

Division of Biochemistry – Chemical Biology –



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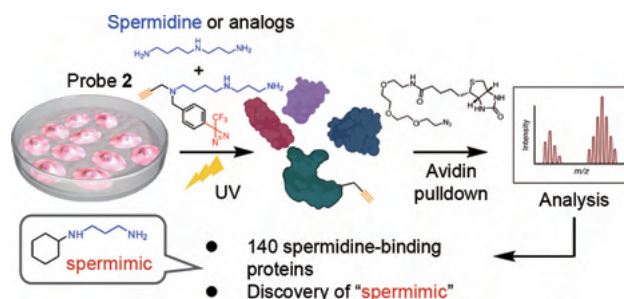
KIM, Hyosuk (Ph. D.) Yonsei University, Korea, R., 1 April 2023–31 March 2026

Scope of Research

Chemical biology is an interdisciplinary field of study that is often defined as “chemistry-initiated biology.” As biological processes all stem from chemical events, it should be possible to understand or manipulate biological events using chemistry. Our laboratory has been discovering or designing unique organic molecules that modulate fundamental processes in human cells. Such synthetic organic molecules often serve as tools for basic cell biology. Discovery or design of small molecules with unique biological activities permits small-molecule-initiated exploration of complex cellular events. Our mission is to create a new world of bioactive synthetic molecules: new modes of activity, new shapes, and new sizes. We hope that these basic studies open new avenues for small-molecule applications in a range of fields.

KEYWORDS

Chemical Biology Self-Assembly Chemical Library
Chemical Genetics Immunology



Recent Selected Publications

Singh, V. P.; Hirose, S.; Takemoto, M.; Farrag, A. M. A. S.; Sato, S.; Honjo, T.; Chamoto, K.; Uesugi, M., Chemoproteomic Identification of Spermidine-Binding Proteins and Antitumor-Immunity Activators, *J. Am. Chem. Soc.*, **146**(24), 16412-16418 (2024).

Toh, K.; Nishio, K.; Nakagawa, R.; Egoshi, S.; Abo, M.; Perron, A.; Sato, S.; Okumura, N.; Koizumi, N.; Dodo, K.; Sodeoka, M.; Uesugi, M., Chemoproteomic Identification of Blue-Light-Damaged Proteins, *J. Am. Chem. Soc.*, **144**(44), 20171-20176 (2022).

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