Ikuo FUJII, Ph. D

Specially Appointed Professor

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1986	Ph. D., Grad school of Pharmacological Science, Kyushu University
1986-1988	Assistant Professor, Grad school of Pharmacological Science, Kyushu University (Lab: Prof. Ken Kanematsu)
1988-1989	Postdoctoral Associate, The Rockefeller University (Lab: Prof. Emil T. Kaiser)
1989-1991	Senior Research Associate, The Scripps Research Institute (Lab: Prof. Richard A. Lerner)
1991-2003	Research Director, Protein Engineering Research Institute
2003-2022	Professor, Osaka Prefecture University
2003- present	Specially Appointed Professor, Osaka Metropolitan University
2013-2018	Dean in School of Science, Osaka Prefecture University
2018- 2022	Vice President (International Affairs), Osaka Prefecture University

Awards and Honors

1996 The Pharmaceutical Society of Japan Award for Young Scientists

2013 The 5th. Monodzukuri Nippon Grand Award: The Japanese METI Minister's Prize

Research Interests

Directed Evolution of Biofunctional Molecules: The aim of our study is to investigate molecular design relying on evolutionary processes, called as "directed evolution", to generate a novel class of biofunctional molecules. This evolutionary approach consists of three steps; 1) constructions of protein/peptide libraries based on structural information, 2) expressions of the libraries on phage particles, and 3) selections with investigator-imposed selective pressures. Now, we study on directed evolution with using protein and peptide libraries. We have generated highly active catalytic antibodies and molecular-targeting α-helical peptides.

Selected publications

1) Fujiwara, D. and Fujii, I. (2013), Phage Selection of Peptide "Microantibodies". *Current Protocols in Chemical Biology*, 5: 171-194. https://doi.org/10.1002/9780470559277.ch130039

2) Tharanga M.R. Ramanayake Mudiyanselage, Masataka Michigami, Zhengmao Ye, Atsuko Uyeda, Norimitsu Inoue, Kikuya Sugiura, Ikuo Fujii, and Daisuke Fujiwara (2020) An Immune-Stimulatory Helix–Loop–Helix Peptide: Selective Inhibition of CTLA-4–B7 Interaction *ACS Chemical Biology 15* (2), 360-368. DOI: 10.1021/acschembio.9b00743

3) Michigami, M; Takahashi, K.; Yamashita, H.; Ye, Z.; Nakase, I.; Fujii, I., (2021) A "ligand-targeting" peptide-drug conjugate: Targeted intracellular drug delivery by VEGF-binding helix-loop-helix peptides via receptor-mediated endocytosis PLoS ONE, 16(2): e0247045. https://doi.org/10.1371/journal.pone.0247045

4) Michigami, M.; Ramanayake Mudiyanselage, T. M. R.; Suzuki, M.; Ishizako, H.;Notsu, K.; Sugiura, K.;Fujii, I. (2022) New Class of Drug Modalities: Directed Evolution of a De Novo Designed Helix–Loop–Helix Peptide to Bind VEGF for Tumor Growth Inhibition *ACS Chemical Biology* 17 (3), 647-653. DOI: 10.1021/acschembio.1c00940

5) D. Fujiwara, K. Mihara, R. Takayama, Y. Nakamura, M. Ueda, T. Tsumuraya, I. Fujii, (2021), Chemical Modification of Phage-Displayed Helix-Loop-Helix Peptides to Construct Kinase-Focused Libraries *ChemBioChem 22*, 3406. https://doi.org/10.1002/cbic.202100450

6) Nakatani, Y.; Ye, Z.; Ishizue, Y.;Higashi, T.; Imai, T.; Fujii, I.; Michigami, M. (2022) "Human and Mouse Cross-Reactive" Albumin-Binding Helix–Loop–Helix Peptide Tag for Prolonged Bioactivity of Therapeutic Proteins *Molecular Pharmaceutics 19* (7), 2279-2286. DOI: 10.1021/acs.molpharmaceut.2c00106

7) Fujiwara, D.; Kitada, H.; Oguri, M.; Nishihara, T.; Michigami, M.; Shiraishi, K.; Yuba, E.; Nakase, I;. Im, H.; Cho, S.; Joung, J. Y.; Kodama, S.; Kono, K.; Ham, S.; Fujii, I. (2016) A Cyclized Helix-Loop-Helix Peptide as a Molecular Scaffold for the Design of Inhibitors of Intracellular Protein–Protein Interactions by Epitope and Arginine Grafting *Angew. Chem. Int. Ed.* 55, 10612. https://doi.org/10.1002/anie.201603230