Division of Biomolecular Chemistry
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Department of Medicinal Chemistry

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Chemical biology aimed at drug discovery

1. **Development of peptidomimetics and drug discovery templates**
2. **Development of bioprobes and chemical biology**
3. **Analysis of the interactions between receptors or enzymes and their ligands**
4. **Development of HIV inhibitors and AIDS vaccines**
5. **Development of genome and epigenome editing platforms for gene therapy**

1. Kobayakawa T, Matsuzaki Y, Hozumi K, Nomura W, Nomizu M, Tamamura H: Synthesis of a chloroalkene dipeptide isostere-containing peptidomimetic and its biological application, ACS Med Chem Lett 9(1), 6-10, 2018.
2. Ohashi N, Kobayashi R, Nomura W, Kobayakawa T, Czikora A, Herold BK, Lewin NE, Blumberg PM, Tamamura H: Synthesis and evaluation of dimeric derivatives of diacylglycerol-lactones as protein kinase C ligands, Bioconjugate Chem, 28(8), 2135-2144, 2017.
3. Takano H, Narumi T, Nomura W, Tamamura H: Microwave-assisted synthesis of azacoumarin fluorophores and the fluorescence characterization, J Org Chem 82(5), 2739-2744, 2017.
4. Nomura W, Aikawa H, Ohashi N, Urano E, Metifiot M, Fujino M, Maddali K, Ozaki T, Nozue A, Narumi T, Hashimoto C, Tanaka T, Pommier Y, Yamamoto N, Komano J, Murakami T, Tamamura H: Cell-permeable stapled peptides based on HIV-1 integrase inhibitors derived from HIV-1 gene product, ACS Chem Biol 8(10), 2235–2244, 2013.
5. Tanaka T, Nomura W, Narumi T, Masuda A, Tamamura H: Bivalent ligands of CXCR4 with rigid linkers for elucidation of dimerization state in cells, J Am Chem Soc (Commun) 132(45), 15899–15901, 2010.

We are conducting research using chemical biology techniques. By targeting chemokine receptor CXCR, protein kinase C, secretase and the like, we are pursuing drug discovery research aimed at creating therapeutic drugs and gene therapy methods to treat cancer, Alzheimer-type dementia, rheumatoid arthritis and AIDS.