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<td>タイトル</td>
<td>前移植肝移植後における受容体クッフ細胞の置換が肝移植拒絶を軽減する動物研究</td>
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<td>著者</td>
<td>Endo, Kosuke</td>
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<td>引用</td>
<td>Kyoto University</td>
</tr>
<tr>
<td>発行日</td>
<td>2015-03-23</td>
</tr>
<tr>
<td>URL</td>
<td><a href="https://doi.org/10.14989/doctor.k18896">https://doi.org/10.14989/doctor.k18896</a></td>
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<tr>
<td>条項</td>
<td>学位規則第9条第2項により要約公開</td>
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<tr>
<td>タイプ</td>
<td>学位論文</td>
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Pretransplant replacement of donor liver grafts with recipient Kupffer cells attenuates liver graft rejection in rats
Kosuke Endo, Tomohide Hori, Kanta Jobara, Toshiyuki Hata, Tatsuaki Tsuruyama, and Shinji Uemoto

Background and Aim: Rejection of liver grafts is a difficult issue that has not been resolved. Preoperative replacement of liver cells in the graft with cells from the intended recipient may attenuate rejection. We investigated whether preoperative transplantation of recipient BMCs to the donor replaced liver allograft cells and attenuated rejection.

Methods: We used a rat model of allogeneic liver transplantation (LT) from DA to LEW rats. In BMC group, DA rats received BMC transplants from LacZ-transgenic Lewis rats at 1 week before LT. In Control group, DA rats received no preoperative treatment. We evaluated graft damage at 7 d after LT and the survival of the recipient rats.

Results: Rats in the BMC group experienced prolonged survival that was abrogated by the administration of gadolinium chloride to donors at 24 h before LT. Serum concentrations of total bilirubin and hyaluronic acid on day 7 were significantly lower in the BMC group, and histopathological analyses revealed that rejection of the liver graft was attenuated. X-gal staining and Immunohistostaining of the liver graft revealed that BMCs engrafted in the sinusoidal space differentiated into Kupffer cells.

Conclusions: Preoperative transplantation of recipient BMCs to liver transplant donors replaced donor KCs and attenuated post-LT rejection, indicating that this strategy may increase the success of liver transplantation.
References


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