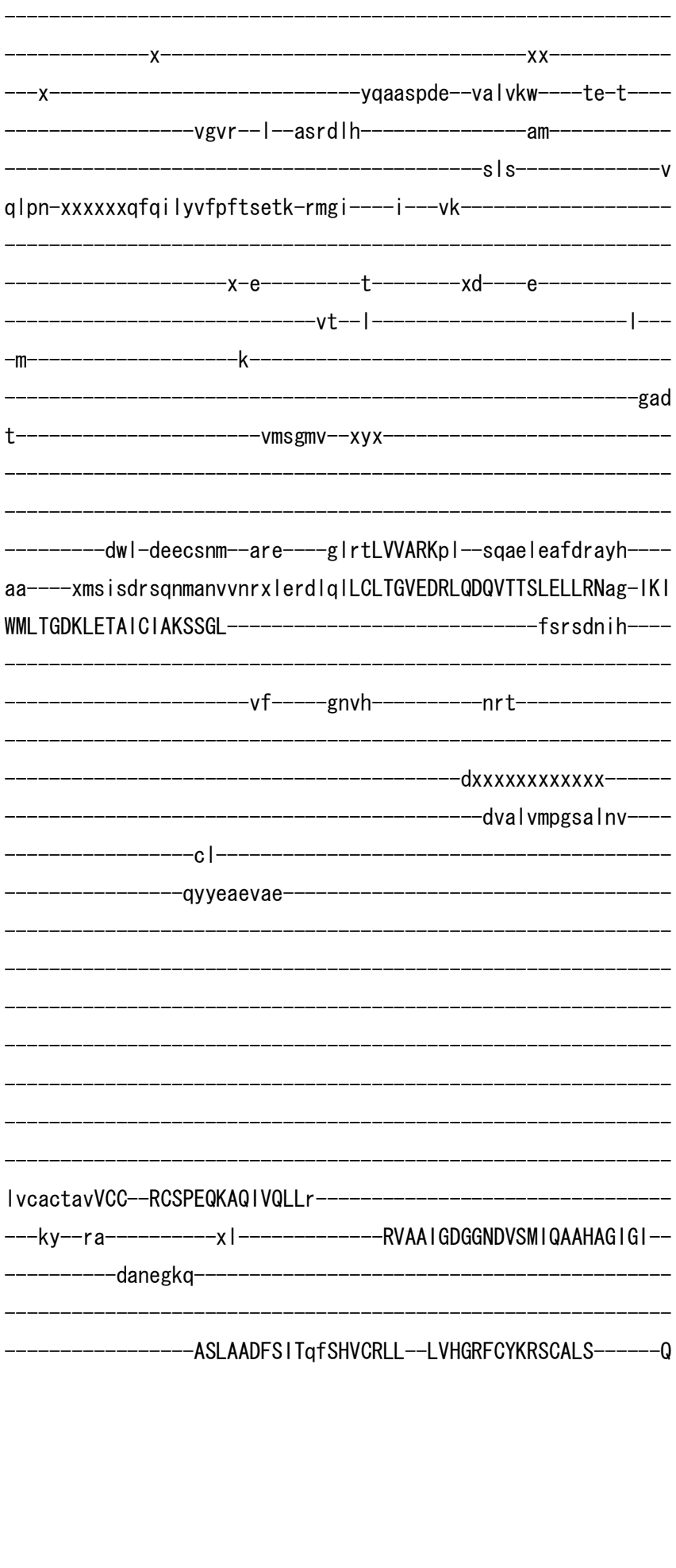
---------xdxtri----------e----------
----------i
r----------
----sadlEVGDVIIMhk----------
-----DRRVPADVVLLrt----------

----------tdksg-a---cflRTDQLDGETDWKLRip-

----------vphtqhlpneadimelncevyaekpqkdihafvgtlkixx
xx----------
----------nvqdgs
lnv----------
----------e----------NVLWA--NTVV----------
as----gtav----------glVVYTGRETRSVmnttlpes-------

----------kvglldlevnnltkllfcfvlvlssvmv
-amkgldnl----------wyry----------lmrflLLFSYl
lPlSLRVNlDMAKLFYSW-Qlgrdkhi----------
----------pe--------
----------tVIR-SSTlPEELGRlSFLLSDKTG----------
----------TLTKNEMHFk----------kihlgtvaf----------
----------xxxxxxxxxxxxxx------

----------xx------xxx
xx----------xxxfsak-lq----------
----------na
veaialc-----hnvt----------
----------pixxx----------



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stcytmlpvfsl-vvdrdvtat----------naltypelykelgkgrslsykt
f-ciwvlislyqgavim-ygal-lvf----------d------
---
ad--fihvvsisfsalivtelim-vamtvhtwhwaml------aqalslglymislil
fdqy-f----------drqfv----------
--------lswvfi----sk--ttaitavsclpl----------
---------yivkalr----------rkfs-------p----------psy

----------akv----n----------

-
>cellV_IV03 NP_495244.1
m----------

----------xtprpthl--------xx----
----------xxxxxxxxxxxxxxxxxxx--

----------xxxxxxxxx---
---srvirpnh---

----------------------------xxxxxxxxxxx---------------------

----------------------yrdftdnristtkyt----------------fw----
-nfiplniwhqv--
--sxkyanlyfi----fiail
-nwv------pffda-----------------------------ytr---y-vg----lip
icfv-l---------gttlikdgied-------------yr-----------ry----kf
dnqinkktch---------vwd--------------------------------------

--------xxr-caf------------------------x------k-------------
--t
e---
----wrylLVGDFVHlsn---
-----NQDVPADllLLrs---

-----------------------------ssesg-t---cylETCNLDGETSLKQRmv-

-----------------xxxvidyskkdstfkppdftgvvtcekpdksiytirakvefx-

--pgqsdv
iik---
----------------------e----------NMLLR--GSRl---------------k
nt----tfve----------------------glVVYAGHDTKVMqnngraph-------

-------------------------------ktsgiekltnkfiiacfimlllmvlyga
-itsavwvgqhpvde---xxxfils------------xxxrpfiegfigigafFlNYQLL
VPlSLYlTvEllKALQlY-Flsndiql---------------------------------

```
-------------------------------------------ydqksdra--------
-------------------------iDCR-SLSIPEELGTVTHVLSDKTG----------
----------TLTENMMIFr--------------ncafdetdy-----------------
-----------------------------------------xxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx--------------
------------------------------------------------------------
------------------------------------------------------------
-----------------------------------------------xxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxiqfddrlxxixeedxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxx-------------------------------------sf
srklstv---xxrsil-----------------------------------------xxx
xxxxxxxxxxxxfkxxxmxx-------------------------------------
------------------------------------------------------------
------------------------------------------------------------
-------------------------------yeaespde--lalieg----aa-l----
-----------------ydyv--l--leraat---------------sv----------
-----------------------------------------tisxxxxxxx-------
-----------rye illtlpfdatrk-rmsv----i---vn-----------------
------------------------------------------------------------
-------------------------------------xxxg-----------------
----------------------------pl--m---------------------y---
-c-----------------k-------------------------------------
------------------------------------------------------------gad
s---------------------aiisrlsxxsxx----------------------
------------------------------------------------------------
------------------------------------------------------------
-----xxxxqdl-kdhldny--akk----glrtLCFAMKyi--skedfedfldsyrf---
lm----xdatserekmlsekade-letnlklSGVTGIEDRLQDGVPDTLRALRDag-IQV
WVLTGDKLETAQNIATSSGL-------------------------fhpqrslk----
------------------------------------------------------------
----------------------vi-----etet----------daexxxx----------
------------------------------------------------------------
------------------------------------------------------------
-------------------------------------xxglniimspaairl----
------------------------------------------------------------
x--------------qdgnahlme---------------------------------
```

---

alkkaktvLCY--RMTPSEKATIVNTVk----------

---kr--ik----------g----------NVLAIGDGANDVPMIQAAHVGIGI--

----------agkeglq----------

----------AAMACDFAIArfKFLSRLL--LVHGHWSYYRLANTF------L

yfl-yknan-avfiifyyqfynga----------sgtnivdpiwgviy

piiftsvqpvvvgvldqdyddq----------tlmnkpelyvigrenqlytwkh

f-frdvidgiyqaaviy-yvay----------xxxxxxt-------

---

ss--lwemgfyiatssilvnsgh-lalqvrywhwql---------valfsffilfnfaff

faecltaaxxxxxxxxx----------wmpiham----------

--------gdprfw----yy--qfitvivalcprxxxxxxxxxxxxxxxxxxxxxxxxxxx

xxxxxxxxxyvfmtlrxxxxxxxxxxxxtt--xxxxxxxp----------ltv

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxdkleseaaxxxxxxxxxxxxxxxx

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>cellV_IV04 NP_001022894.1

m----------

----------pteardn----------

---nrhihlgk----------

----------xxxxxxxx----------

----------aqrfcsnristckyn----------gf----
-sflprflyeqf----------
----------r-rynniffl----aiall
-qqi------pdvsp----------tgr---y-tt----avp
flii-l--------svsalkeifed----------vk----------rr----rs
dnkvnafsve--------ilv----------

----------d-ghw----------x-----e----------
----------k
q----------
----wkdVSVGDFlRldn----------
-----DSLFPADLLLLas----------

----------seqqg-m---aylETSNLDGETNLKlKqa-
----------lditstmtspeklsqfeseitceppsrhvnefngniei--
----------ngvarh
fgi----------
----------d---------QLLLR--GARL----------k
nt----awif----------gAVIYTGHDSKLLmnskrapl-------

----------ksgtidvqtnyriiflffvlvalalisa
-tgseiwrgnnipqa------wyls----------xxxxdpkgsflwgvltfFILYNNL
lPlSLQVTlEVVRFFQAl-Ylnndiem----------
----------ydvnsdsc--------
----------alAR-TSNLNEELGQVKFlMSDKTG----------
----------TLTRNVMKFk----------rlsigsrny----------
----------xxxxx----------

----------defadas--lxedyxx--x---------
------xxxx----------xxxx-----ev
lkmmavc-----htvv----------
----------p----exx----------xxx----xx-----

----------yqssspde--aalvrg----aa-s----
----------qsvs--f--htrqpq----------kv----------
----------icn--x---------f
gede-------tieildvidftsdrk-rmsv----i---vr----------

----------xxa---------g---------g----d----------
----------ik--l----------y---
-t----------k----------
----------gad
t----------viferlexxk----------x---------

```
------------------------------------------------------------
------------------------------------------------------------
xxx--xx--eyc-tehledy--asf----gyrtLCFSMRhl--teqeysqwapeykk---
ai-----laidnraklladaaek-lernmilVGATAIEDKLQEWVPETIQALMAad-IRV
WMLTGDKRETAINIAHSCAL----------------------------chtntell----
------------------------------------------------------------
----------------------iv-----dktt----------yeexxxx----------
------------------------------------------------------------
--------------------------xxxxxxxxxxlexx----------------------
-----------------------------------------xxgfamvidgksllh------
-----------------al-------------------------------------------
x---------------gearkhfgd----------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
lalrchavVCC--RMSPMQKAEVVEMVr-------------------------------
---kl---a----------xh-------------VVLAIGDGANDVAMIQAANVGVGI--
----------sgeeglq-------------------------------------------
------------------------------------------------------------
-----------------AASASDYAIPrfHFLRRLL--LVHGAWNHDRSVKVI------L
ysf-yknic-lyiielwfamfsaw----------------------sgqtiferwtigmf
nviftawppvvlglfdhpvpae----------------qimkypalyasfq-nrafsign
f-slwiglaivhslslf-fltyxtme-----------------xxxxxxxxxt-------
------------------------------------------------------------
gg--wlmlgncaytfvvatvcfk-allecdswtwpvvv-------acigsiglwivfviv
yslvfphixxxxxxxx----------gmaaimm--------------------------
--------ssytfw----la--llfiplatllwd--------------------------
---------lvikslf-----------tiam-------p-----------------tpr
------------xxxxxxxxxxxxxxxxxxx---------------------------
------------------------------------------------------------
--------------------------xxxxxxxxxxrlltsslrxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxx---------------------------------------------
```

----------xxxxxxxxxxxxxxxxxxxxxxx----------

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>cellV_lV06 NP_499363.2

m----------

----------lpqq----------

---rlvvpnnq----------

----------xxxxxxxxxxx----------

----------rkycgnristtkys----------vl----

-tfipknlfeql----------

----------h-raanlyfi----fivil
-nmi--------iga----------fgk---y-is----vlp
iafv-l---------gitaikdafed----------yr----------ry----ks
dqkinhstcr---------vwd----------

--------xxq-qry----------x------k----------
----------l
e----------
----wqnlLVGDFVHLsh----------
-----DEllPADILLLrs----------

----------sdvng-v---cyVETCNLDGESNLKQRqa-

---------------xxxxxkyhnanvpleyspaefnyriaceqpttdvykfegrleaxx
xxxxx----------
----------arefti
lak----------
----------e----------NVLLR--GCVV----------k
nt----dfve----------glVLYAGKDTKAMlnnngpry-------

----------krsslekmtnvdilwsvctllalcviga
-vlsgvwlrtfstpy-xxxxxvfihxxxxxxxxxxxxxxxxspsyeswfsfwsyllVLQVM
lPlSLYVSiEFlKlFQVW-FMsqdrnm----------
----------yydkvdkr--------
----------lQCR-ALNlTEELGQlQYVMSDKTG----------
----------TLTENQMVFr----------rcsvngndy----------
----------xxxxxxxxxxxxxxxx----

----------xxxxx--xxxx
xxxxxxxxxxxxxxxxxxxxxxxx--------dpalesq--lxssvxxxxx---------
-------xxx----------xxxx-----af
fltmaic-----ntvvxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxpvxxxexx----------xxxxxxxxxx----

```
-------------------------------------xxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxx--------------------xxydsespde--lalvea----ar-e----
----------------ygir--l--lrrrfd--------------dv----------
-----------------------------------------ivyxxx----------s
tssv------kykvlhtlpfdadrk-rmsv----i---ir-------------------
------------------------------------------------------------
--------------------xxs---------g--------xk----r-----------
---------------------------ii--v----------------------l---
-t-----------------k-----------------------------------
------------------------------------------------------------gad
a----------------------tvipvlsxxfxxxxx----------------------
------------------------------------------------------------
------------------------------------------------------------
xxx--xx--fks-qehltqy--ake----glrtLCLSMKiw--teeeyqgwkekhee---
------xeldmmdketmlaestlxaeqdlelLGVTAIEDRLQDGVPECIHSLREag-IRV
WVLTGDKIETAVNIAYSSRL-------------------------fspsmdll----
------------------------------------------------------------
----------------------ni-----gang--xx------avsxxxx----------
------------------------------------------------------------x
xxxx---------------------xxxxx---xxsaxxxdxx-----------------
-----------------------------------------glvlnastmsy----
-----------------cl-----------------------------------
x--------------phnlerfvk-----------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
llrgcrsvLCC--RATPLQKAQLVNLAk-------------------------------
---nh--lk----------g-------------KVLAIGDGANDVSMIQGADVGIGL--
----------sgqegmq-------------------------------------
------------------------------------------------------------
-----------------AVMSSDFAMArfRFLSNLL--LVHGHWNYYRLAQTI------L
```

yff-yknam-lvfvifwyqifngf----------saqvpidpvylmvy
nliftsvpp llfgcldqdasae----------llldcprlyeqgrlgkryrwys
f-winmldavwqslvvf-ficy-fty----------xxxn------
---
vd--mwtfghllvtqliivntfh-lalfvqywtwpmfw-------smflsvllfficall
yngfvtanxxxxxxxxxxx-------mvslksf----------
--------sslefw----ma--liisvvlcltpr----------
---------yvlttvv----------ntvs-------p----------stt

----------xxxxxxxxxxfkkktesrxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxx----------

----------xxx----------

-
>drelV_lV10 XP_700358.2
m----------

--------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxkssqdaq----------

----------xxxxxxxxx----------
---krrvvvsr----------

----------------------------xxxxxxxxxxx----------

----------------------skgfqnnsirttkyt----------li----
-sfipmnlfqqf----------
--h-raanlyfl----flvll
-nwv------pavea----------fqk---e-it----mip
lavv-l---------tviafkdamed----------yr----------ry----ry
dkkinntlth---------vys----------

--------xxq-qry----------x------e----------
----------r
r----------
----waeVCVGDLVRLcc----------
-----NEllPADMVLLhs----------

----------sdsng-v---chlETANLDGETNLKQRqv-

----------vrdltqqgaefvpenfssriecenpnndlrrfrgf-----
------xxxx----------
----------gkvrvg
lhs----------
----------e---------NLLLR--SCTV----------r
nt----etvi----------glVVYAGHETKAMqnnsgpry------

----------krsklerrlnldvlwsvalllmcfiaa
-ighglwlseledpi------fmip----------xxxhpalaafymfwtmllVLQVL
lPlSLYVSiElVKLGQIY-Flqndldl----------

----------ynpvldtg--------
----------vQCR-ALNITEDLGQIQYLFSDKTG----------
----------TLTENRMLFr----------rctvagtey----------
----------xxxxxxxxxxxx-----xx
xxxxx-xxxxxxxxxxxxxxxxxx----------

----------xxxxx--xxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxavvpdpq--lxmklxxxxxxxxxxxxx
xxxxxx----------xx-----df
flaltvc-----ntvv----------xxxxxxxxxxxxxxxx-xxxxxxxxxxxxxxxx
xxx----xxxxxp-----xx----------xxx----xxx----
----------xxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx----xxxxxxxxxx
xxxxxx--x----------xxyeaespde--aalvqa----ak-a----
----------ygct--l--lgrspe----------qv----------
----------lvaxxx---------t
gpl-------sisllhvlpfhsark-rmsv----v---vr----------

----------x-p--------l-------xg---e----------
----------vv--v----------y---
-t----------k----------
----------gad
n----------vimelakxxg-xxxx-xxxx----------

----
xxx--xx--elt-qrhldqy--are----glrtLCVAKKvl--geqeyeawmkrhey---
ae-----tsienreelllesaer-letdltlLGATGIVDRLQEEVPETIEALQEag-IKV
WVLTGDKQETAINIAFACKL----------lrptdhil----

----------ma-----ncds--xx------acexxxx----------
----------x
xxxx----------xxxxx---xxdexxxdxxxxxx----------
----------lvidgrtldy----
----------al----------
x----------kelqgafld----------

----

ltcccrsvlCC--RSTPLQKSQVVRLVr----------

---dk--le----------v----------MTLAlGDGANDVSMlQMADVGVGl--

----------sgqegmq----------

----------AVMSSDFAlSrfKFLRKLl--LVHGHWCYARLANMl------L

yff-yknvvxdvnllfwyqffcgf----------sgstmtnswvliff

nllftsvpplvygvldkdvsae----------tllklpdlyksgqnsqaylptt

f-wlnildafyqslvcf-fipy-fay----------xxxxx----------

-g--vfsfaspingsallillh-qviesrtltwihas------llifsglfyyafvll

fsitcvtc--xxxxxxx----------gietkmm----------

--------seplyy----lv--cvlttvlallpr----------

--------mlsrafs----------ntic------p----------sdl

----------xxxxxxxxxxxxxxxxx----------

----------xxxxxxxxxxrvssrpvpxxxxxxxxxxxxxxxx

xxxxxxxx----------

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>drelV_lV12 XP_001331862.1

m----------

----------sdpdr-l---chlETATLDGETNLKQRqv-

----------vrsfidldcefdplkynsviecekpnndlnrfrgyiihx-

----------sgrrdg
lyk----------
----------d---------NLLLR--GCTl----------r
nt----eeav----------glVlYAGHETKAMlnnngpry-------

----------krsklerqmnvdvfwcviillvmclfsa
-ighglwmfqygdkr----xxfdvl-------xxxxxxxspvvsaiylfltmllVFQVL
lPlSLFVSiElVKICQVY-Flhqdlel----------
----------ydeetdsh--------
----------lQCR-ALNlTEDLGQMQYlFSDKTG----------
----------TLTENKMVFr----------rctvagvey----------
----------xxxxxxxxxxxxxxxxxxx
xxxxx-----xxxxxxxxxxxxxxx----------

----------xxxxx--xxxx
xxxxxxxxxxxxxxxxxxxxxx-xxxxxxxxditpdpq--lxdkvxxxxxxxxxxxxxx
xxxxxxxxxx----------xxxx-----df
fialtic-----ntvv----------xxxxxxxxxxxx-xxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxslxxxrxx----------xxx---xxx---
----------xxxxxx----------
----xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx----------
----------xxfeaespde--aalvya----ar-a----
----------ykca--l--vgrlpd----------qv----------
----------tvexxx---------l
gkl--------sfellhtlgfdstrk-rmsv----v---vk----------

----------x-p---------l--------xe----q----------
----------it--v----------y---
-t----------k----------
----------gad
s----------vimdlirxxt---xxxxxxx----------

```
------------------------------------------------------------
------------------------------------------------------------
xxx--xx--ykt-qnylnly--aad----glrtLCIAKKvl--skeeyaswlqrhle---
ae-----taiqrreellfesalr-letnlqlLGATGIEDRLQDGVPETIASLRKag-LQI
WVLTGDKQETAINIAYACKL----------------------------ldpeeeii----
------------------------------------------------------------
----------------------tl-----nads--xx------acaxxxx----------
------------------------------------------------------------x
xxxx----------------------xxxxxxxxxxagxxxaxxxxxxxxxx--xxxxxx
xxxxxxxxx--------------------------------xxrlglvidgrtlay----
-----------------al-------------------------------------------
x---------------ksledkfla---------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
varscrsvLCC--RSTPLQKSMVVKLVr-------------------------------
---nk--lk-----------v-------------MTLAIGDGANDVSMIQVADVGVGI--
----------sgqegmq-------------------------------------------
------------------------------------------------------------
-----------------AVMASDFALPrfRYLQKLL--LVHGHWCYSRLANMI------L
yff-yknam-fvalifwyqfycgf----------------------sgsamvdqwyliff
nlmfsafpqlitgtldkdvsae----------------tlqelpqlymngqnseeykpym
f-wmnmidafyqslicf-fipy-fay-------------xxxxx---------------
------------------------------------------------------------
-d--lftwgtpittlalftillh-lgietktwtwmnwv------sigfsmalfftvalc
ynascptc--xxxxxxx----------wtmqrll-------------------------
--------gdplfy----ll--cvvtpvaallpr-------------------------
---------ycyracq-----------gtlf------p-----------------npv
------------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxx----------------------------------------------------
--------------------------xxxxxxxxxxekslaspixxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxx-------------------------------------------
```

----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxx----------

----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

----
x
>drelV_lV13 NP_001038619.1
m----------

----------xxxxxxxxxxxxxxxxxxxprarvsqxxxxxxxxxx----
----------xxxxxxxxxxxxxxxxxxxxxx
xxx----------

---artvwlgh----------

----------xxxxeekypknaiknqkyn----------iv----
-tfvpgvlyqqf----------

----------k-fflnlyfl----vvacs
-qfv------pslki----------gyl---y-ty----wap
lgfv-l--------avtmvreavde----------vr----------rc----rr
dkemnsqlys--------klt----------

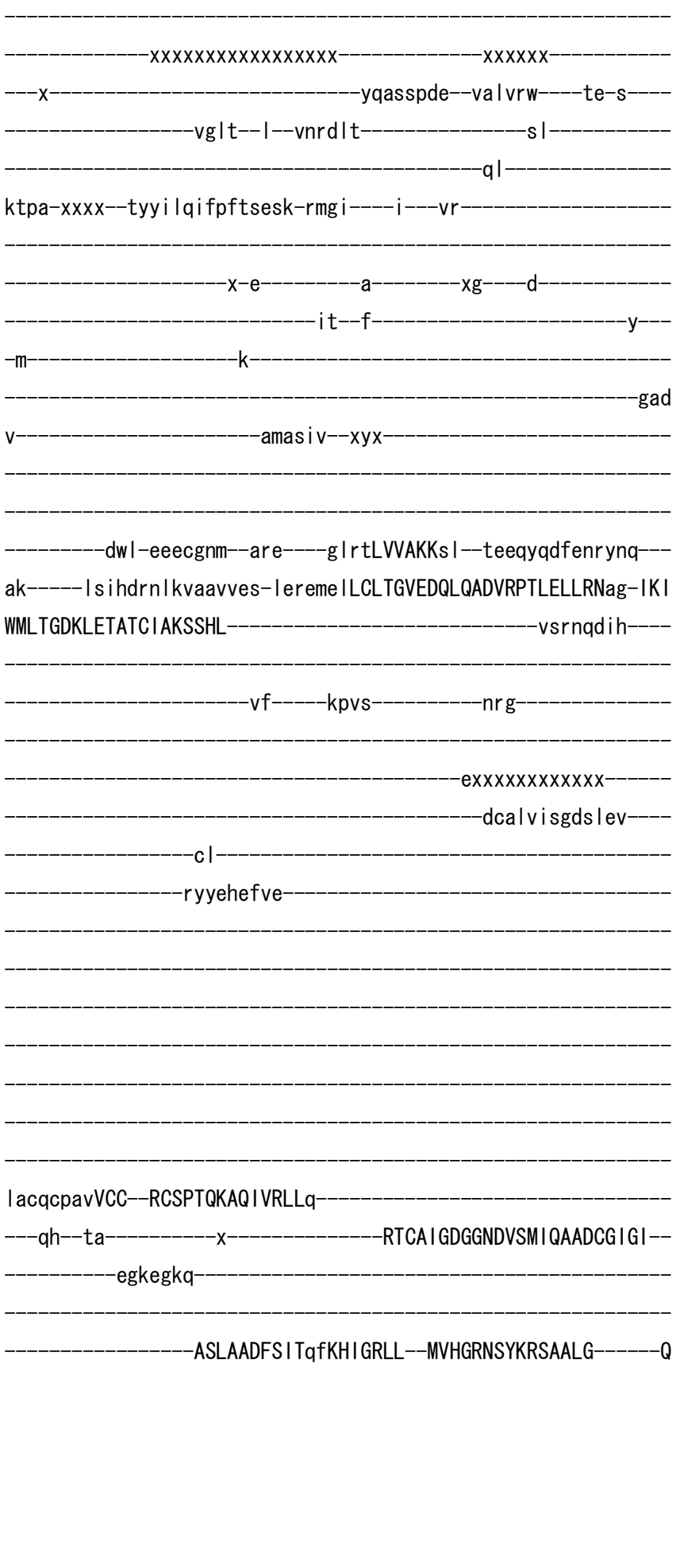
----------vxgkv----------q----------
----------v
k----------
----ssdlQVGDLllVek----------
-----NQRlPADMlFLrt----------

----------sektg-s---cflRTDQLDGETDWKLRig-

----------vactqrlpalgdlfsisayvyvqkpqldihsfegnftrxx
xxxxxxxxxxxxxxxxxxxxxxx----------
----------ppihes
lsi----------
----------e----------NTLWA--STVV----------
as----gtvi----------gVVlYTGKEMRSVmntsqskn-------

----------kvglldlelnrltkalflaqvvlsvvmv
-alqgflgp----------wfrn----------lfrfVVLFSYl
lPlSLRVNlDMGKSAYGW-Mlmkdeni----------
----------pg----------
----------tVVR-TSTlPEELGRLVYLLTDKTG----------
----------TLTQNEMVFk----------rlhlgtvsy----------
----------xxxxxxxxxxxxxx------

----------xx-----xxx
xxxxxxxxxxxxx--xxxxxxx--xxxxxxxxvssr-ih----------
----------ea
vkaialc-----hnvt----------
----------pvxxx----------



fvm-hrgmi-istmqavfssifyf----------asvplyqgflmvgy
atiytmfpvfsl-vldqdvkpe----------mallypelykdltkgrslsfkt
f-liwvlisiyqggilm-ygal-vlf----------d------
---
qe--fvhvvaisftaliltellm-valtirtwhwlmvv-------aqlislacylaslaf
lney-f----------dlsfi----------
--------ttrvfl----wk--vcvitlvsclpl----------
---------yiikylk----------rkfs-------p----------psy

----------skl---ss----------

-
>cnelV_lV01 XP_566703.1
m----------

----------xxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
x----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxaedpfrd--------xx----
---xxxxxxxxxxxxxxxxxxx--

------------xxxxxxxxx--
---dyltdvdw--

-----------------------------xxxxxxxxxxx--------------------

----xxxxxxxxxxxxxxxxxxxlkgfernsvttgkyg----------------pi----
-tflpkfllsef---
---s-rsanlffl----ftaci
-qqv------pnvsp-----------------------------tgh---w-tt----ivp
lgvv-i---------iasafkeiked--------------fk-----------rh----as
drslnnnlaq---------vlv-------------------------------------

----------d-qqf-----------------------x------l-------------
---r
p---
----wrrLRVGDlVRLea---
-----NSFlPADlVLlss---

-------------------------------sepeg-l---cyVETANLDGETNLKlKqa-
----
--------------------hpstasltnphsvsllrghilseppnsslytydgtfhlxx
xxxxx--
---aptkip
vgp---
----------------------n----------QMLLR--GAQL---------------r
nt----gwvy-----------------------gVlVNAGHETKLMrnateapv-------
----
-------------------------------krtaverqvnrqilylfllivlslvst
-igssirtwlfdkna------wylr---------xxxxxxnkarqfiediltfllLYNNL
lPlSLlMTmEVVKFQQAS-Llnsdldm--------------------------------

----------yyaptdtp-------
----------aLCR-TSSLVEELGQIAYIFSDKTG----------
----------TLTRNEMEFr----------ectifgtmy----------
----------xxxxxxxxxxxxx------

----------ktfdslrxxaxedsxx--x---------
----------xxxx-----ef
lsllsic-----htvi----------
----------p----exx----------xxx----xx-----

----------yqasspde--aalvag----ae-m----
----------lgyr--f--qtrkpk----------sv----------
----------fid--x---------n
getq------eweilnvcefnssrk-rmst----v---vr----------

----------x-p--------d--------g---t----------
----------ik--l----------y---
-t----------k----------
----------gad
t----------viferlax----------

---
xxx--xx--ept-lvhledy--ate----glrtLCLAYRdi--seeeysswsalynn---
aa-----sqmsgraealdkaaev-ieqnlqILGATAVEDKLQDGVPDAIHTLQQag-IKI
WVLTGDRQETAINIGLSCRL----------isesmnlv----

----------iv-----ntet----------avexxxx----------

----------xxxxxxxxxxqrxxxd----------
----------xxelaliidgkslty----
----------al----------
x----------kdcsdvfle----------

----

laimckavlCC--RVSPLQKALVVKLVk----------

---rs---t----------xa----------PLLAlGDGANDVSMlQAAHVGVGl--

----------sgveglq----------

----------AARSADlAlSqfRFLRKLL--LVHGSWSYQRLTKLl------L

ysf-yknit-faltlfwyswfndy----------sgqiafegwsmsyy

nvvftilpplvigifdqfvsar----------mldrypqlyhlgqqnyfftpir

f-fywvgnafyhsvllfxfsvl-vfy----------xxxxxxxxxn-------

----

sg--lwvwgttlylavlltvlgk-aalisdvwtkytla------aipgsfiftmialpl

yaiiapll--xxxxxxx----------givprlw----------

--------adpvfy----fv--lllfpiicllrd----------

---------yvwkyyr----------rtyh------p----------asy

----------xxxxxxxxxxxxxxxxxxxxxx----------

----------xxxxxxxxxxmrrqrgfaxxxxxxxxxxxxxxxxx

xxxxxxxxxxxx----------

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>cnelV_lV02 XP_570157.1

m----------

----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxaekrekrxxxxxxxxxx----
----------xxxxxxxxxxxxxxxxxxx--

----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxrrtvyvni----------

----------xxxxxxxxxxx----------

----------xxvvryvrnkvrtskys----------li----
-tfipknlleqf----------
----------r-rvaniyfl----flvil
-qlf------sifga----------pna---q-ig----mlp
llai-l--------gmtaikdafed----------wr----------ra----kl
dnevnnsatt--------klg----------

----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxqxnqm----------xxxxxxxe------xxxxxxx
xxxxxxxx----------xx--xxx------m
sxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxwkkLEVGDFVLLrd----------
-----NEQVPADVIVLst----------

----------snada-l---cfVETKNLDGETNLKIRrs-

----------lkatsaitseedlehahfvvdseaphanlysyngvlryxx
xxxxxxxx----------
----------eekqea
iti----------
----------n---------ELLLR--GCTL----------r
nt----kwvi----------gMVIFTGSDTKIMlnggetps-------

----------krskieket----------ilclita
-ilhgwyrslsgtsa-----xwyep---------xxxxxxniyvdsviiffscLLIFQNI
VPISLYITvEIVKTIQAY-FIfqdvem----------
----------yyepydtp--------
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----------TLTQNIMEFk----------kcsihgvpf----------
----------xxxxxxxxxxxxxx-----

----------xxxxx--xxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx-ltliapd--lxqhlxxxx----------
------xxxx----------xxxx-----df
fralavc-----hsvl----------
----------adxxxqxx----------xxx----xx-----

----------ykaespde--aalvaa----ar-d----
----------igfp--f--vsknsh----------fl----------
----------eiv--x---------l
gkpe-------kwiplrmlefsssrk-rmsv----v---ar----------

----------x-p---------n---------g----k----------
----------iv--l----------f---
-c----------k----------
----------gad
s----------viynrls-xn----------x---------

```
------------------------------------------------------------
------------------------------------------------------------
xxx--xx--dat-lkdletf--ang----glrtLCIAYRnl--seeefsdwskkyda---
as-----aatvdregeiekacdl-vehsltiLGATALEDKLQEGVPDAIATLHRag-IKL
WILTGDKLQTAIEIGYSCNL----------------------------ltndmev-----
------------------------------------------------------------
-----------------------m-----iisa--xx------edgxxx-----------
------------------------------------------------------------x
xxxx----------------------xxxxxxxxxxppxxxgxxxxxxxxxx--------
-----------------------------------------xxkfavvidgeslry----
-----------------al-------------------------------------------
x---------------pslkslfls-----------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
lgtqcaavlCC--RVSPSQKASTVRLVk-------------------------------
---eg--cn-----------a-------------MTLAIGDGANDVAMIQEANIGVGL--
----------yglegsq-------------------------------------------
------------------------------------------------------------
-----------------AAMSADYAFGqfRFLTRLL--LVHGRWSYVRVADMH------A
nff-yknii-ftvsmfwffifssf----------------------datylfeytlllmy
nlfftslpvgflgafdqdvnpt----------------aamvfpqlykrgiasleytrtr
f-wlymfdglyqsavif-fipy-fay--------------xxxxxxxxxxxxt-------
------------------------------------------------------------
ns--lwdigttvacagvlsangy-vsinirywtvmtwi-------invastlliyiyipi
ysavtalpxxxxxxxxx-------------------------------------------
--------ptfsfw----av--iliatiiaigpr---------------------------
---------wlvrsfk------------qsyf-------p-----------------qdk
-------------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxpsplgqsixxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxx-------------------------------------------
```

----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxx----------
----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

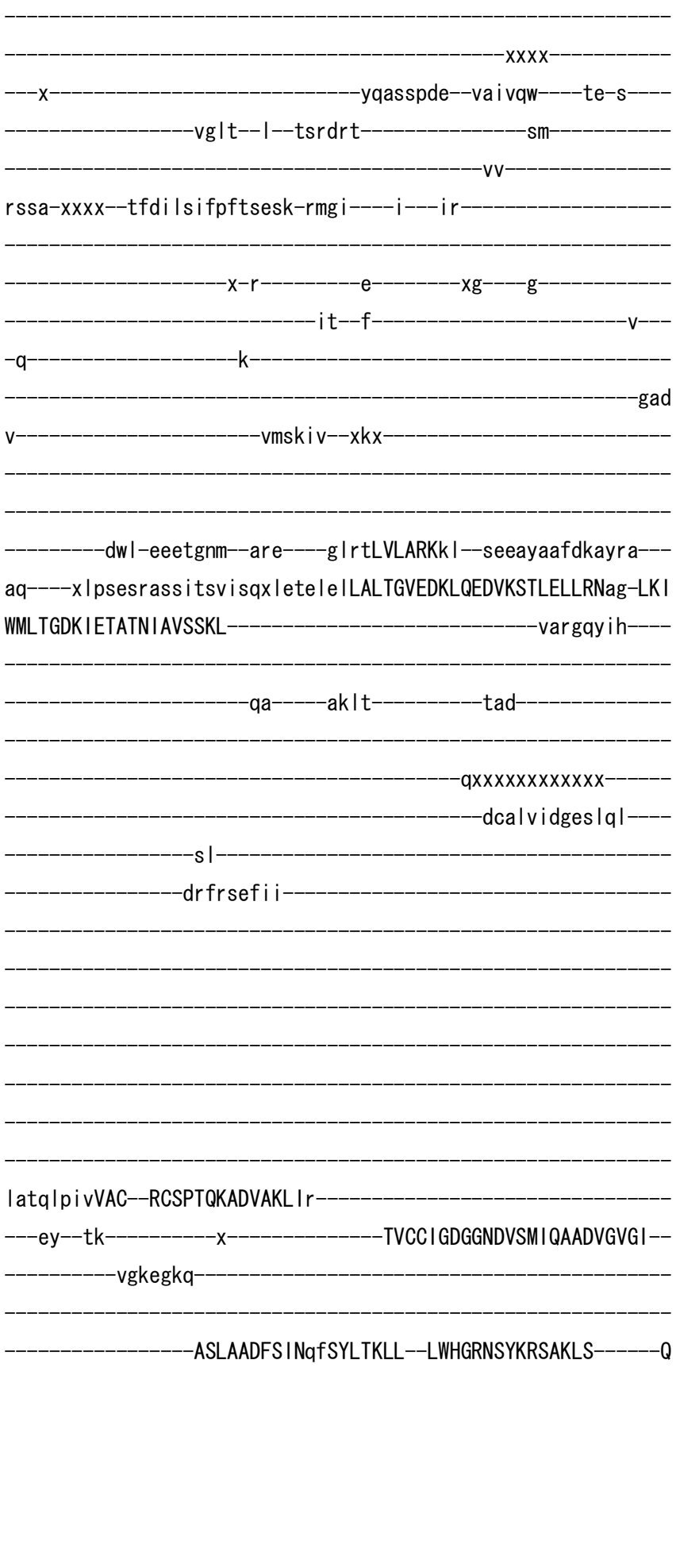
----
x
>cnelV_lV03 XP_572575.1
m----------

----------xxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxkkrvsdaxxxxxxxxxx----
----------xxxxxxxxxxxxxxxxxxxx--

---grtiplqp----------

----------xxxkspypanvvrnqkys----------il----
-sflplvfyeqf----------

```
----------------------------------------k-fffnfyfl----vvals
-qfi------palki----------------------------gyi---v-ty----vap
lafv-l---------avtmgkeafdd-------------ys-----------ry----lr
dreanstryl---------vlv-------------------------------------
------------------------------------------------------------
------------------------------------------------------------xx
xxxxxxxxxxextps----------------------xxxxxxxs--------------
------------------------------------------------------------t
p-------------------------------------------------------------
----asslKVGDMVLLek-------------------------------------------
-----NQRVPADMVLLtt-------------------------------------------
------------------------------------------------------------
-----------------------------seeeg-t---cflRTDQLDGETDWKLKva-
------------------------------------------------------------
---------------------vgetqkmgeafvgsaegslyadppikdihtfygvftlxx
xxxxxx--------------------------------------------------------
------------------------------------------------------tetstp
lsv-----------------------------------------------------------
-----------------------e----------NVLWA--NTVL-----------------
aa----gsav----------------------gLVVYTGKETRAVlntseagt-------
------------------------------------------------------------
--------------------------------kmgtlekevnkmakilctvtfalsvilv
-alngfrgq-----------wyiy-------------------------vfrfLILFSSI
lPlSLRVNlDMGKTVYAH-QIqtdkei----------------------------------
---------------------------------------------pe--------------
-------------------------tlVR-TSTLPEELGRVEYLLSDKTG----------
----------TLTRNEMELk-------------klhmgtlvf-----------------
-----------------------------------------xxxxxxxxxxxxxx------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------xx------xxx
xxxxxxxxxxxxx------------xxxxxxxmtgr-vr---------------------
------------------------------------------------------------dt
vmalatc-----hnvt---------------------------------------------
------------pvxxx----------------------------------------------
```



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atlytmapvfsl-vldkdvned----------lallypelykeltkgrslsykt
f-ftwltisvyqggiim-llsl-llf----------e-------
---
se--flhivaisftalvinelim-valevttwhsymvl-------selgtalvyfgsmav
lpey-f----------dlafv----------
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---------yvikaah----------qrln-------p----------aay

----------kkvagi----------

-
>cnelV_lV04 XP_568665.1
m----------

---------------------------------xxxxxxlvprskk--------xx----
---xxxxxxxxxxxxxxxxxxxx--

------------xxxxxxxxx-------------------------------------
---prsvfine---

-----------------------------xxxxxxxxxxx--------------------

-------------------xxxxahhfatnqnvtskyt----------------vi----
-tfvpknlfeqf---
---r-rvancffl----aisil
-qff------pkfst-----------------------------isp---g-lv----ilp
liiv-l---------aitalkdgyed-------------ik-----------rh----qa
dhrtnhaivh---------vlg---------------------------------------
----
--xxx
xxxxxxxxxxd-ktf------------------------x------p-------------
xxxxxxxx-----------------------------------xx--xxx-------k
vxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxwedVKVGDFVKlye---
-----NEQFPADlllCat---

-----------------------------seeed-v---aylETKNLDGETNLKSRng-

--------------------vpglshlntaeacanahlridldppesnmfrlngavmnxx
xxxxxx---
--qhpihp
vtl---
----------------------e----------TTMLR--GCVL---------------k
nt----awvi----------------------gllVYTGEDTKllrnagatps-------

-------------------------------krsmvekqmnpqviinlvilaaiavvca
-ivdhvnevgwdeqq----xxwmly---------xxxxxxnpninglvtfanaFlTFQNl
VPlSLYlSiEAVRTlQAA-Flywdrdi-------------------------------

```
----------------------------------------xxkkdgvttr--------
-------------------------tTAR-SWNLSDDLGQIEYIFSDKTG----------
----------TLTQNAMIFr--------------qcsvggkiy-----------------
----------------------------------------xxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxx-------------------------------------------------
-------------------------------------------------------------
-------------------------------------------------------------
-----------------------------------------------xxxxx--xxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxkdleahd---------------------
------xxxx-----------------------------------------xxxx-----gf
favlglc-----htvl-------------------x-----------------------
-------------------------------------------xx----xxx-------
-----------------------------------xx--------------------
-------------------------------------------------------------
-----------------------------xxykaqspde--aalvqs----aa-d-------
-----------------vgfv--f--rgrdhn---------------il-----------
-----------------------------------------rmsxxx---------s
depd-------eyellhvlefnsark-rmsv----i---lr--------------------
-------------------------------------------------------------
--------------------xxd---------e--------xg----r------------
----------------------------if--l----------------------l---
-c-------------------k-----------------------------------
-------------------------------------------------------------gad
n----------------------viferltxxn-------------------------
-------------------------------------------------------------
-------------------------------------------------------------
xxx---xxxekt-dqdlqyf--ase----glrtLCLAYRil--dpqvyerwakeyhn---
at-----valqdreeqiesvsss-ierdlilLGATAIEDKLQDGVPDTISDLKRag-IKV
WVATGDKLETAVAIGYTTNL-------------------------ltkdtnli-----
-------------------------------------------------------------
----------------------vv-----regr--xx------igdxxxx-----------
-------------------------------------------------------------
------------------------xxxxxxxxxxxlrxxxsxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxx----------------------------xxgfslvieghalah-----
-----------------cf-----------------------------------------x
x--------------eeteallla-----------------------------------
```

----

lstrcntvICC--RVSPLQKAQIVHLlk----------

---dn--lg----------v----------MCLAIGDGANDVSMIQAADVGVGI--

----------sgeeglq----------

----------AVNSSDYAIAqfRYLKRLL--LVHGHWSYFRNSSMI------L

nff-yknii-gigvlfwfmiycgw----------sttyvfayvyllfw

nvfwtlvpviaiglfdrnidde----------tlmalpelyrasregkyfglmr

f-ayyifegvyqsaviyxflnyxyvt----------xxxxxxg-------

----

ydxxmyemsttqaigavmvanlf-sglnidawtgwvwf-------avwfgpfliwvftav

ysvippssxxxxxx----------gndvflf----------

--------rsaayw----fg--wpfvtiiallpr----------

---------yliktfr----------qnif-------p----------ndv

----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

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xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxsrsrwprfxxxxxxxxxxxxxxxx

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----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx----------

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>ehiIV_IV01 XP_650935.1

m----------

----------xxxxxxxxxxxxxlrkkpeq----------

---prtiiipi----------

----------xxxnkkfcsnkvennryt----------yl----
-nyipkclfnqf----------
----------k-yfynlyfl----itals
-qfv------pilqv----------gyr---f-ty----tmp
lafv-v--------ilamakdaydd----------ir----------ir---ir
dkqtnsqpft----------

--xxxxxxxxe----------
----------i
q----------
----skdlVVGNILKLkk----------
-----DERVPADCLILrs----------

----------teesg-s---ifIRTDQLDGETDWKLRra-

----------igetqkmdiqticnsqfelnveaphadvysfqgtirixx

----------dpkiys
lnv----------
----------e----------NTAWA--NTIV----------
as----demc----------aLVIYTGNDTRLArnrkqsgn-------

----------xkrgktedevnflskilfcslmglsilmi
-mpdliqhpn----------wfil----------vsltrfMILFSSI
IPISMRVNIDIAKMVYAF-FInrdkdi----------
----------ag----------
----------aEVR-NSTLPEELGRVDFVLSDKTG----------
----------TLTKNEMTFq----------vlcmqseti----------
----------xxxxxxxxxxxxxx------

----------xx---------
----------xxxx--xxxxxxxxknpkfim----------
----------rc
vqamalc-----hnvt----------
----------psxxx----------

----------xxxx----------
---x----------yqasspde--valvkf----ae-s----
----------vgvv--l--eertfk----------ki----------
----------vl----------
nmpmxxxx---eyeilnvfpfssstk-rmgi----i---vr----------

----------x-n---------k--------xn----e----------
----------iy--l----------l---
-m----------k----------
----------gad
n----------vmskii--xdx----------

```
------------------------------------------------------------
------------------------------------------------------------
---------ewl-seecnnl--are----glrtLVFGSRkm--sqeeyqafnerydh---
an-----tlmtgreeevlkvqes-iehglnaMCITGVEDELQEDVQKTLEMLKQan-VRV
WMLTGDKVETATCIAKSTKL---------------------------vdidqeii----
------------------------------------------------------------
----------------------qf-----fans--------------------------
------------------------------------------------------------
-----------------------------------------xdxxxxxxxxxxx------
-----------------------------------------xxtkalivdgntlsl-----
-----------------ml-------------------------------------------
----------------kemskefiq-----------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
falkaqavVCC--RCLPSQKADIVRLVk-------------------------------
---ss--gl-------------------------TTCAIGDGGNDVSMIQEADVGLGI--
----------egkegkq-------------------------------------------
------------------------------------------------------------
-----------------ASMAADFSIKqfSHMLKLL--LWHGRNSYIRTSDLA------L
fim-hrgmi-isimqavfsmvfyf----------------------tpitlftgillvgy
stfytmapvfsl-vlderislk----------------dimqfpvlyaemqkgqnlsfkt
f-sawmfisilqgsvim-mlam-ilf-------------------------d-------
------------------------------------------------------------
ss--fvhivsisftvlilielln-igftirrwnwiifa------seassvlmylisiiv
lrpt-f----------------------epsfv--------------------------
--------fslgfw----wr--vavitlinsfp---------------------------
---------filkfiy-----------elln-------p-----------------pkh
------------------------------------------------------------
------------------------------------------------------------
-----------------------------------mtvghkkfxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxx--------------------------------------------
```

----------xxxxxxxxxxxxxxx----------

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>ehiIV_IVO2 XP_655890.1

m----------

----------xxxxieiplvsxxxxxxxxxx----

----------xxxxxxxxxxxxxxxxxxxx--

---prsvyrpe----------

----------xxxvqkyttnkvsntrtt----------wy----

-sflpmslfnqf----------

----------k-yfynlyfl----cnacs
-qli------pifkv----------gmt---f-ty----fap
lvfv-v--------claickdaide----------ir----------ia----lr
dvklnneqfe----------

--------xxhxgef----------x-----p----------
----------v
k----------
----akdlQVGHILRLkk----------
-----GQRVPADLVILqs----------

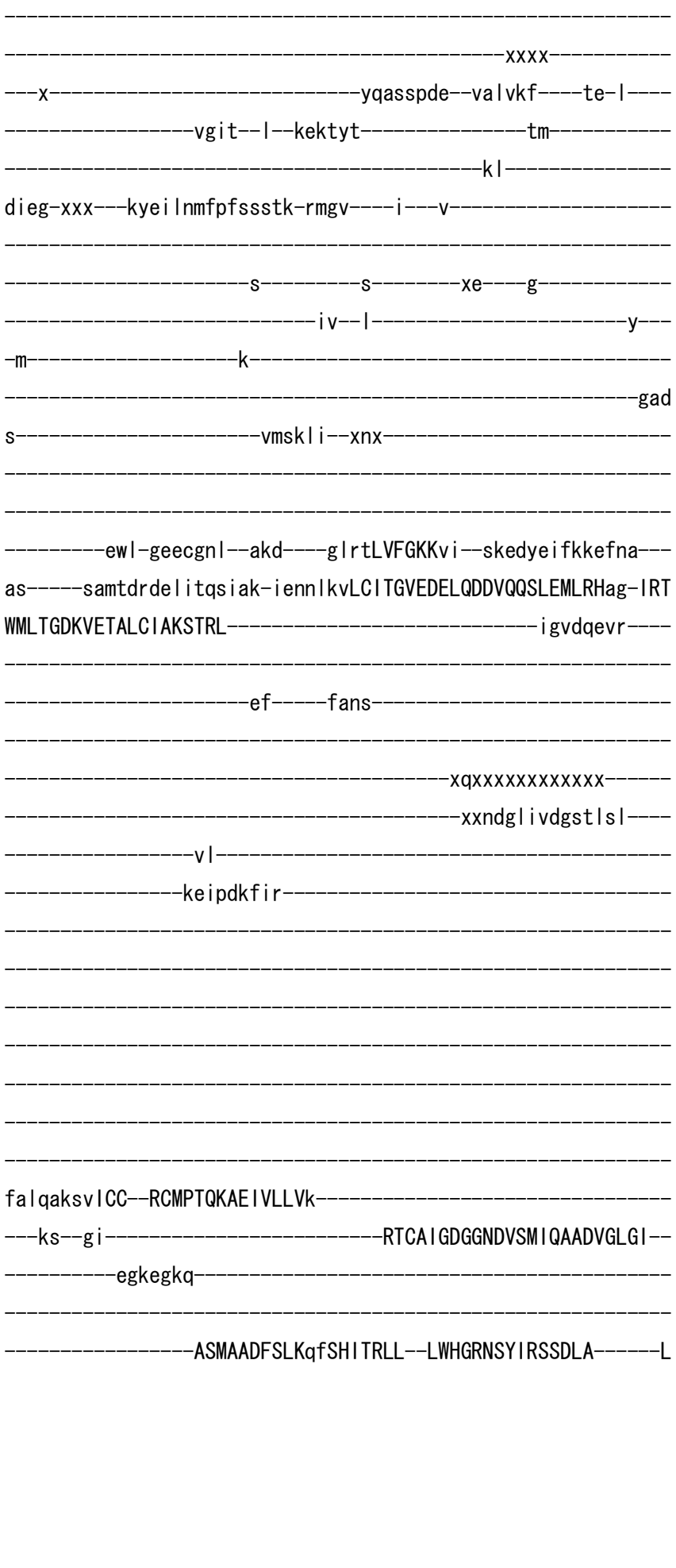
----------sdedg----xcflKTDQLDGETDWKFRrc-

----------ikefqgldllslentifcidceapqnaiysftgrirk--

----------endtip
vsv----------
----------d----------NTAWA--NTVL----------
as----eeii----------glVIYTGKETRSSmnrngqrn-------

----------xkwgrvdmalnsvskvlfcimlglsilmv
-vpdlcrgifssfti----------vvvvrfMILFSSI
lPlSIRVNlDISKLIYSM-Flstdeki----------
----------eg----------
----------aEVR-NSSlPEELGQVQFLLSDKTG----------
----------TLTKNEMSFk----------ilslgnqty----------
----------xxxxxxxxxxxxxx------

----------xx---------
----------xxxx--xxxxxxxxstsk-lf----------
----------ec
ikalalc-----hnvt----------
----------psxxx----------



fim-hrgmi-isimqaifsaifnf----------apvalfqgfllmgy
atyytmlpvisl-ildervneq----------kvmefpdlyhqlqtkqrlslss
l-iawvslsilqaviim-flcm-vlf----------k-------
---
dt--flnivsisftaliliqlin-vgftirrwnwiilg-------seifsiaiyfisffv
lksy-f----------dlsfv----------
--------fswqfw----wk--lvviilltsip----------
---------fiakffy----------qlif-------p----------pky

----------mtvenrrcxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxx----------

----------xxxxxxxxx-----xx----------

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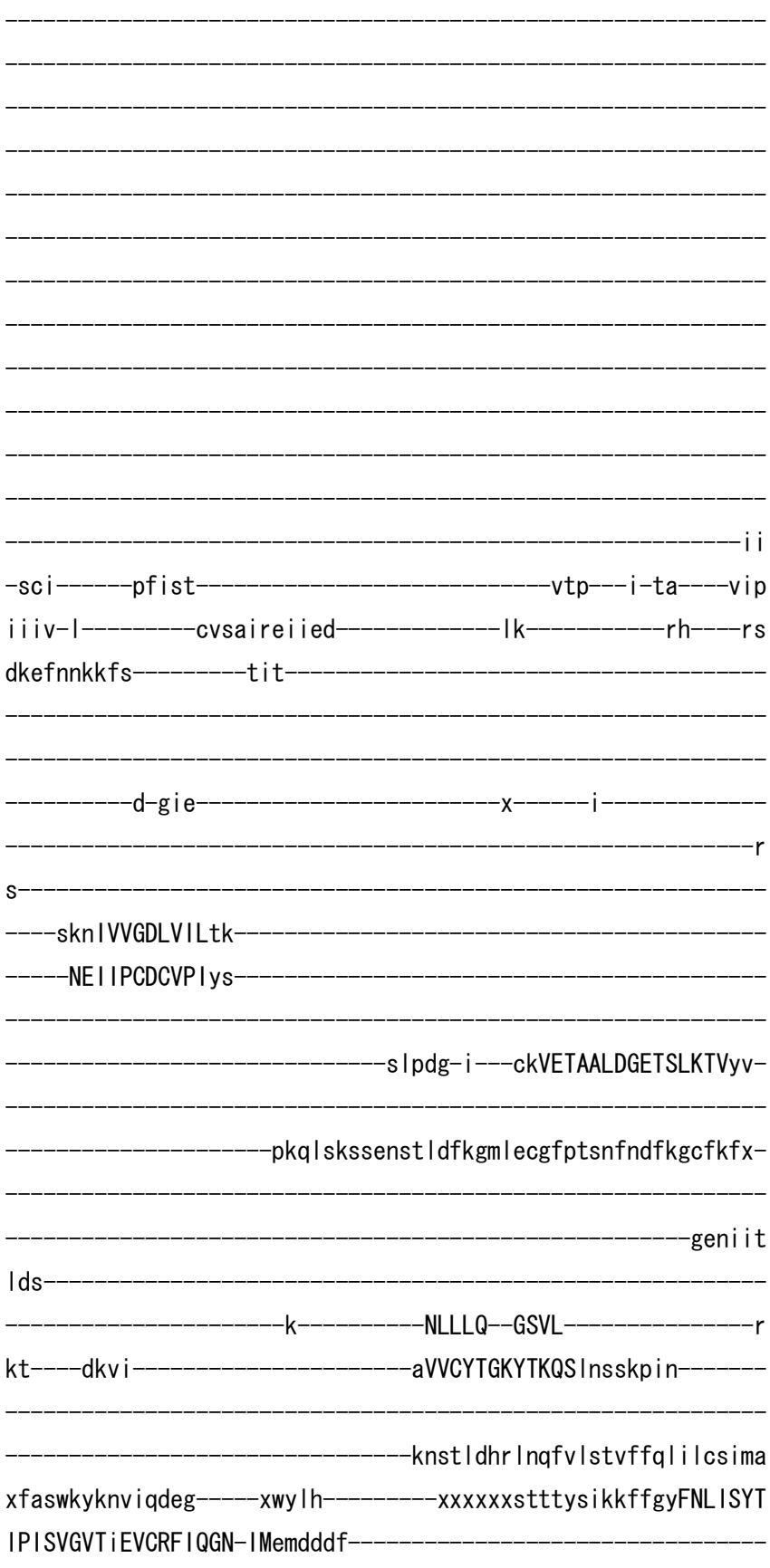
>ehilV_IV08 XP_653689.1
m----------



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----------xxvlsgsiqxxixdnpxxx----------
----------df
lyclslc-----nsct----------
----------iexxxsxx----------

----------xxyssfspde--etlcda----sk-k----
----------ngvi--l--kehtqe----------yi----------
----------sldx----------l
gehq------qfklicqieftssrk-rmsv----l---ve----------

----------r-------xg---l----------
----------yi--l----------y---
-c----------k----------
----------gad
n----------vitqlldxxs----------

-----xxxxkis-qihannf--ase----glrtLFIARRif--tpeeilqwkqkfds---
------xdplandikrqqmelyexlenhlellGVTAIEDQLQEDVPSTISMLREag-LKI
WVITGDKMETAISVGLNCRL----------fisgqkmi----

----------yf-----nhts----------elexxxx----------

----------xxxxxxxxxxskxxxdxxxxx----------
----------xxtlgivihennidw----
----------fi----------
----------khqkkfss----------

----
laikaesvICC--RVSPKQKADIALCVk----------
---qm--tk----------t----------KCLTIGDGANDVPMLTHGDVGVGI--
----------ygkegnq----------

----------AAITADFAIRrfKHLTKLI--LFYGRNGKYQITTLI------K
fcf-yknaa-fflmdiwfatisnf----------tcqiiyddwvmtcf
ntfftslppaaialfdyelpwe----------tiklypkshretftdkqykiks
f-vewylygglqsilff-vify-fii----------xxxxx-xxxxxxv-------
----
ng--ftftvvtvttyslfsiylt-mfvytkrvgntiil------sflgsillyiilyti
imfvpgms--xxxxxxx----------gwl-ftl----------
--------kqplfy----lm--iiismvitvfpq----------
---------ivsiyfq----------rrik------p----------tnt
----------xxxxxxxxxxx----------

----------xxxxxxxxxxpssidnqtxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxx----------

----------xxx----------

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>ehiIV_IV09 XP_656739.1
m----------

----------xxxxxxxxpekselr----------

---yptihlfd----------

----------xxxxxkegfpdnsvkttkyy----------ww----
-sfipvflfnqf----------
----------k-yfinlffl----ivail
-sci------pqlsa----------asp---v-as----ivp
vcim-l--------gfscirellde----------fr----------kf----ra
dkklnkveyd--------klq----------

----------sxgnl----------x-----k----------
----------i
k----------
----asqlYPGDILVLpn----------
-----NSRIPADGIPLqt----------

------------------------------tnedg----xvflETSELDGESNLKQRlv-

---------------------pshfidksyedicklkgdflttqpdpnfdhfvgtfei--

--esqsys
vse---
----------------------k----------NFlPN--GCTl---------------r
nt----erll----------------------lFlVYCGFDTKLAknsskpki-------

--------------------------------kfshtnrkfnrfvaialtfdfivilast
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VPVSCLVSlEFSKMFQML-FMsfdsdl-----------------------------
---------------------------------------xxxxxxxigenetkg--------
-------------------------cMPW-TGTLNDELGLVEYVLSDKTG----------
----------TLTENEMKFi--------------kcsidgymfxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx-------

---xxxxx--xxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxpqnlqinxxlxtvkxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx--ef
ircmaic-----heav---
------------snxxxkxx-------------------------------------

------------------------------xfqsgspde--ialcee----as-l----
-----------------ngyi--f--tkrtqk--------------si----------
---flvx-----------a
geeh-------qvdiqavfpfdsnrk-rmsv----l---vr-----------------

---------------------------------------xxxg----t-----------
---------------------------lv--l---------------------y---
-l-----------------k-------------------------------------
--gad
m--------------------ttlplmkxxexx-----------------------

---------kea-qmdvnkf--are----gyrtLVLGYKii--pdsvfiewmikydn---
ak-----slivgrdeavnaaise-iekdftlLGVSAVEDKLQDGVPETIQSLRRgg-IRI
WMITGDKVETAINIGSTCGL----------------------------tqqekiih----

----------------------mt-----tdnc--xx------vlkxxxx----------

--xxdysvvfdfgvyna----

----------------vgklddfwn-----------------------------------

---

ivlgakavlCC--RVTPLIKGEIIKNAk-------------------------------
---nr--tg----------k-------------VCLGIGDGGNDISLIKESDVGVGI--
----------fgkegtq---

-----------------AAQTSDYAVRkfRHLQKLI--YFHGRQALRRNTLIV------K
lsf-yknva-filmqfwfgiqnaf----------------------sgqslyedliitlf
nmimtsmppvfigafeidipff----------------sardypeahkeilkgnnftsit
sxvswlvlavyqsvmlyxlsssxiitxxxxxxx---------------------------
---

gkxxgygcfsilisitstltiltxmalsikswniflvl------gffvsfilslvcill
vsfvpqmsxxxxxxxxxxxxx---------------------------------------
--------sqpsty----lf--illyvilaitp---------------------------
---------lllrnfc---

----------------------------xxxxxxxxyqiiqevvxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxx---------------------------------------

----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx----------

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x

>rnolV_lV02 XP_214553.3

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----------xxxxxxx

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---twqvkand----------

----------xxxxxxxxxxx----------

----------xxxxxxxeskyasnaiktykyn----------al----

-tflpmnlfeqf----------

----------k-raanfyfl----illil
-qai------pqist----------law---y-tt----lvp
lllv-l--------gitaikdlvdd----------va----------rh----km
dkeinnrtce--------vik----------

----------d-grf----------x------i----------
----------i
k----------
----wkdlQVGDVIRLkk----------
-----NDFlPADILLLss----------

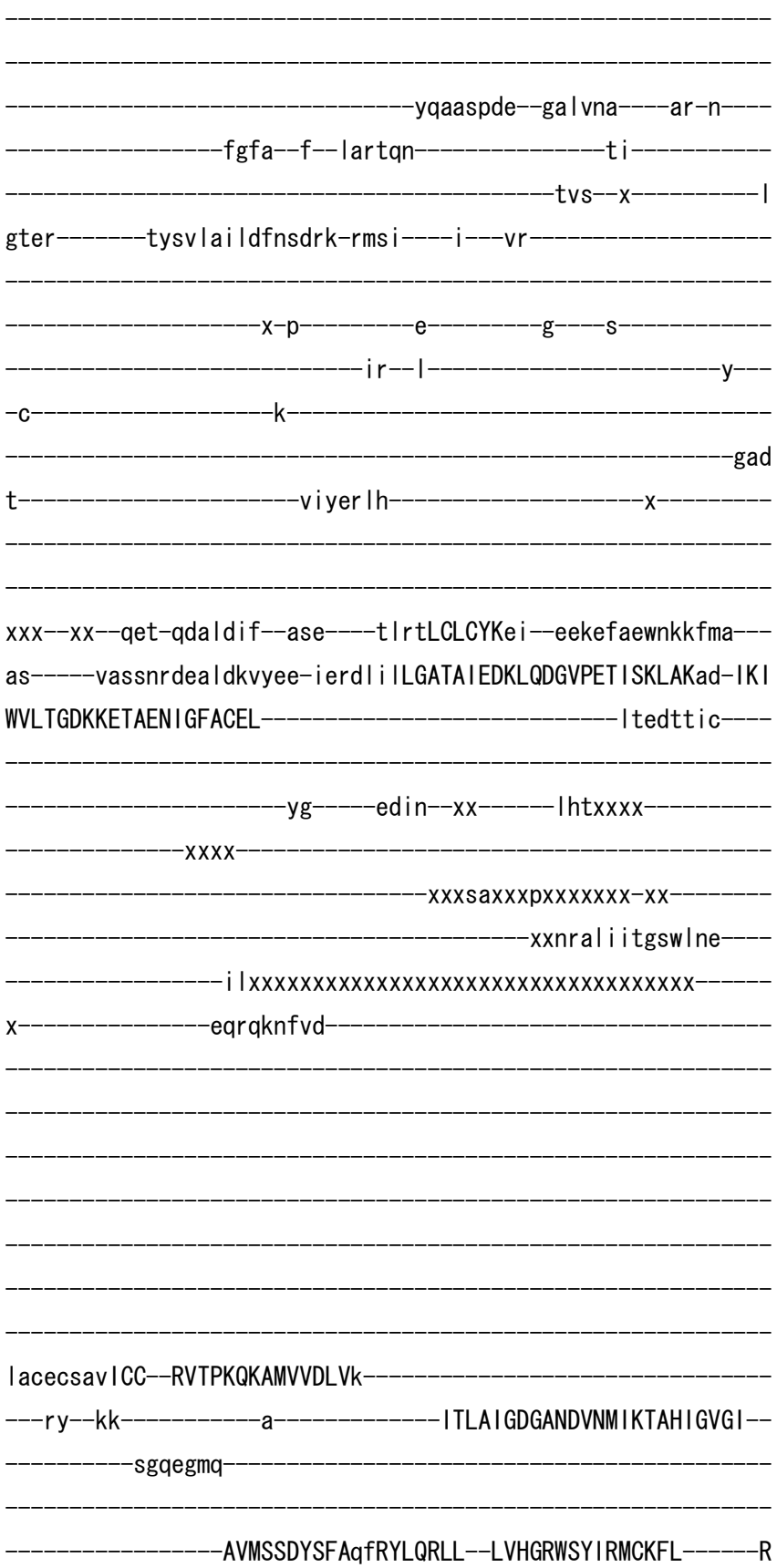
----------sepns-l---cyVETAELDGETNLKFKma-

----------xeitdqylqiednlatfdgfieceepnnrldkftgtlfw--

----------rnqsfp
lda----------
----------d----------KILLR--GCVI----------r
nt----dvch----------gLVIFAGADTKIMknsgktrf-------

----------krtkidylmnymvytiiivlilvsagla
-ighayweaqignys------wyly----------xxxxxtpsyrgflnfwgyllVLNTM
VPISLYVSvEVIRLGQSH-Flnwdlqm----------
----------yyaekdtp--------
----------aKSR-TTTLNEQLGQIHYIFSDKTG----------
----------TLTQNIMTFk----------kccingtiy----------
----------xxxxxxxxxxxxxx-----

----------xxxxx--xxxx
xxxxx----------lafydhy--lxeqixx--x---------
------xx----------xxxx-----qf
fflIsic-----htvm----------
----------v----dxx----------xxx----xx-----



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f-fvsllhgvltsmvlf-fipfxayl----------xxxxxxxxxp-------
---
sd--yqsfavtmasalvitvnfq-igldtsywtfvnaf-------sifgsialyfgimfd
fhsagihvxxxxxxxxx---------gtasnal----------
--------rqpyiw----lt--iiltvavcllpv----------
---------vairfls----------mtiw-------p----------ses
----------xxxxxxxxxx----------

----------xxxxxxxxxxsvfrrgasxxxxxxxxxxxxxxxx
xxxxxxxxxxx----------

----------xxxxxxxxxxxxxxxxxx----------

-
>rnolV_lV03 XP_001062555.1
m----------

----------xxxxxxxxxxxxxxxlrsiaee----------

---errarand---

----------xxxxx----------

----------kfqyasnciktskyn----------il----
-tflpvnlfeqf---
----------q-evantyfl----fllil
-qli------pqiss----------lsw---f-tt----ivp
lvlv-l---------titavkdatdd----------yf----------rh----ks
dnqvnsrhsq---------vli---

----------n-gvl----------x------q----------
----------e
q---
----wmnVCVGDIIKLen---
-----NQFVAADLLLLss---

----------sephg-l---cyIETSELDGETNMKVRqa-

----------xpvtselg-disqlakfdgeviceppnnkldkfsgalyw--

----------kgnkfp
lsn---
----------q---------NMLLR--GCVL----------r
nt----ewcf----------gLVIFAGPDTKLMqnsgrtkf-------

----------krtsidrlmntlvlwifgflvcmgvila
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VPISLYVSvEVIRLGHSY-FInwdkkm----------

----------fcmkkrtp-------
----------aEAR-TTTLNEELGQVEYIFSDKTG----------
----------TLTQNIMVFn----------kcsinghsy----------
----------xxxxx-xxxxxxxxxxxx-
xxxxx--xxxx
xxxxx----------flfwdps--lxeavxx--x---------
-------x----------xxxx-----ef
frllslc-----htvm----------
----------se---exx----------xxx----xx-----
----------ykaqspde--galvta----ar-n----
----------fgfv--f--rsrtpk----------tv----------
----------tvh--x---------l
gtsi------tyqllaildfnnirk-rmsv----i---vr----------
----------x-p--------e--------g----k----------
----------ir--l----------y---
-c----------k----------
----------gad
t----------illdrlh--p----------x--------
----
xxx--xx--nst-tdhlney--agd----glrtLVLAYKdl--deeyyeewarrrlq---
as-----laqdsredrlasiyee-vesdmmILGATAIEDKLQQGVPETIALLTLan-lKI
WVLTGDKQETAVNIGYSCKM----------ltddmtev----
----------fi-----vtgh--xx-----levxxxx----------
----------xxxx----------xxxx----------xx
xxxx----------xxxxxxxxxxssxxxtxx----xxxx--------
----------xxeyalvinghslah----
----------al----------
x----------admelefle----------

----

tacackavICC--RVTPLQKAQVVELVk----------

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----------sgqegiq----------

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f-ficiaqgiytsvlmf-fipyxvfa----------xxxxxxxxxl-------

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ad--yqsfavtvatslvivvsvq-igldtgywtainhf------fiwgslavyfailfa

mhsnglfdxxxxxxxxx----------gnaqntl----------

--------aqptvw----lt--ivlttavcimpv----------

---------vafrflr----------lslk------p----------dls

----------xxxxxxxxx----------

----------xxxxxxxxxxmrrvgrtgxxxxxxxxxxxxxxxxx

xxxxxxxxxxxxxxxx----------

----------xxxxx---xxxxxxxxxxxxxxxxxxxxxxxxxxxxx----------

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>rnoIV_IV04 XP_001069520.1

m----------

-----evagve----------

----------gceatdnsiktskys----------ff----

-nflpvnlfeqf----------

----------q-rlanayfl----illfl

-qli------pqiss----------law---y-tt----vip

livv-l--------sitgvkdaidd----------vk----------rh----qs

dqqvnnrsvl--------ilv----------

----------n-gri----------x-----e----------

----------n

k----------

----wrnVQVGDlIKLen----------

-----DHPVTADVLLLss----------

----------sepyg-l---tylETADLDGETNLKVKqa-

----------xsatsdmednlellsafngevrceppnnkldrfsgtlsy--

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ldy----------
----------e----------RLLLR--GCll----------r
nt----dwcy----------gLVVYTGPDTKLMqnsgrstf-------

----------krthidhlmnvlvlwifmllggmcflls
-ighgiwesnrgyhf-----xaflp---------xxxxxxssaassalafwsyFlVLNTM
VPlSLYVSvEllRLGNSY-Ylnwdrkm----------
----------fyapkntp--------
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----------TLTENVMlFn----------kcsingkty----------
----------xxxxx-xxxxxxxxxxxx-

----------xxxxx--xxxx
xxxxx----------fsfydkt--lxeavxx--x---------
-------x----------xxxx-----lf
flclslc-----htvm----------
----------se---exx----------xxx----xx-----

----------yqaqspde--galvta----sr-n----
----------fgfv--f--hsrtpe----------ti----------
----------tvi--x---------m
grvr-------vyrllaildfsnerk-rmsv----i---vq----------

----------x-p---------e---------d----r----------
----------vm--l----------f---
-c----------k----------
----------gad
t----------iiyellh--p----------x---------

```
------------------------------------------------------------
------------------------------------------------------------
xxx--xx--dvt-mdqlddf--ase----glrtLMVAYRel--dkaffqtwikkhge---
aw-----ltlenrekklalvyee-ierdlvlLGATAIEDKLQSGVPETIVTLNKak-IKI
WVLTGDKQETAVNIAYSCRI----------------------------fkdemdav----
------------------------------------------------------------
----------------------fm-----vegt--xx------etvxxxx----------
--------------xxxx----------------------xxxx---------------xx
xxxx----------------------xxxxxxxxxxksxxxfxxx---xxxx--------
-----------------------------------------xxsyglvisgcslay----
-----------------al-------------------------------------------
x---------------sntefellr-----------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
tacmckgvVCC--RMTPLQKAQVVDLVk-------------------------------
---ry--kk-----------v-------------VTLAIGDGANDIGMIKAAHIGVGI--
----------sgqegmq-------------------------------------------
------------------------------------------------------------
-----------------ATLSSDFSFCqfRYLQRLL--LVHGRWSYNRMCKFL------S
yff-yknfa-ftlvhfwyaffngf----------------------saqtvydiwfitfy
nliytslpilglslfekdvnet----------------wslcypelyepgqhnlyfnkke
f-ikcllhgiyssfvlf-fvpmxtvf----------------xxxxxxxxxi-------
------------------------------------------------------------
sd--fqsfsllvqttliwvmtmq-ialsttywtminha------ftwgslglyfcilfl
lcsdglclxxxxxxxxx----------gvarngl-------------------------
--------nqpqmw----lc--lvlssvlclipl-------------------------
---------mgynflk-----------pilw-------p-----------------inv
------------xx----------------------------------------------
------------------------------------------------------------
----------------------------xxxxxxxqikvkhpgxxxxxxxxxxxxxxxxx
xxxxxxxxxx--xxxx----------------------------------------------
```

----------xx----------

_

>rnolV_lV06 XP_234937.3

m----------

----------r-rvsnlyfl----fiiil
-qsi------peist----------lpw---f-tl----fap
lvcl-l--------miraardlvdd----------ig----------rh----rs
driinnrpcq---------ilk----------

----------g-ksf----------x------w----------
----------k
k----------
----wknLCVGDVVCLsk----------
-----DNIVPADLLLLas----------

----------tepss-l---cyLETADIDGETNLKFRqa-

----------xmvthheltspkkmasfqgivtceepnsrmhhfvgslew--

----------nsrkyp
ldi----------
----------g----------NLLLR--GCKl----------r
nt----dtcy----------gLVIYAGLDTKIMkncgkihl-------

----------krtkldlmmnklvilifmslviasmflt
-lgfafmvkefkakh------hyms----------xxxxxtdamdsffifwgfLILLSVM
VPMAMFllaEFIYLGNSl-Flnwdlsm----------
----------yyepldip--------
----------aKAR-STSLNDHLGQVQYIFSDKTG----------
----------TLTQNIMTFk----------kccingcty----------
----------xxxxxxxxxxxxxx-----

----------x--xxxx
xxxxx----------lqfynke--lxslvxx--x---------
------xx----------xxxx-----ef
wrllaic-----htvm----------
----------v----qxx----------xxx----xx-----

--------------------------------yqaaspde--ealvaa----ar-n----

----------------fgyv--f--lsrtqd--------------ti----------

---tlv--x---------l

geer------vyqvlammdfnsvrk-rmsv----l---vr----------------

--------------------x-p---------e---------g----s----------

----------------------------ic--l--------------------y---

-t-----------------k-----------------------------------

--gad

t----------------------vilerlh--------------------x--------

----

xxx--xx--att-eevlaaf--aeq----tlrtLCLAYKdv--aedaykewepehqe---

aa-----lllqnraqalhqvynk-leqnlqlLGVTAIEDKLQDGVPETIRCLKKgn-IKM

WVLTGDKPETAVNIGFACQL--------------------------lsenmsil----

----------------------ed-----kdik--xx------lenxxxx----------

----------------------------xx-------hqxxxqxxx--------------

---xxnmalvingefldqxxxx

xxxxxxxxxxxxxxxx-atxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

x--------------errerafvd----------------------------------

----

laskcqavlCC--RVTPKQKALVVALVk----------------------------

---ky--qq----------v----------VTLAIGDGANDVNMIKTADIGVGL--

----------agqegmq---

----------------AVQNSDYVLAqfCYLQRLL--LVHGRWSYMRICKFL------R

yff-yktva-smmaqiwfslfngf----------saqplyegwflalf
nllystlpvlyiglfeqdvtae----------kslkmpelytagqkdelfnysi
f-vqaiahgtitslinf-fvtixvsy----------xxxxxxxs-------
---
pd--yqsfgvlvaissllsitle-vilvvkywtllfvg-------tvvvslssyviftsl
teslllfrxxxxxxxxx----------fadynvi----------
--------repssl----lv--ivlnvtlntlpm----------
---------lavriir----------
----------xxxxxxxxxxxxxx----------

----------xxxxxxxxxxmrlrrgmpxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxx----------
----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx----------

-
>rnolV_lV07 XP_001055184.1
m----------

---

x----------xxxglqqwqq----------
---qrrgesew---
----------xxxxxxxxxx----------
----------rycsednrihtskyn----------il----
-tflpinlfeqf----------q-rvanayfl----fllil
-qli------peiss----------ltw---f-tt----ivp
lvlv-i---------smtavkdatdd----------ff----------rh----ks
dnqvnnrqse---------vli----------
----------n-skl----------x------n----------
----------e
k----------
----wmnVKVGDIIKLen----------
-----NQFVAADLLLLss----------
----------sephg-l---cyVETAELDGETNLKVRqa-
----------xpvtselgadisslakfdgiviceapnnkldrfsgvlsw--
----------kdskht
lsn----------
----------q---------KIILR--GCVL----------r
nt----swcf----------gMVLFAGPDTKLMqnsgktkf-------
----------krtsidrlmntlvlwifgflvclgiila
-vgnsiwesevgnqf-----xtslf---------xxxxxxsslfsgfltfwsyVIILNTL
VPISLYVSvEVIRLGHSY-FInwdrkm----------

----------yyaakamp-------
----------aEAR-TTTLNEELGQIEYIFSDKTG----------
----------TLTQNIMTFk----------kcsingrvy----------
----------xxxxx-xxxxxxxxxxxx-
xxxxx----------lhffdhs--lxesixx--x---------
-------x----------xxxx-----ef
lrllalc-----htvm----------
----------se---exx----------xxx----xx-----

----------yqvqspde--galvta----ar-n----
----------fgfi--f--ksrtpe----------ti----------
----------tie--x---------l
gtpv-------tyqllafldfnnirk-rmsv----i---vr----------

----------x-p--------e--------g----q----------
----------ik--l----------y---
-s----------k----------
----------gad
t----------ilfeklh--p----------x---------

----
xxx--xx--slt-sdhlsef--age----glrtLAIAYRel--ddkyfkmwqkmled---
an-----saiaerderisglyee-ierdlmILGATAVEDKLQEGVIETITSLSLan-IKI
WILTGDKQETAINIGYACNV----------ltdamdav----

----------fv-----itgn--xx------vevxxxx----------
----------xxxx----------xxxx----------xx
xxxx----------xxxxxx---xenxxxlxxxxxxxxxx--------
----------xxeyalvinghslah----
----------al----------
x----------sdvekdlle----------

----

lacvcktvVCC--RVTPLQKAQVVELVk----------

---kh--rn----------a----------VTLAIGDGANDVSMIKSAHIGIGI--

----------sgqeglq----------

----------AVLASDYALAqfRYLQRLL--LVHGRWSYYRMCKFL------C

yff-yknfa-ftlvhfwfafycgf----------saqtvydqwfitlf

nivytslpvlamgvfdqdvseq----------nsmdcpqlyepgqlnllfnkrr

f-ficvahgiytslilf-fipyxafy----------xxxxxxxxxi-------

----

ad--yqsfavtvatslvivvsvq-ialdtsywtvvnhv------fiwgsvatyfsilla

mhsdgvfgxxxxxxxxx----------gnarrsl----------

--------sqkfvw----lv--vlltavtsvmpv----------

---------vvfrflk----------mhly------p----------sls

----------xxxxxxxxx----------

----------xxxxxxxxxxrpqtrrssxxxxxxxxxxxxxxxxx

xxxxxxxxxxxxxxxx----------

----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx----------

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>rnoIV_IV08 XP_225706.3

m----------

----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxpraritrxxxxxxxxxx----
----------xxxxxxxxxxxxxxxxxxxxx
xxx----------

---artvwlgc----------

----------xxxxeekhprnsiknqkyn----------vf----
-tfipgvlyeqf----------
----------k-fflnlyfl----vvscs
-qfv------palki----------gyl---y-ty----wap
lgfv-m--------avtiareaide----------fr----------rf----qr
dkemnsqlys--------klt----------

----------vxgkv----------q----------
----------v
k----------
----ssdlQVGDLllVek----------
-----NQRlPSDMVFLrt----------

----------sekag-s---cfIRTDQLDGETDWKLKva-

----------vsctqrlpalgdlfsisayvyaqkpqldihsfegtftrxx
xx----------
----------ppihes
lsi----------
----------e----------NTLWA--STIV----------
as----gtvi----------gVVIYTGKETRSVmntsnpkn-------

----------kvglldlelnqltkalflalvvlsvvmv
-tlqgfagp----------wyrn----------lfrfLLLFSYI
IPISLRVNIDMGKAAYGW-MImkdeni----------
----------pg----------
----------tVVR-TSTIPEELGRLVYLLTDKTG----------
----------TLTQNEMVFk----------rlhlgtvsy----------
----------xxxxxxxxxxxxxx------

----------xx-----xxx
xx-xxxxxxxxx--xxxxxxx--xxxxxxxxvssr-ih----------
----------ea
vkaialc-----hnvt----------
----------pvxxx----------

----------xx-xxxxxxxxxxxxx----------xxxxxx----------
---x----------yqasspde--valvrw----te-s----
----------vglt--l--vsrdla----------sm----------
----------ql----------
ktps-xxxx--tycilqmfpftsesk-rmgi----i---vr----------

----------x-e---------a--------xa----e----------
----------it--f----------y---
-m----------k----------
----------gad
v----------amstiv--xyx----------

```
------------------------------------------------------------
------------------------------------------------------------
---------dwl-eeecgnm--are----glrtLVVAKRtl--teeqyqdfesrysq---
ak-----lsihdrtlkvaavves-lereme lLCLTGVEDQLQADVRPTLEMLRNag-IKI
WMLTGDKLETATCIAKSSHL----------------------------vsrtqdih----
------------------------------------------------------------
----------------------if-----rpvt----------nrg--------------
------------------------------------------------------------
-------------------------------------------exxxxxxxxxxx------
-------------------------------------------dcalvisgdslev-----
-----------------cl-------------------------------------------
----------------ryyehelve-----------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
lacqcpavVCC--RCSPTQKAHIVTLLr---------------------------------
---qh--tr----------x--------------RTCAIGDGGNDVSMIQAADCGIGI--
----------egkegkq-------------------------------------------
------------------------------------------------------------
-----------------ASLAADFSITqfRHIGRLL--MVHGRNSYKRSAALG------Q
fvm-hrgli-istmqavfssvfyf----------------------asvplyqgflmvgy
atiytmfpvfsl-vldqdvkpe----------------mailypelykdltkgrslsfkt
f-liwvlisiyqggilm-ygal-llf-------------------------e-------
------------------------------------------------------------
ae--fvhvvaisftaliltellm-valtirtwhwlmvv-------aeflslgcyvaslaf
lney-fgixxxxxxxxx------------dvafi--------------------------
--------ttvtfl----wk--vsaitvvsclpl-----------------------------
---------yvlkylk------------rkls-------p-----------------psy
------------------------------------------------------------
------------------------------------------------------------
-----------------------------------skl---ss-----------------
------------------------------------------------------------
```

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>rnolV_lV09 XP_344902.3

m-----

----------h-rlanvyfv----fiall
-nfv------pavna----------fqp---v-la----lap
vlfi-l--------avtaikdlwed----------ys----------rh----rs
dheinhlgcl--------vfs----------

--------xxe-kky----------x------n----------
----------r
y----------
----wkelRVGDFVRLcc----------
-----NEllPADILLLss----------

----------sdpdg-l---chlETANLDGETNLKRRqv-

----------vrgfselvsefnpltftsviecekpnndlsrfrgciihx-

----------ngekag
lhk----------
----------e----------NLLLR--GCTl----------r
nt----eava----------glVlYAGHETKALlnnsgpry------

----------krsqlerqmncdvlwcvlllvcislfsa
-vghglwvrryqekk----xxfdvp--------xxxxxxxspataavysfltmllVLQVL
lPlSLYVSiElVKVCQVY-Flnqdiel----------
----------ydeetdsq--------
----------lQCR-ALNlTEDLGQlKYlFSDKTG----------
----------TLTENKMVFr----------rctvsgiey----------
----------xxxxxxxxxxxxxxxxxxx
xxxxx-----xxxxxxxxxxxxxxx----------

----------xxxxx--xxxx
xxxxxxxxxxxxxxxxxxxxxxx-xxxxxxxxditpdpk--lxekvxxxxxxxxxxxxxx
xxxxxxxxxx----------xxxx-----df
fialtic-----ntvv----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxx--xxxxxnlxxxk-x----------xxx----xxx----

```
----------------------------------------xxxxxx----------------
----xxxxxxxxxxxx------xxxxxxxxxxxxxxxxxxxxxxx---xxxxxxxxxxxx
xxxxxxxxx--------------------xxyeaespde--aalvya----ak-a----
-----------------ynca--l--vdrlhd---------------qv----------
-----------------------------------------svexxx----------l
grl-------tfellhtlgfdsirk-rmsv----v---ir--------------------
------------------------------------------------------------
--------------------x-p---------l--------xd----e------------
----------------------------in--v----------------------y---
-t-----------------k-------------------------------------
------------------------------------------------------------gad
s----------------------vvmdlllxxs--xxxxxxxx------------------
------------------------------------------------------------
------------------------------------------------------------
xxx--xx--skt-qnylnly--ave----glrtLClAKRvl--skeeyacwlqshie---
ae-----tsvesreellfqsavr-letnlhlLGATGlEDRLQDGVPETlAKLRQag-LQl
WVLTGDKQETAINlAYACKL--------------------------ldhgeevi----
------------------------------------------------------------
----------------------tl-----nads--xx------acaxxxx----------
------------------------------------------------------------x
xxxx----------------------xxxxx---xxsvxxxsxxxxxxxx-xxxxxxxxx
xxxxxx-----------------------------------------slvidgrslay----
-----------------al-------------------------------------
x--------------ksledkflf---------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
lakqcrsvLCC--RSTPLQKSMVVKLVr---------------------------------
---nk--lk----------a-----------MTLAlGDGANDVSMlQVADVGVGl--
----------sgqegmq-------------------------------------------
------------------------------------------------------------
-----------------AVMASDFAVPrfRYLERLL--lVHGHWCYSRLANMV------L
```

yff-ykntm-fvgllfwfqfycgf----------sasamidqwyliff
nllfsslpqlvtgvldkdvpad----------mllrkpqlyksgqnmeeyspra
f-wlnmvdaafqslvcf-fipy-lay----------xxxxx----------

-d--vftwgtpvtaialftfllh-lgietktwtwlnwl-------acgfstflffsvali
yntscatc--xxxxxxx---------wtmptll----------
--------gdplfy----lt--cliapvaallpr----------
---------lffkalq----------gslf-------p----------tql
----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxx----------
----------xxxxxxxxxxlacspeasxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxx----------

----------xxxxxx---xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx----------

-
>rnolV_lV10 XP_220314.4
m----------

----------xxxxxxxxxxxxxxxxxxxx
x----------xxxxxxxxxxxxxxxxxxxxxxxxxxxx-----

----------xxxxxxxxxxxxxxxxxxxxxxxxxxxsettpll--------xx----
---xxxx-----------------

--------------xxxxxxx-------------------------------------
---qrvvypnn---

-----------------------------xxxxxxxxxxx--------------------

------------------------rrypgnsicttkyt----------------ll----
-tflpqnlfeqf---
---h-rwanlyfl----flvil
-nwm------psmev-----------------------------fhr---e-it----mlp
laiv-l---------lvimvkdgted-------------fk-----------ry----cf
dremnsasiq---------iye---------------------------------------
----

--------xxe-qsy-------------------------x------q-------------
---k
r--
----wqdVRVGDFVQMrc---
-----NElVPADlLLLfs---

-------------------------------sdpsg-v---chLETANLDGETNLKQRrv-
----
--------------------vkgfsqqevqfqpehfhstivcekpnnhlskfkgymehx-

---detrtg
fgs---
----------------------e----------SLLLR--GCTl---------------r
nt----evaa-----------------------glVlYAGHETKAMlnnsgpry-------
----
-------------------------------krskierrintdiffcigllflmcliga
-vghslwngtfkehp-----xfdvp--------xxxxxxxspalggfymfltmlILLQVL
lPlSLYVSiELVKLGQVF-LLhndldl----------------------------------

----------ydeetdls--------
----------iQCR-ALNITEDLGQIQYIFSDKTG----------
----------TLTENKMVFr----------rctivgney----------
----------xxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxx----------

----------xxxxx--xxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxdvtpdkn--lxskvxxxxxxxxx-xxxx
xxxxxxx-xx----------xxxx-----df
flaltic-----nsvm---------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxx----xxxxx-fxxxaxx----------xxx----xxx----
----------xxxx----------
--------xxxxxxxxxxxxxxxx-xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxx----------xxyeaespde--aalvha----ar-a----
----------ysft--l--vsrtpe----------qv----------
----------tvrxxx---------g
icl--------tfdllftlgfdsvrk-rmsv----v---vr----------

----------x-p--------l-------xg---e----------
----------iv--v----------y---
-t----------k----------
----------gad
s----------vimdllexxaxxxxxxxxxx----------

----
xxx--xx--art-qkhldly--ard----glrtLClAKKvv--needfqrwasfrre---
ae-----asldnreellmetaqh-lenrltlLGATGlEDRLQEGVPDTlAALREag-lQL
WVLTGDKQETAVNVAHSCKL----------ldqadtvy----

----------si-----nten--xx------tcexxxx----------
----------x
xxxx----------xxxxx---xxqqxxxkxxxxxxxxxx--xxxxxx
xxxxxx----------glvidgktlna----
----------if----------
x----------gklenkfle----------

```
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
ltqycrsvLCC--RSTPLQKSMIVKLVr--------------------------------
---dk--ls----------v----------MTLSIGDGANDVSMIQAADIGIGI--
----------sgqegmq-------------------------------------------
------------------------------------------------------------
-----------------AVMSSDFAIArfSHLKKLL--LVHGHWCYSRLARMV------V
yyf-yknvc-yvnllfwyqffcgf---------------------sgstmidywqmiff
nlfftslppivfgildkdvsae----------------tllalpelyksgqnsecynlpt
f-wvsmadafyqslicf-fipy-lty-------------xxxxx---------------
------------------------------------------------------------
-d--vftfgtpintislttillh-qamemktwtvlhgl------vllgsflmyfvvsli
ynatcvtc--xxxxxxx---------wlmerql--------------------------
--------sdpmfy----lt--clltpvvallpr-------------------------
---------yfllslq----------gtyg------k----------------sli
------------xxxxxxxxxxxxxxxxx-----------------------------
------------------------------------------------------------
--------------------------xxxxxxxxxxpasasa--xxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxx--------------------------------------------
------------------------------------------------------------
--xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxx---------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
_
>rnoIV_IV11 XP_341210.3
m-----------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
```


----------xx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxtprpagk----------

---hrvviphl----------

----------xxxxxxxxxxx----------

----------gtyvnnrirttkyt----------ll----
-nfvprnlfeqf----------
----------h-raanlyfl----flvvl
-nwv------plvea----------fqk---e-it----mlp
lvvv-l--------tiiaikdgled----------yr----------ky----ki
dkqinnlitk--------vys----------

--------xxe-kky----------x-----d----------
----------c
c----------
----wknVTVGDFIRLsc----------
-----NEllPADMVLLfs----------

----------tdpdg-i---chIETSGLDGESNLKQRqv-

----------vrgyaeqdsevdpekfssriecespnndlsrfrgf-----
------xxxx----------
----------nkervg
lsk----------
----------e----------NLLLR--GCTI----------r
nt----eavv----------glVVYAGHETKAMlnnsgpry-------

----------krsklerrantdvlwcvlllivmcltga
-lghgiwlsryenml-----xfnip--------xxxxxxxspvltgfyvfwtmlILLQVL
IPlSLYVSiElVKLGQIY-Flqsdvef----------
----------ynekmdst--------
----------iQCR-ALNITEDLGQIQYLFSDKTG----------
----------TLTENKMVFr----------rcsvagfdy----------
----------xxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxx----------

----------xxxxx--xxxx
xxxxxxxxxxxxxxxxxxxxxx-xxxxxxxxdvvpdtr--lxdkfxxxxxxxxxxxxxx
xxxxxxx-xx----------xxx-----df
fialaic-----ntvv----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxx----xxxxxslxxxkxx----------xxx----xxx----
----------xxxxxx------xxxxxxxx
xxxx--xxxxxxxx---x-------xxx-xxxxxxxxxxxxxxxx----xxxxxxxxxxx
xxxxxxxxx----------xxyeaespde--aalvya----ar-a----
----------yhct--l--rsrtpe----------qv----------
----------vvdxxx---------l
gpl--------tfqllhilpfdsvrk-rmsv----v---vr----------

----------x-p---------l--------xk----q----------
----------vv--v----------y---
-t----------k----------
----------gad
s----------vimellsxxs-xxxxxxxxx----------

```
------------------------------------------------------------
------------------------------------------------------------
xxx--xx--ert-qrhldey--akr----glrtLCVAKKvm--sdteyaewlrnhfl---
ae-----tsidnreellvesamr-lenkltlLGATGIEDRLQEGVPESIEALHKag-IKI
WMLTGDKQETAVNIAYACKL----------------------------lepddklf----
------------------------------------------------------------
----------------------il-----ntqs--xx------acgxxxx----------
------------------------------------------------------------x
xxxx----------------------xxxxx---x-vsxxxaxxxxxxxxxx--xx---x
xxx-xx---------------------------------------glvitgktlef----
-----------------al-------------------------------------------
x---------------eslqkqfle-----------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
ltawcqavlCC--RATPLQKSEVVKLVr---------------------------------
---nh--lh-----------v-------------MTLAIGDGANDVSMIQVADIGIGV--
----------sgqegmq-------------------------------------------
------------------------------------------------------------
-----------------AVMASDFAISqfRHLSKLL--LVHGHWCYTRLSNMI------L
yff-yknva-yvnllfwyqffcgf----------------------sgtsmtdywvliff
nllftsvppiiygvlekdvsae----------------tllqlpelyqsgqrseeylplt
f-witlldafyqslvcf-fvpy-fty-------------xxxxx---------------
------------------------------------------------------------
-d--iftfgnplntaallillh-lviesksltwihml-------vivgsilsyfffala
fgalcvtc--xxxxxxx----------gimqkhm--------------------------
--------ldpvfy----lv--cvlttcvallpr--------------------------
---------fvyrvlq-----------gsvf-------p-----------------spi
-------------xxxxxxxxxxxxxxxxxx--------------------------
------------------------------------------------------------
--------------------------xxxxxxxxxxhvaskytnxxxxxxxxxxxxxxxxx
xxxxxxxxx-----------------------------------------------------
```

_

>rnolV_lV12 XP_225014.4

s---

---xxxxxxxxxxx

x----------xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxlapaaqg--------xx----

----------xxxxxxxxxxxxxxxx-xxx--

----------xxxxxxxxx----------

---srtiyvgh----------

----------xxxxxxxxxxx----------

----------pqrypdnrivsskyt----------fw----

-nfipknlfeqf----------

----------r-rianfyfl----iiflv
-qli------id-tp----------tsp---v-ts----glp
lffv-i---------tvtaikqgyed----------wl----------rh----ka
dsamnqcpvh---------fiq----------

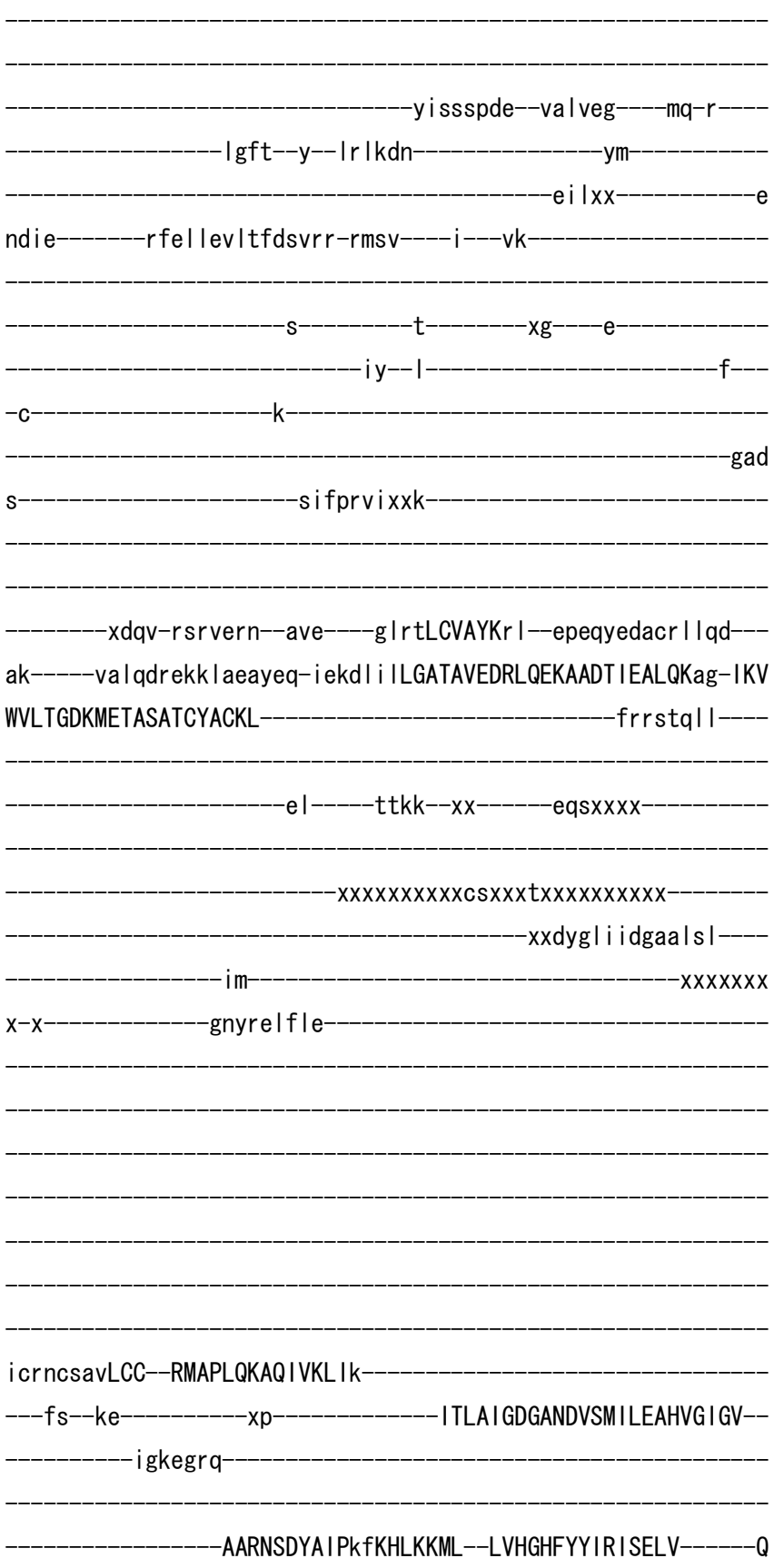
----------h-gkl----------x------r----------
----------k
q----------
----srkLRVGDIVMVke----------
-----DETFPCDLIFLss----------

----------nradg-t---chVTTASLDGESSHKTHya-

----------vqdtkgfhteadvdslhatieceqpqpdlykfvgrinvxx
xxx----------
----------dpvvrp
lgs----------
----------e----------NLLLR--GATL----------k
nt----ekif----------gVAIYTGMETKMAlnyqsksq------

----------krsaveksmntflivylcilvskalint
-vlkyvwqsepfrde-----xwynq-------xxxxxxxxnlflraftdflafMVLFNYI
IPVSMYVTvEMQKFLGSY-FItwdedm----------
----------fdeemgeg--------
----------pLVN-TSDLNEELGQVEYIFTDKTG----------
----------TLTENNMAFk----------eccieghvy----------

----------xxxxxxxxxxlpdssgixxixsspxxxxx---------
------xxxx----------lf
fraiclc-----htvq----------xxxxx
xxxxxxxxxxx-pd-xxsxx----------



yff-yknvc-fifpqflyqffcgf----------sqqtlydtayltly
nisftslpillyslmeqhvgid----------vlkrdpslyrdiaknallrwrl
f-iywtflgvfdalvff-fgayxmfe----------xxxxxxxxxm------
---
fg--nwtfgtlvftvmvftvtlk-laldthywtwinhf-------viwgsllfyivfsll
wggiiwpf--xxxxxxx---------yvfiyml----------
--------ssgpaw----lg--iillvtvgllpd----------
---------vlkkvlc----------rqlw-------p----------tat
----------xxxxxxxxxxxxx----------

----------xxxxxxxxxxkdflpqprxx----------

-
>rnoIV_IV13 XP_342229.3
m----------


```
------------------------------xxxxxxxxshsqsssxxxxxxxxxx----
-----------------------------------------xxxxxxxxxxxxxxx-xxx--
------------------------------------------------------------
------------xxxxxxxxx-------------------------------------
---trtiyian---------------------------------------------------
------------------------------------------------------------
-----------------------------xxxxxxx--xx--------------------
------------------------------------------------------------
------------------------------------------------------------
------------------------------------------------------------
----------------------pqkfidnriisskyt----------------vw----
-nfvpknlfeqf---------------------------------------------------
-----------------------------------------r-rvanfyfl----iiflv
-qlm------id-tp-----------------------------tsp---i-ts----glp
lffv-i---------tvtaikqgyed-------------wl-----------rh----ns
dnevngapvy---------vvr----------------------------------------
------------------------------------------------------------
------------------------------------------------------------
----------s-ggl-------------------------x------k-------------
-------------------------------------------------------------t
r------------------------------------------------------------
----sknlRVGDlVRlak-------------------------------------------
-----DElFPADLVLLss-------------------------------------------
------------------------------------------------------------
-------------------------------drldg-s---chVTTASLDGETNLKTHvs-
------------------------------------------------------------
--------------------vpetavlqtvanldsliaviecqqpeadlyrfmgrmiixx
xx------------------------------------------------------------
-------------------------------------------------------eeivrp
lgp-----------------------------------------------------------
----------------------e----------SLLLR--GARL---------------k
nt----keif----------------------gVAVYTGMETKMAlnyksksq-------
------------------------------------------------------------
-------------------------------krsaveksmntfliiyliiliseaiist
-ilkytwqaeekwde-----xwynq-------xxxxxxxxskilrfisdflafLVLYNFl
lPlSLYVTvEMQKFLGSF-Flgwdldl-----------------------------------
```

----------yheesdqk-------
----------aQVN-TSDLNEELGQVEYVFTDKTG----------
----------TLTENEMQFr----------ecsinglky----------

----------xxxxxx--xxxx
xxxxxxxxxxxxxxxxxxxxxxxxx-xxxxxrtspesexxlxkehx----------
----------lf
fkavslc-----htvq----------xxxx
xxxxxxxxxxxxnlxxxqxx----------

----------yyasspde--kalvea----aa-r----
----------agii--f--igisee----------tm----------
----------evkx----------l
grve------rykllhilefdsdrr-rmsv----i---vq----------

----------xxxg----e----------
----------kl--l----------f---
-a----------k----------
----------gae
s----------silpkcixxex----------

---------akt-rihvdef--alk----glrtLCIAYRqf--taeeyedvnrrlfe---
ar-----tslqrqeeklagvfqy-iekdlvlLGATAVEDRLQDKVRETIEALRMag-IKV
WVLTGDKHETAVSVSLSCGH----------fhrtmnil----

----------el----xnqks----------dsgxxxx----------

----------xxxxxxxxxxdh----------
----------xxqhglvvdgtslsl----
----------al----------
----------reheklfme----------

----

vcrncsavLCC--RMAPLQKAKVIRLlk----------

---is--pe----------xp----------ITLAVGDGANDVSMIQEAHVGIGI--

---------mgkegrq----------

----------AARNSDYAVArfKFLSKLL--FVHGHFYYIRIATLV------Q

yff-yknvc-fitpqflyqfyclf----------sqqtlydsvyltly

nicftslpvliyslleqhidph----------vlqskptlyryvfknrllsmka

f-lywtvlgfshafiff-fgsyxlig----------xxxxxxxxxxm-------

----

fg--nwtfgtlvftvmvitvtvk-malethfwtwinhl------vtwgsiifyfifslf

yggilwpf--xxxxxxx----------svfiqll----------

--------ssgsaw----fa--illmvvsclfvd----------

---------vvkkvfd----------rqlh------p----------tst

----------xxxxxxxxxxxxxxxxxxxxx-xxx----------

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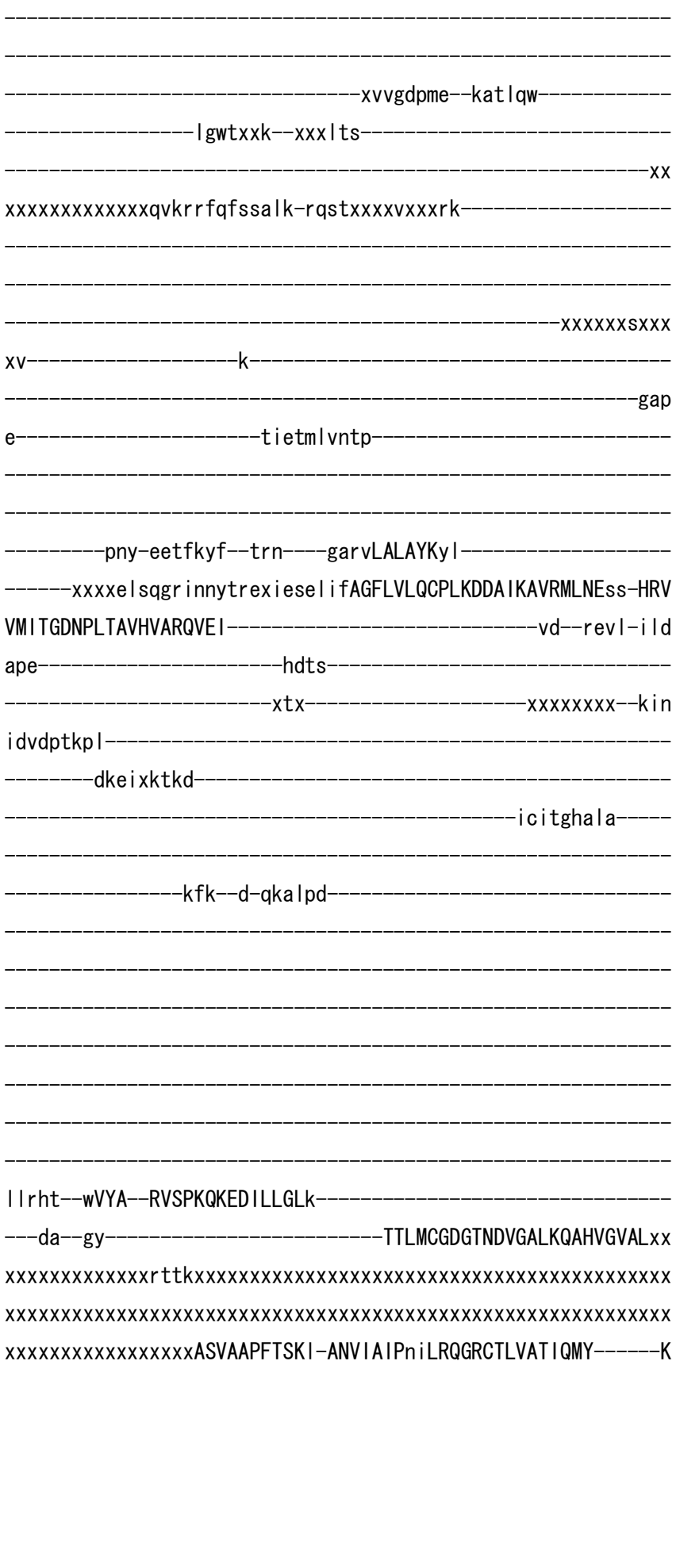

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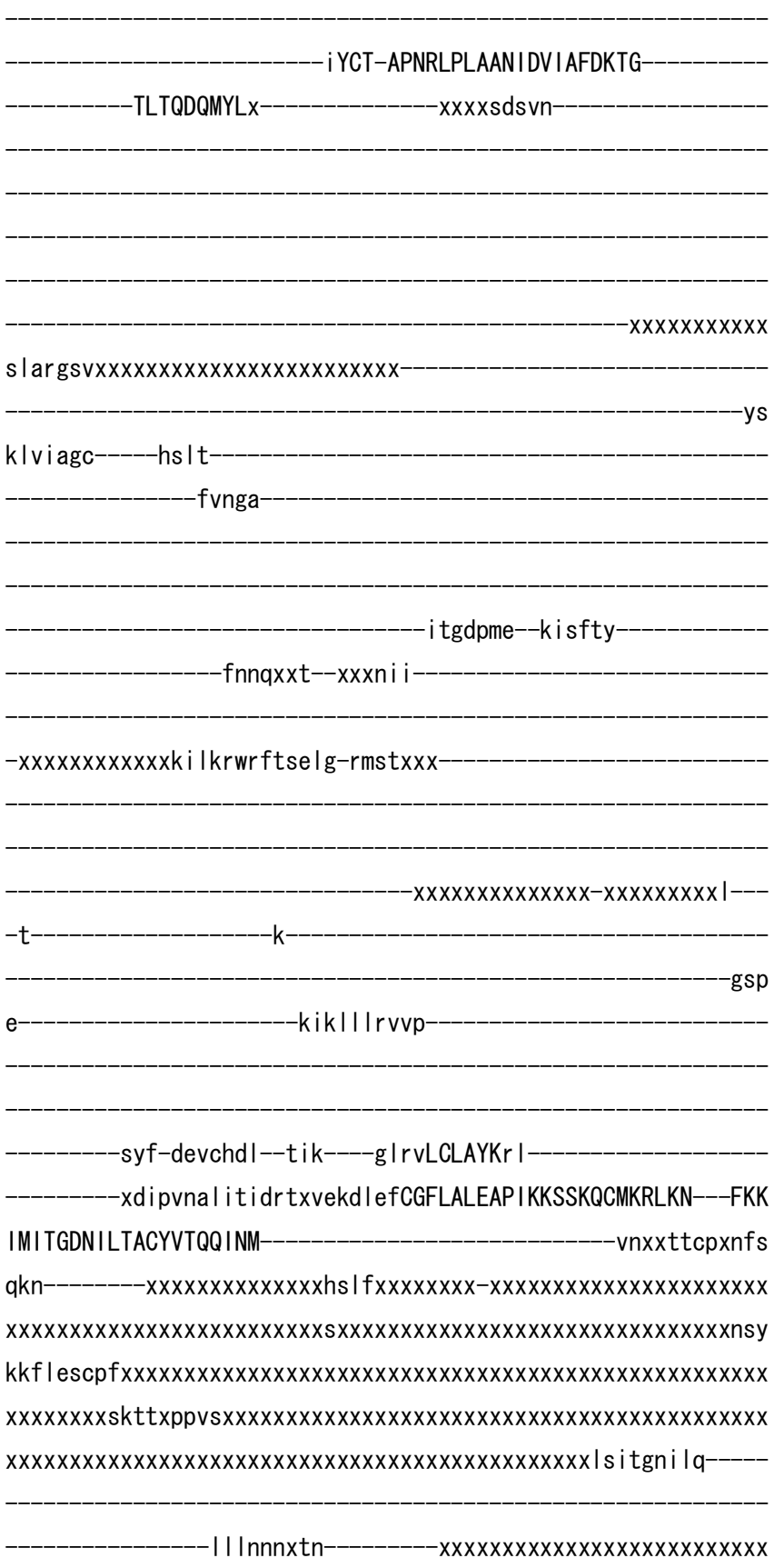

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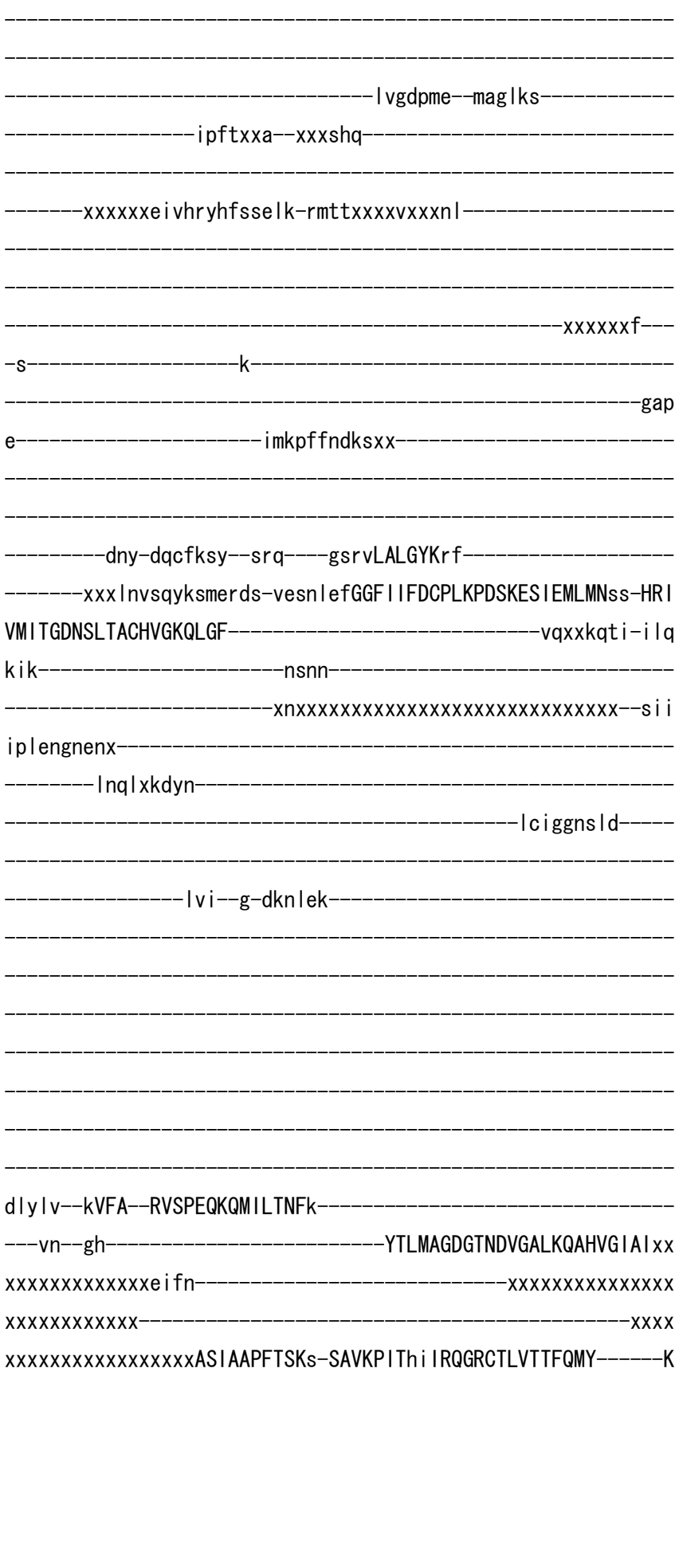

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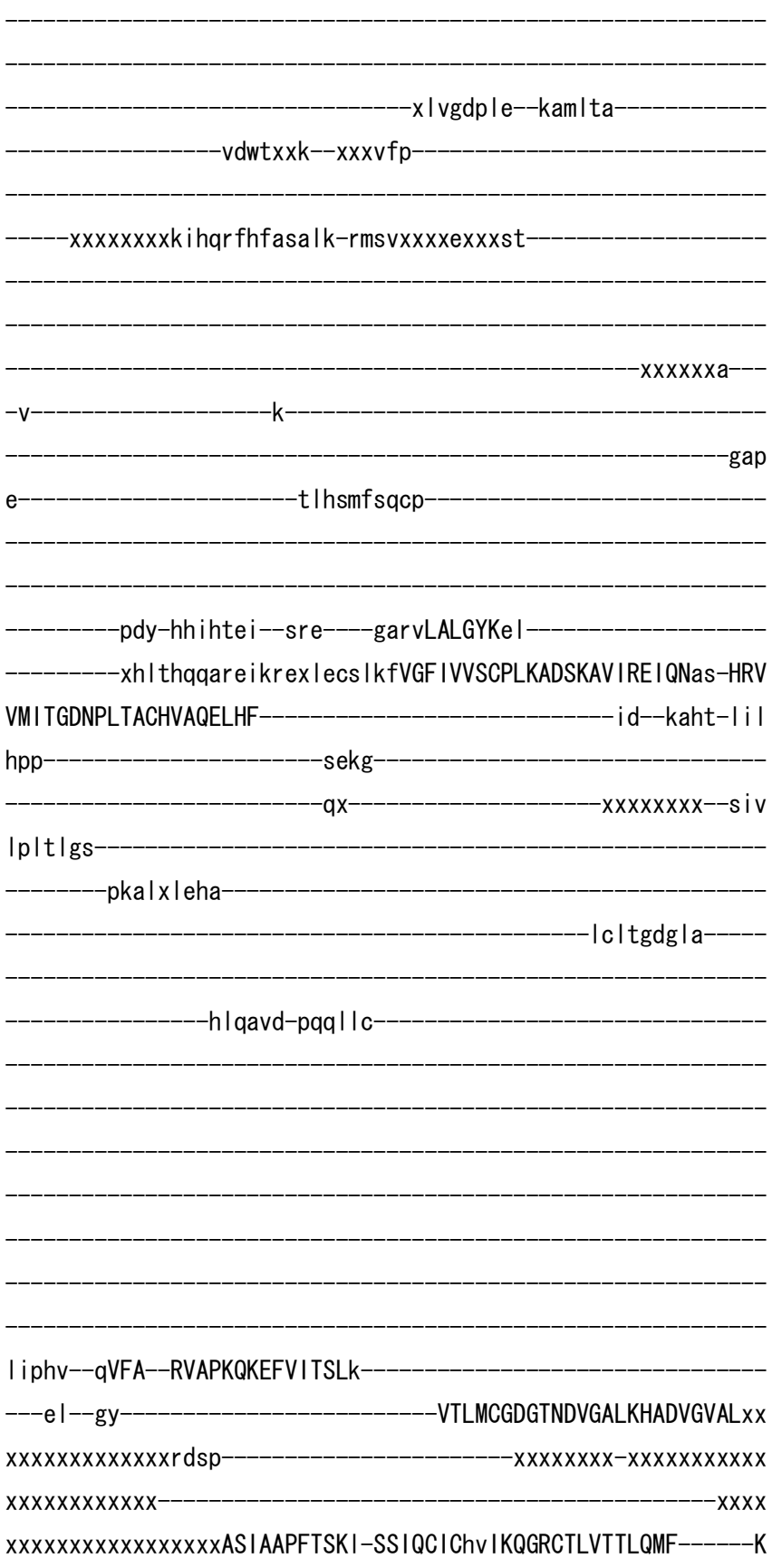

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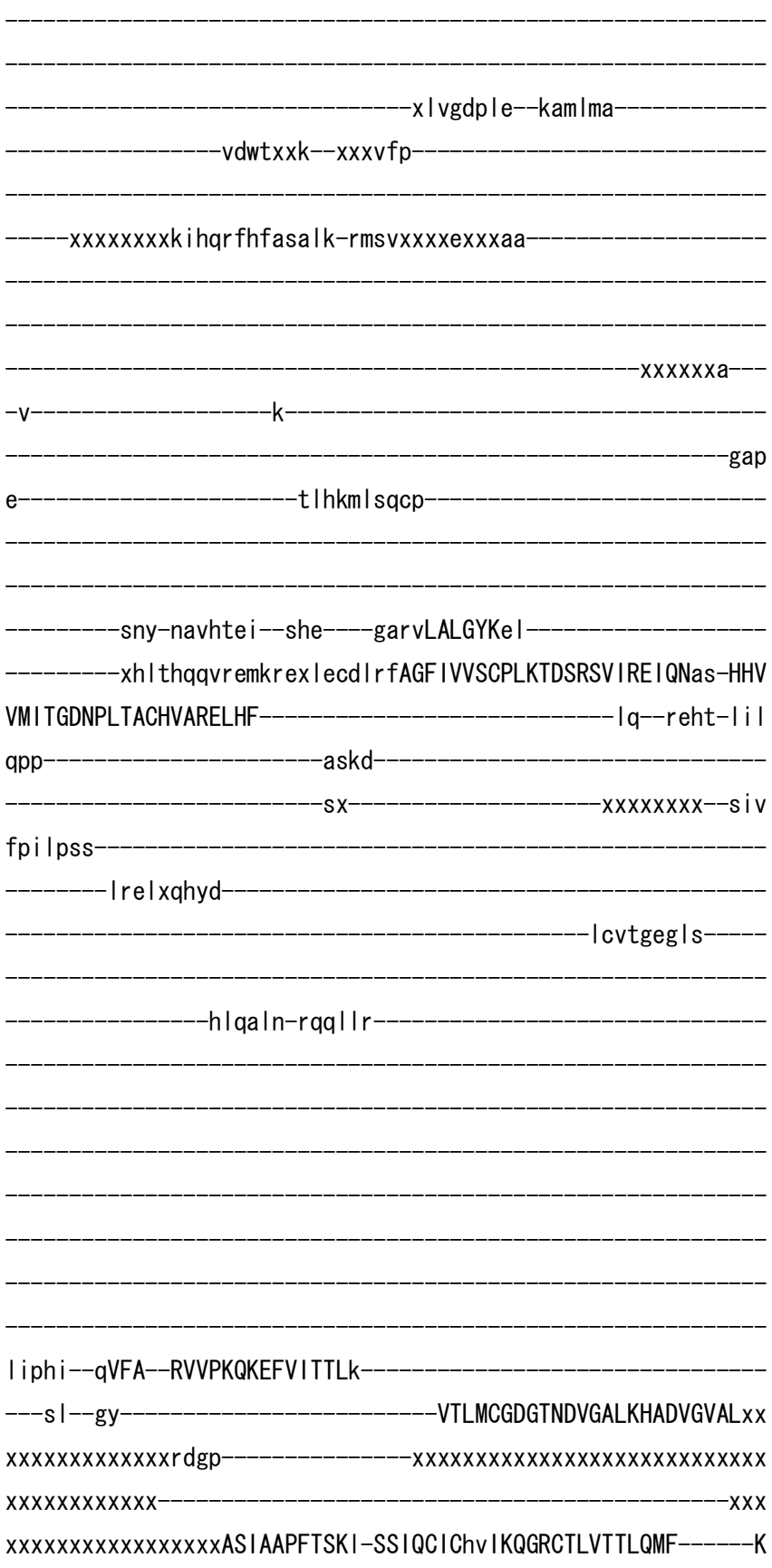

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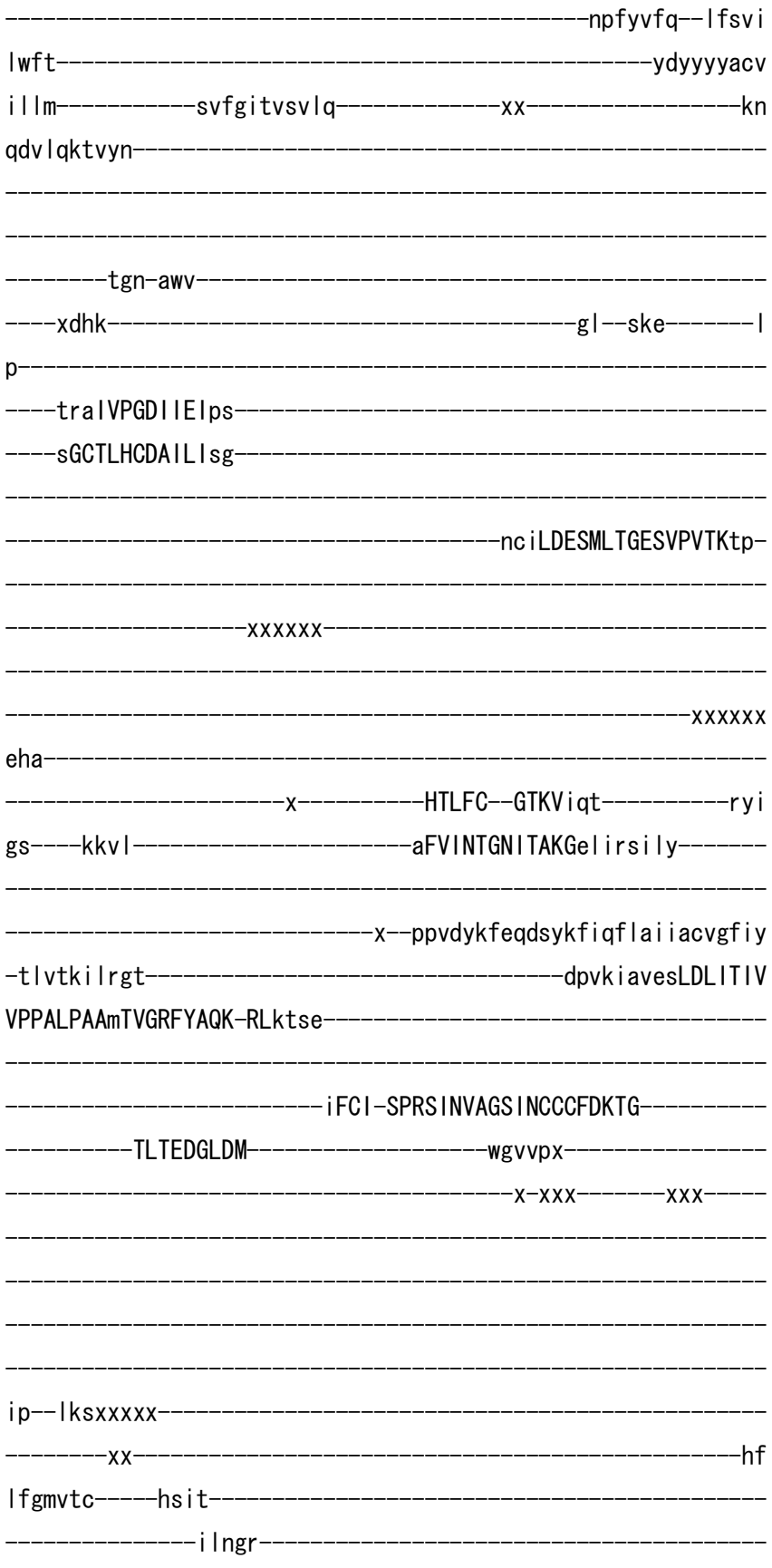

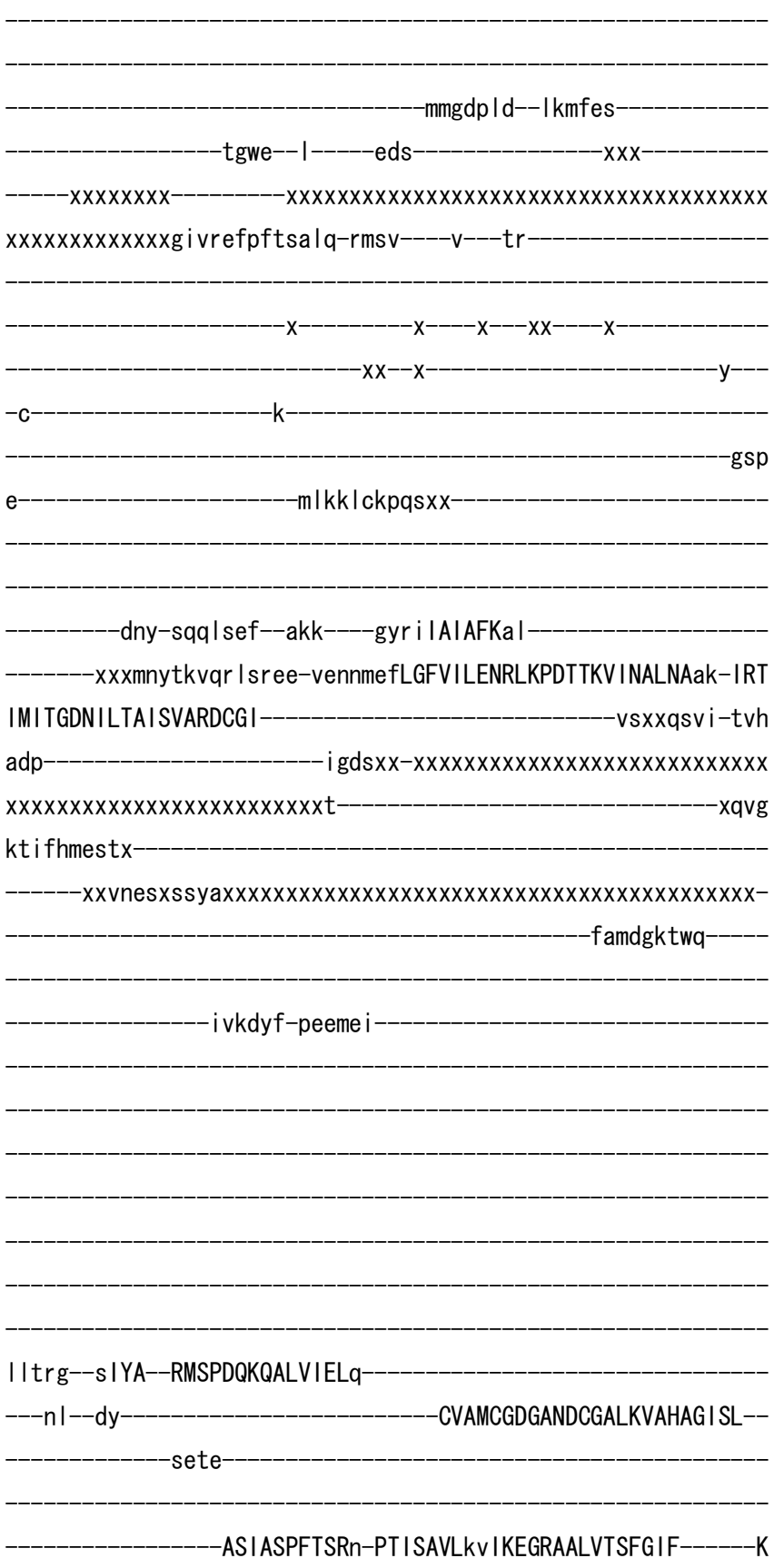

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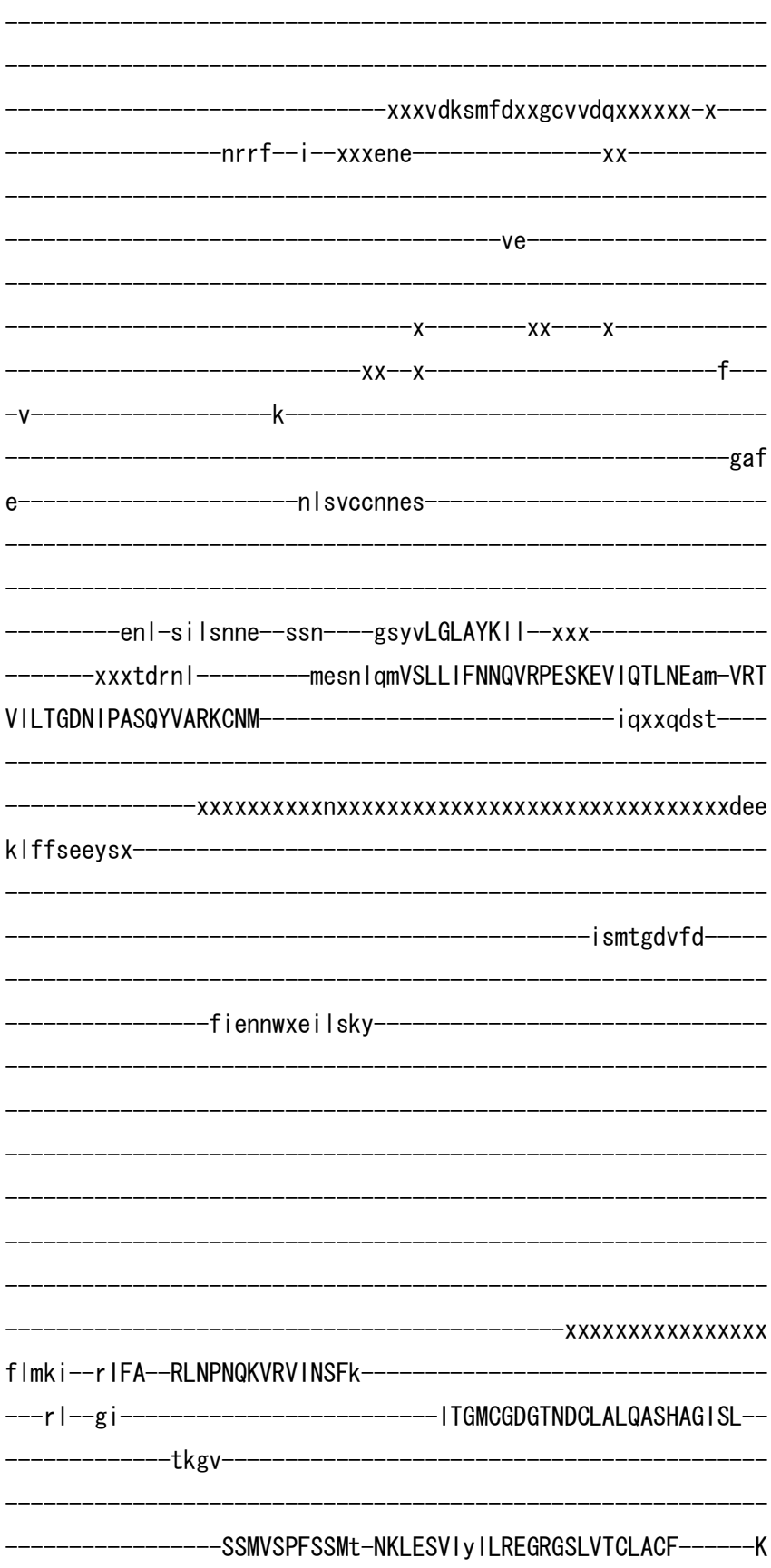

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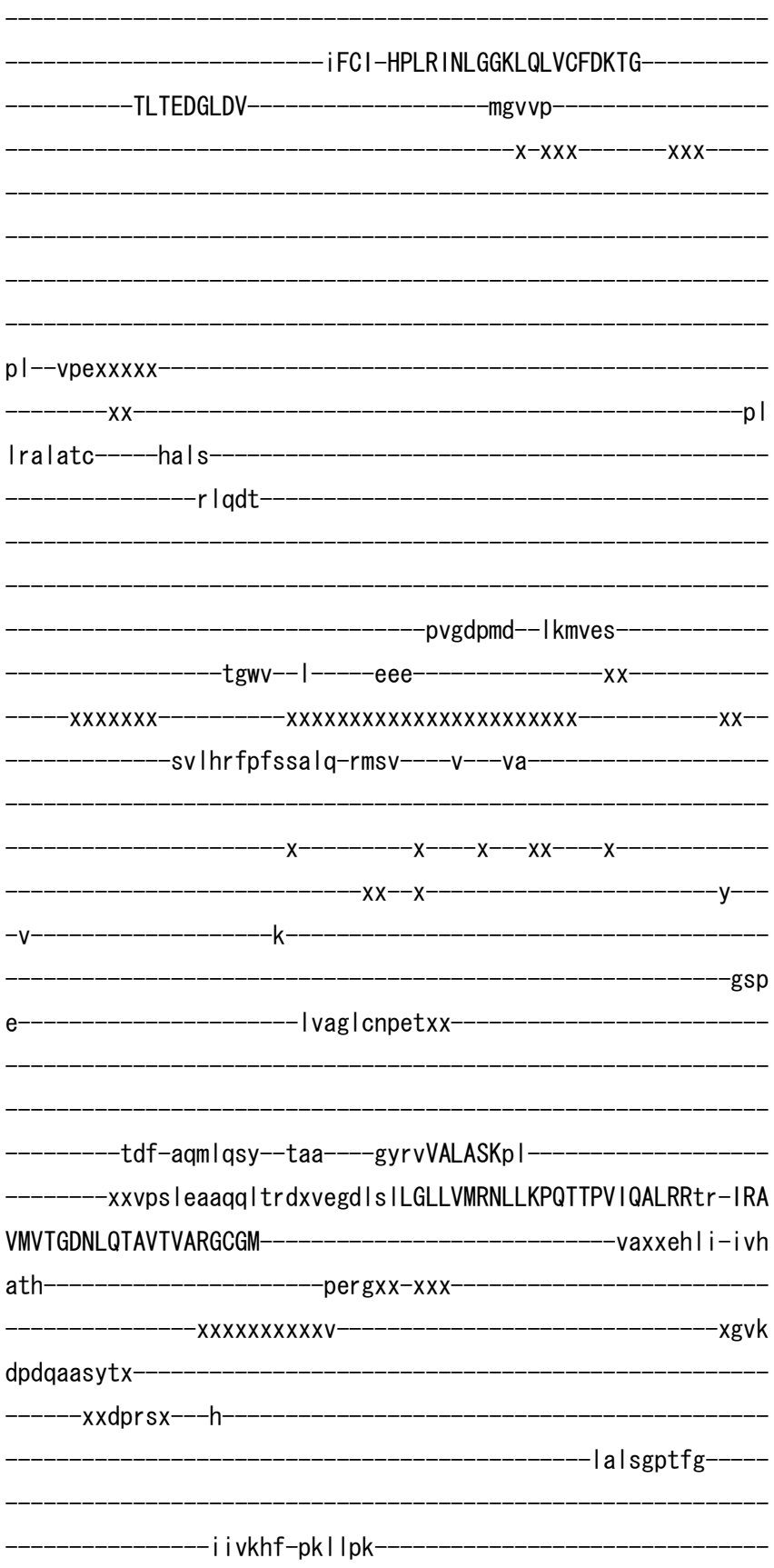

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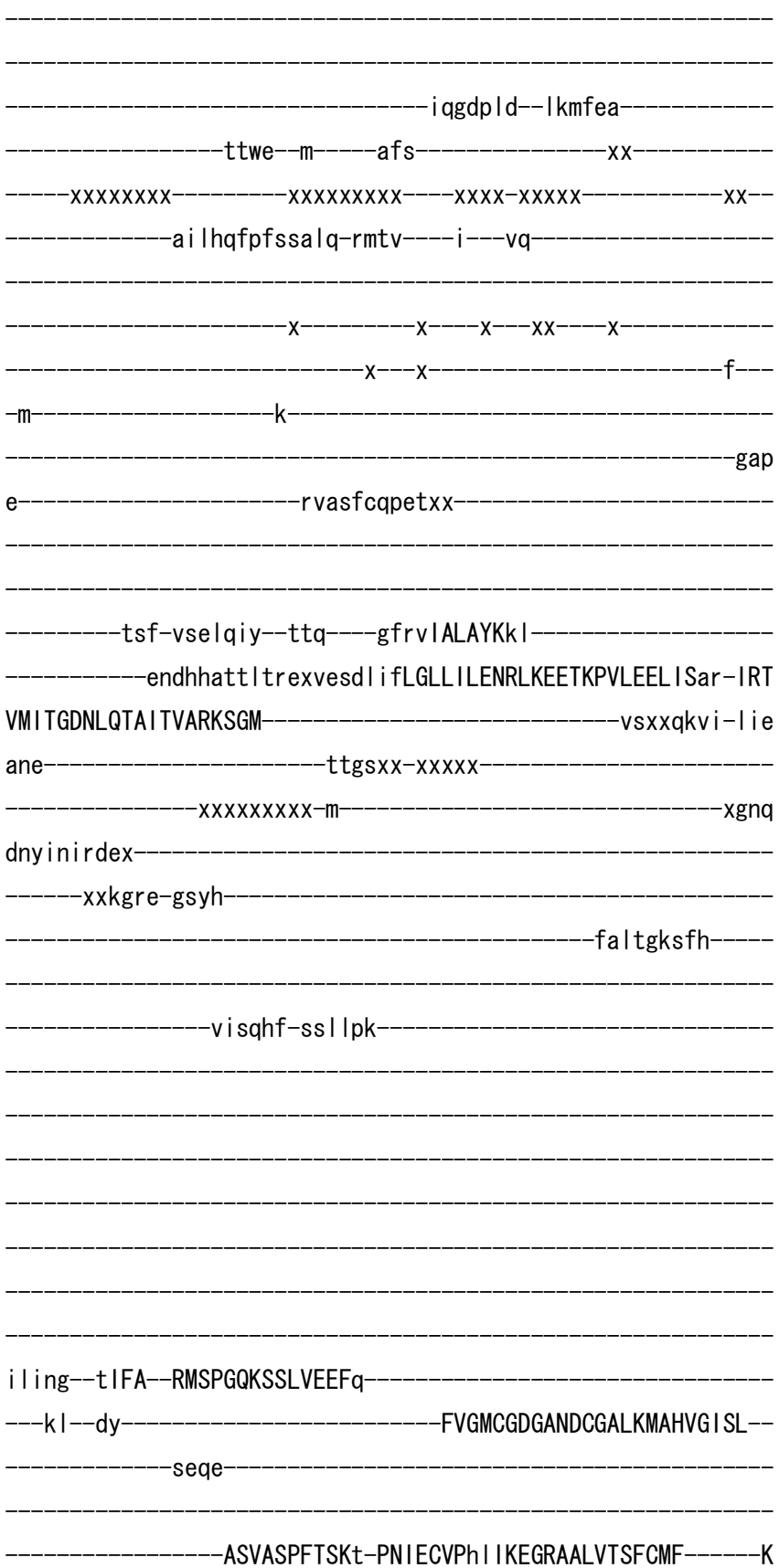

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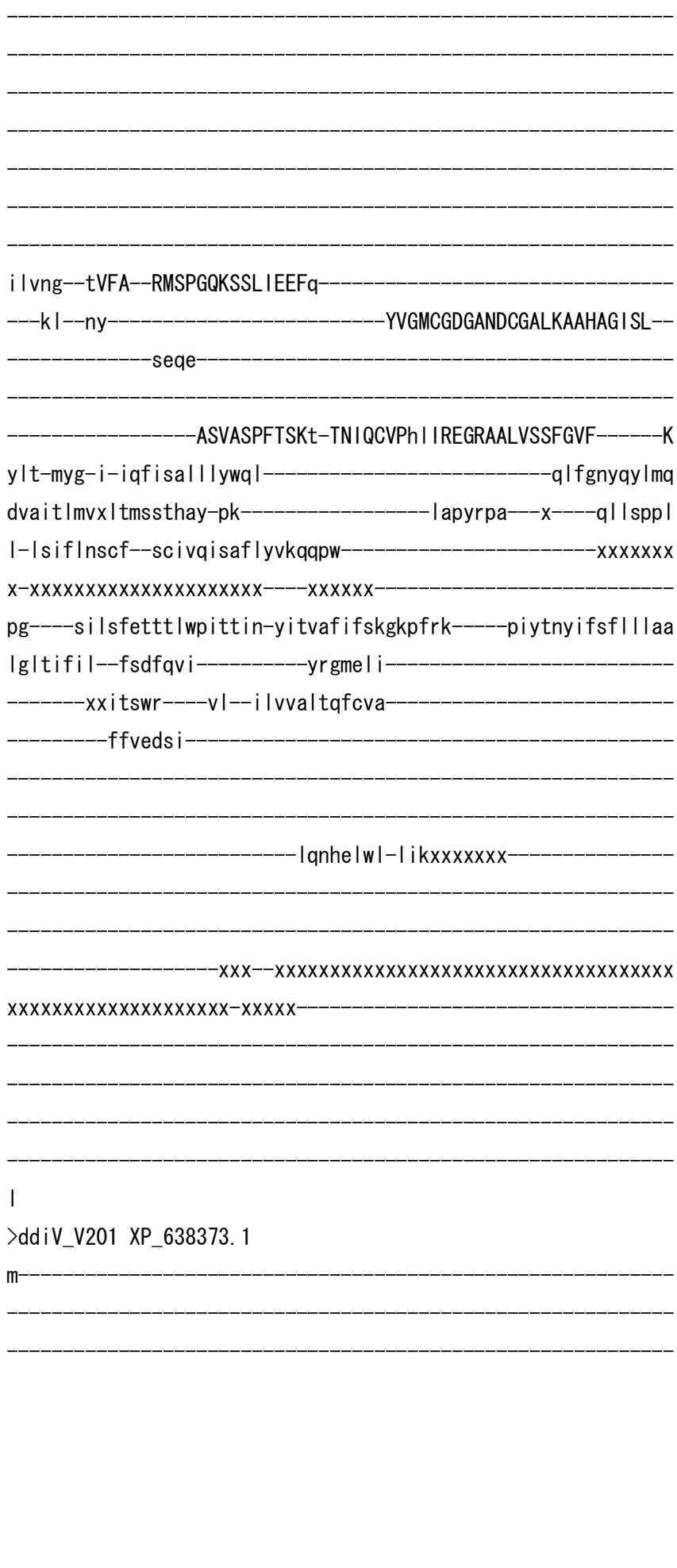

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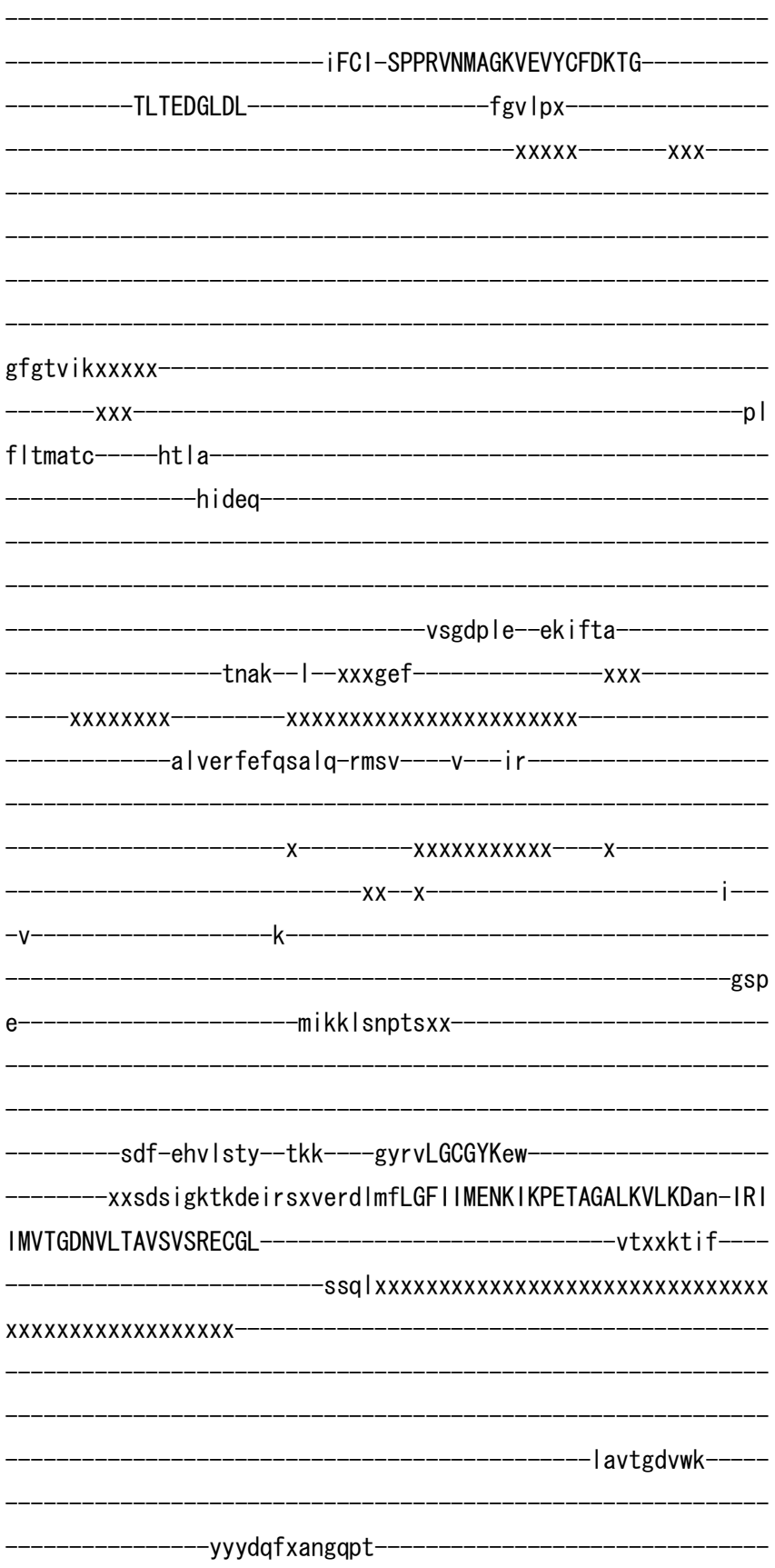

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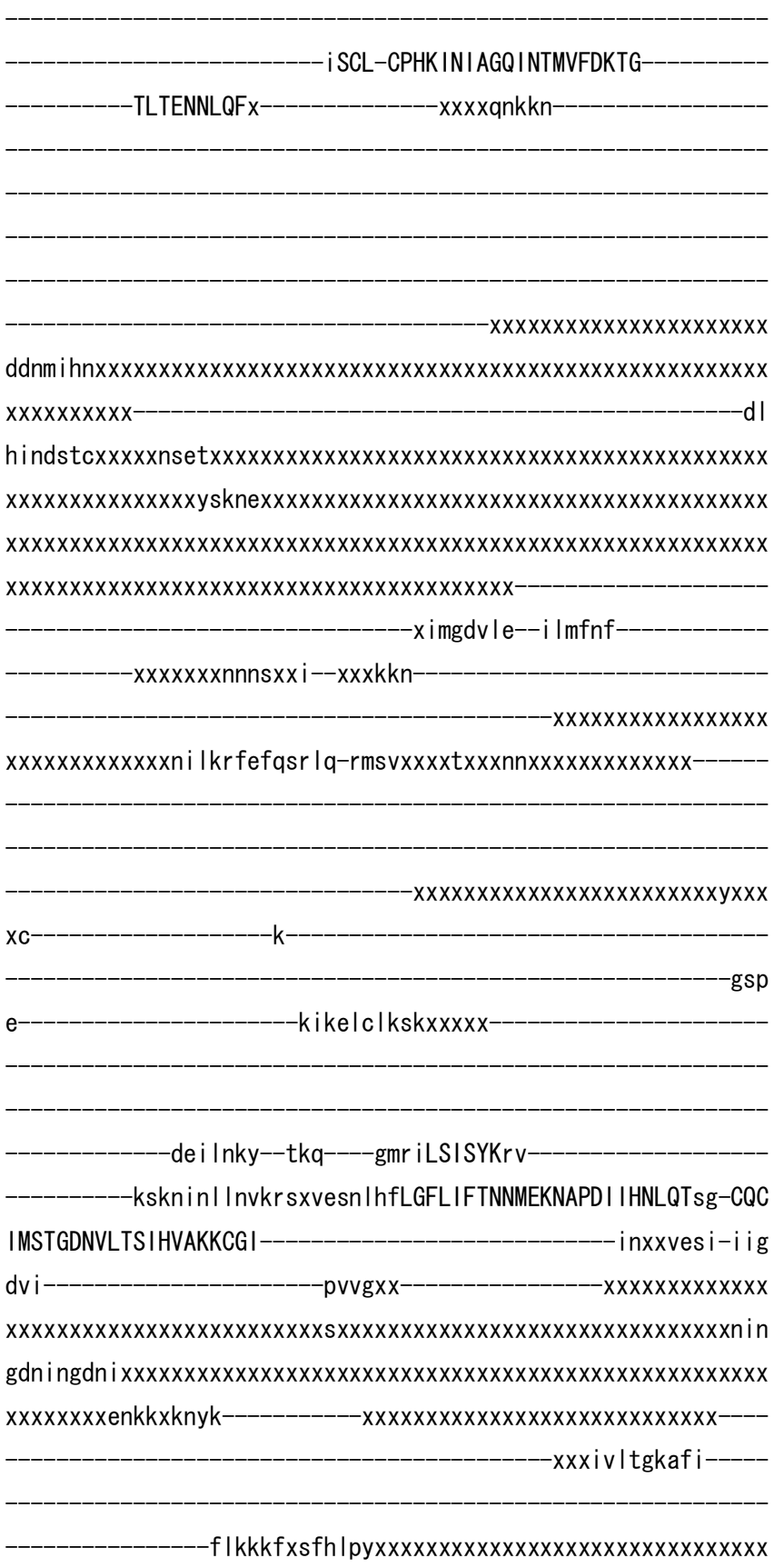

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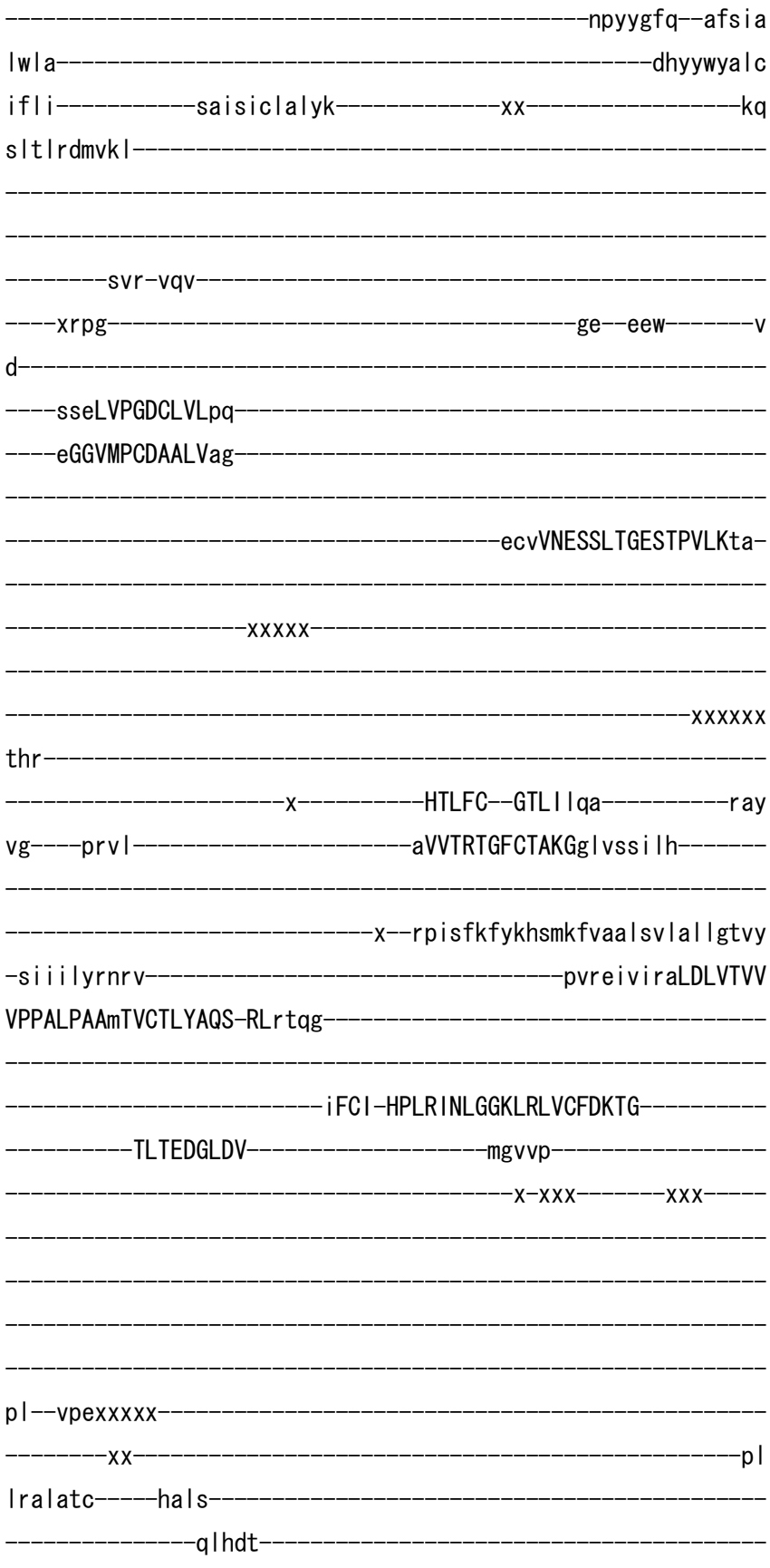

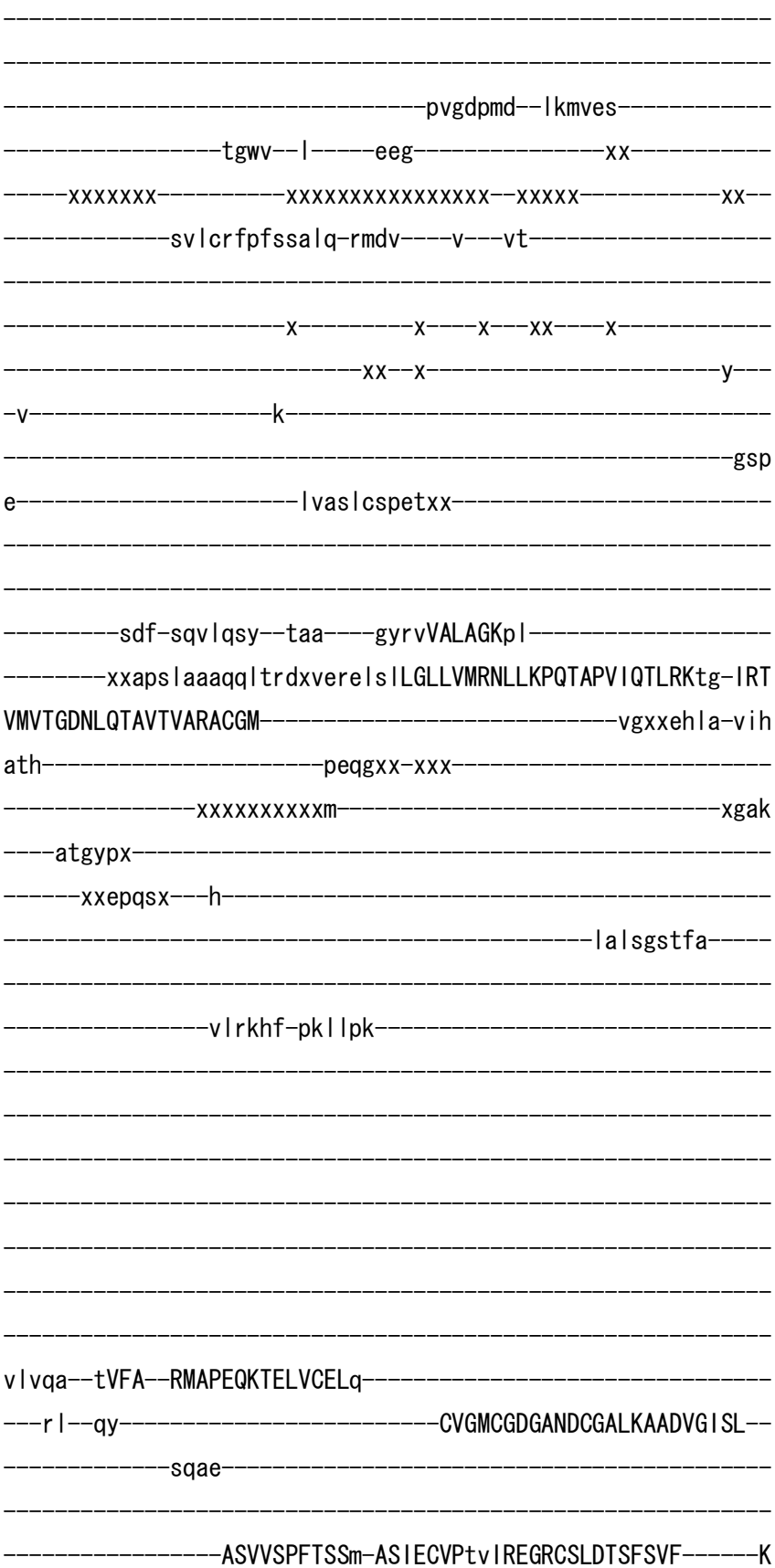

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gvscasly----------
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lwsv----------deyyyyala
ivim----------svvsiisslys----------xx----------kq
yvmlhdmvat----------

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f----------
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vacmatc-----hslt----------
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----------x--------x----x---xx----x----------
----------xx--x----------y---
-m----------k----------
----------gap
e----------vvaslckpetxx----------

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VMVTGDNMLTAVSVARDCGM----------ilxxdkvi-iae
alp----------pkdgxx-xxxxxx----------
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lwfs----------edykeyala

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svklhhlves----------

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e----------

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dpr----------
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x-xxxxxxxxxxxxxxxxx-------xxxxxx----------
ns----tfasfenttiwflgtin-cifvalvfskgkpfrq-----ptytnyifvlvlilq
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e----------
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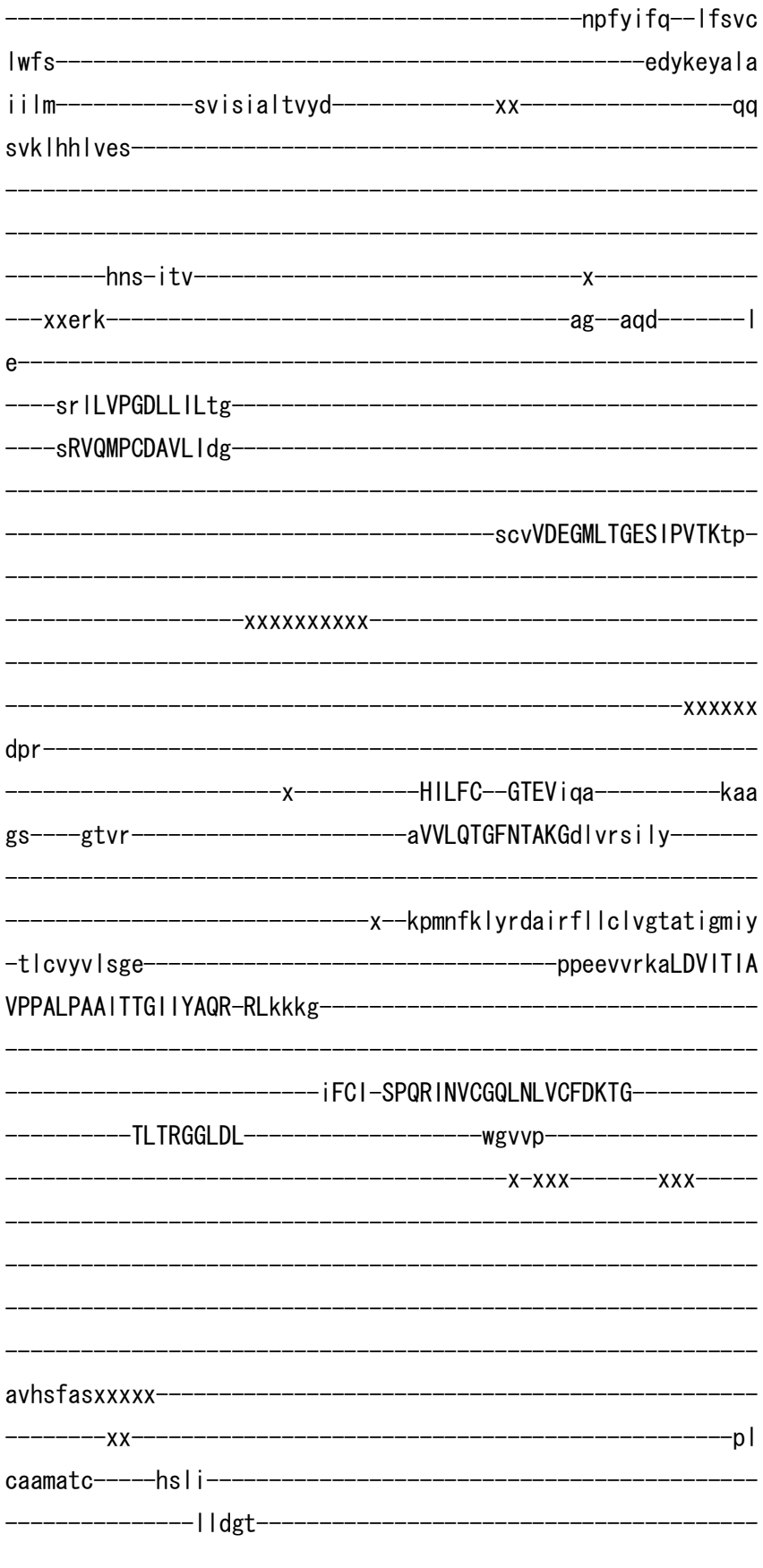

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e----------
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x-xxxxxxxxxxxxxxxxxxx----xxxxxx-----------------------------
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----------xx--x----------f---
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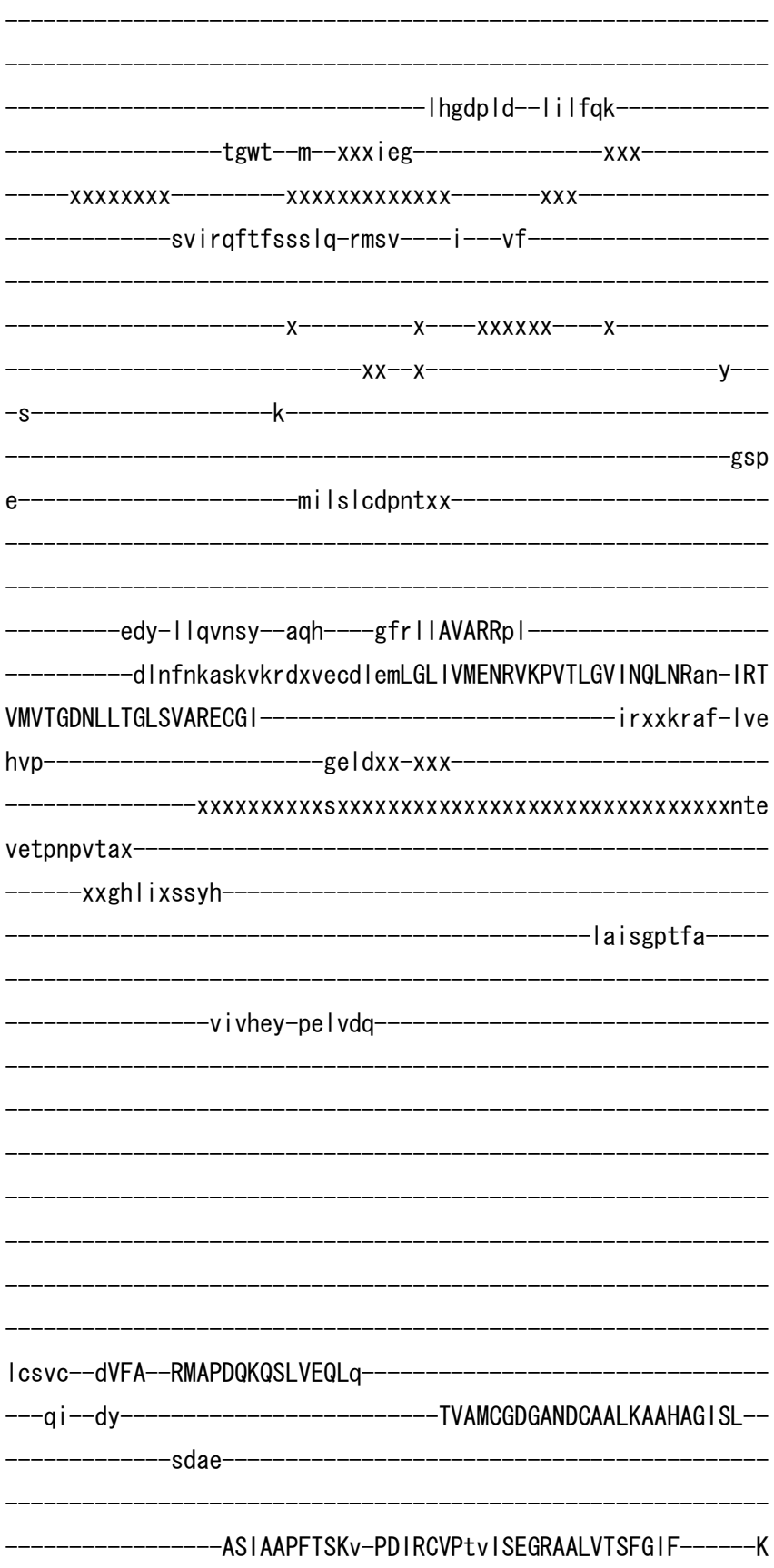

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e--------------------mimslcrpetxx------------------------
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hen----------gvvdxx-xxx----------

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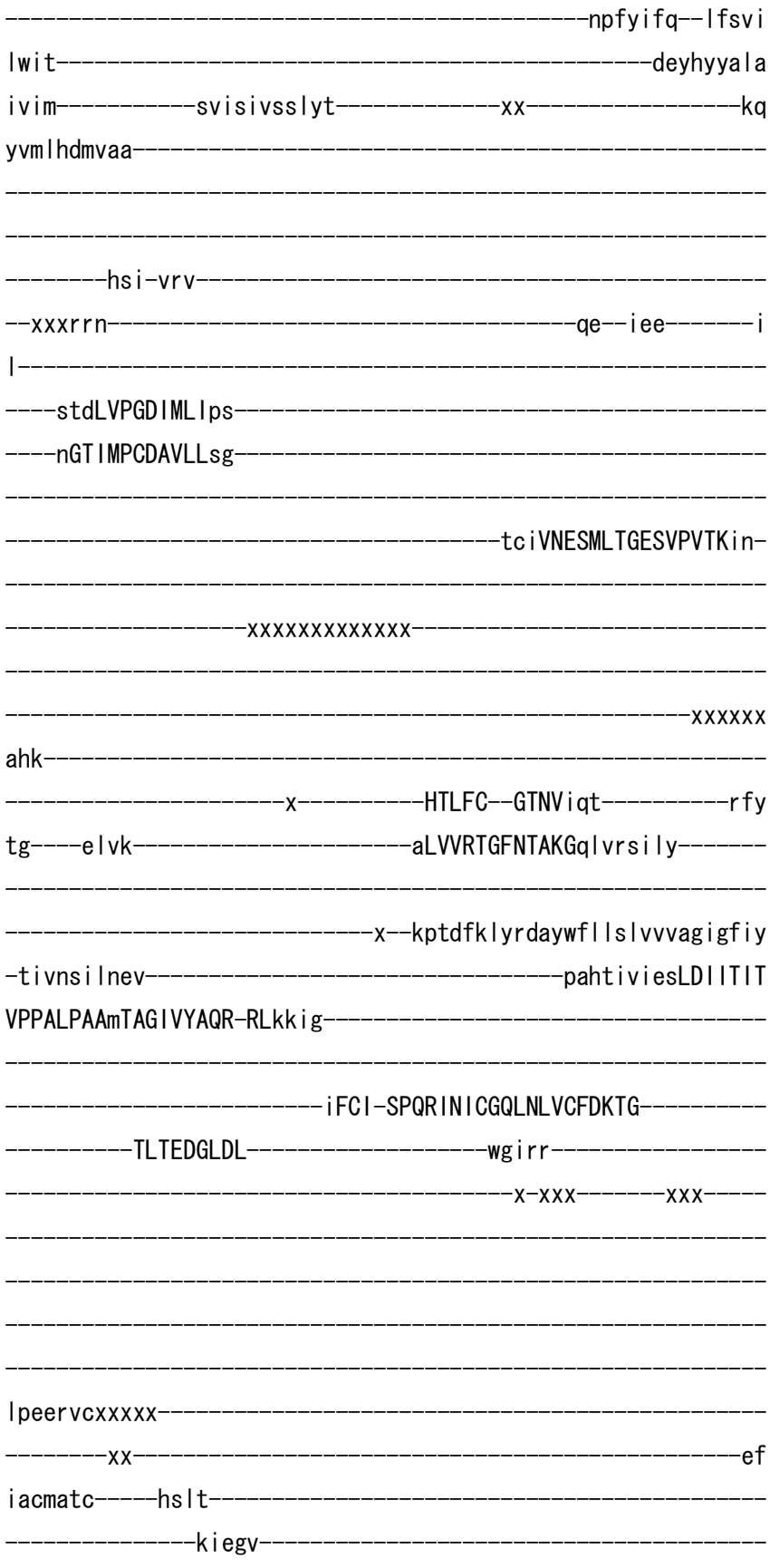

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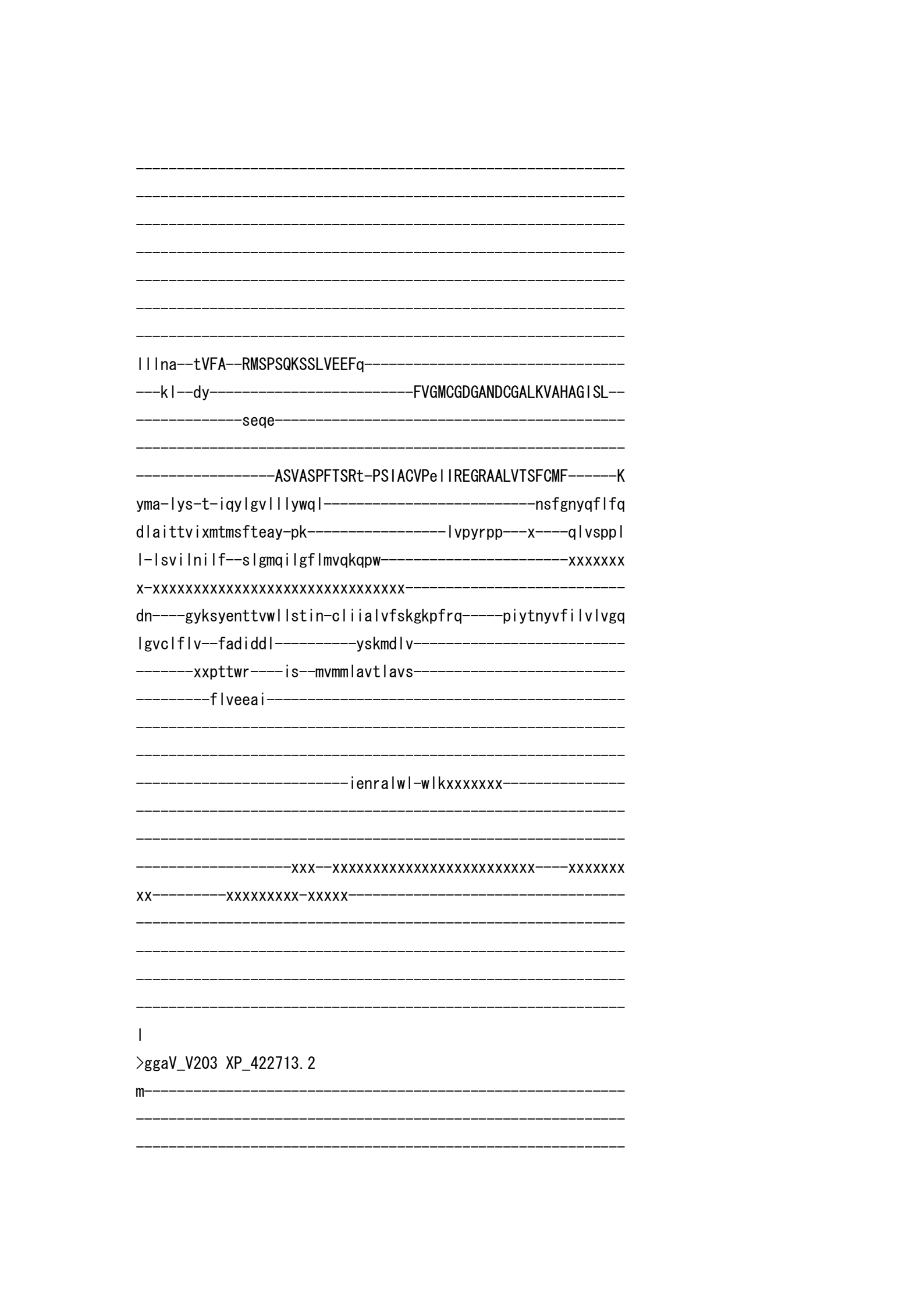

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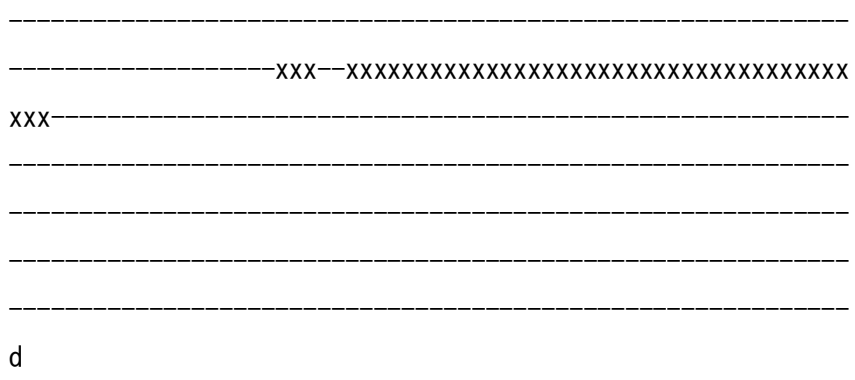
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