

Faculty of Advanced Life Science Hokkaido University



北海道大学
大学院先端生命科学研究所
Hokkaido University
Faculty of Advanced Life Science



HOKKAIDO
UNIVERSITY

Faculty of Advanced Life Science, Graduate School of Life Science



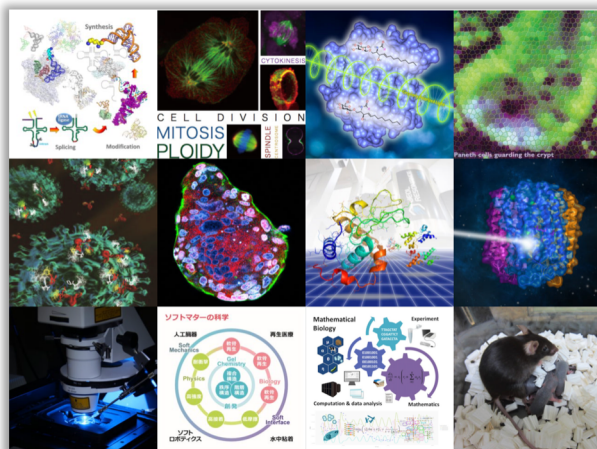
Faculty of Advanced Life Science, Hokkaido University



<https://altair.sci.hokudai.ac.jp/grad/igpoverview/>



<https://www.lfsci.hokudai.ac.jp/en/>



<https://life.sci.hokudai.ac.jp/en/tl>



<https://life.sci.hokudai.ac.jp/en/sm>



<https://life.sci.hokudai.ac.jp/en/mf>



<https://life.sci.hokudai.ac.jp/en/fr>

Hokkaido University has made enormous efforts in innovating its organizations and improving its education and research systems to support the academic activities. “**Graduate School of Life Science (GSLS)**” and “**Faculty of Advanced Life Science (FALS)**” were founded as new interdisciplinary organizations in April 2006 in order for the university to fuse outstanding scientist and staffs from many existing departments and institutes under the concept of challenging the new education and research of life science. Frontier Research Center for Advanced Material and Life Science (Former Frontier Research Center for Post-Genome Science and Technology, 2006-2015) attached to

the FALS was reformed in 2016 as a new organization which has 3 promoting units for the (i) academia-industry, (ii) international, and (iii) open-facility collaboration research. The FALS take steps both in education and research in a long-term scope including sustainable develop goals, SDGs. Faculty of Advanced Life Science takes the responsibility on directing the (A) **Department of Biological Sciences (Division of Macromolecular Functions)** at School of Science as undergraduate curriculum, (B) **Division of Life Science, Transdisciplinary Life Science Course** and (C) **Division of Soft Matter** at GSLS as graduate curriculum.



<https://life.sci.hokudai.ac.jp/en/fa/>

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University Education by Faculty of Advanced Life Science, Hokkaido University



Under graduate

Graduate school;
Master course &
Doctoral course

(A) Department of Biological Science (Macromolecular Functions), School of Science

(B) Division of Life Science (Transdisciplinary Life Science), Graduate School of Life Science

(C) Division of Soft Matter, Graduate School of Life Science

2022.9

Laboratory	Research & Related SDGs	Research Theme (poster)	Lab members	
X-Ray Structural Biology		<ul style="list-style-type: none"> Reaction mechanism of template-dependent nucleotide elongation in reverse (3'-5') direction Challenge to building a biosynthesis pathway of non-natural functional molecule 	OSE Toyoyuki, Professor	A B
Soft & Wet Matter		<ul style="list-style-type: none"> Tough and colorful hydrogels based on lamellar bilayers as reversible sacrificial bonds Tough and self-healing hydrogels from polyampholytes based on ionic bonds as reversible sacrificial bonds 	GONG Jian Ping, Professor NAKAJIMA Tasuku, Associate Professor NONOYAMA Takayuki, Associate Professor INDEI Tsutomu, Associate Professor LI Xueyu, Assistant Professor	A C
Cell Dynamics		<ul style="list-style-type: none"> 3D morphogenesis of epithelial sheets using viscoelastic substrates Acceleration of metastatic growth of cancer cells induced by substrate stiffness 	HAGA Hisashi, Professor ISHIHARA Seiichiro, Assistant Professor	A C
Advanced Chemical Biology		<ul style="list-style-type: none"> Nanosome: Targeting endocytic trafficking of cancer cells by smart nanomedicine platform High-sensitive, low background microarray analysis of glycoconjugate-protein interaction. 	NISHIMURA Shin-Ichiro, Professor HINOUE Hiroshi, Professor TAN Roger S., Assistant Professor	A B
Molecular Chemical Biology		<ul style="list-style-type: none"> Development of Chemical Biology by VCD Method Development of Lipid Chemical Biology 	MONDE Kenji, Professor TANIGUCHI Tohru, Lecturer KITAMURA Akira, Lecturer (Additional Post) MURAI Yuta, Assistant Professor SWAMY Mahadeva M. M., Assistant Professor	A B
Protein Science		<ul style="list-style-type: none"> Development of novel production technologies for protein and their application Structural and functional analysis of innate-immunity related peptides and proteins by NMR 	AIZAWA Tomoyasu, Professor	A C
Innate Immunity		<ul style="list-style-type: none"> Clarification for mechanisms of Paneth cell function in homeostasis maintenance and intestinal environment network From advanced science in intestinal environment created with "food", "intestine" and "microbiota" to preventive medicine 	AYABE Tokiyoshi, Professor NAKAMURA Kiminori, Associate Professor YOKOI Yuki, Specially Appointed Assistant Professor	A B
Biological Information Analysis Sci.		<ul style="list-style-type: none"> Elucidation of the light-energy conversion mechanism of light-absorbing proteins Novel application of light-absorbing proteins 	DEMURA Makoto, Professor KIKUKAWA Takashi, Associate Professor TSUKAMOTO Takashi, Assistant Professor	A C
Molecular Cell Dynamics		<ul style="list-style-type: none"> Elucidation for proteostasis regulation by protein aggregation and condensates Unravel novel biomolecular function using fluorescence imaging techniques 	KITAMURA Akira, Lecturer	A B
Cellular Machinery Science		<ul style="list-style-type: none"> Understanding the cell division mechanism Understanding the effects of cell division failure 	UEHARA Ryota, Associate Professor ISHIDA Sumire, Assistant Professor	A B
Mathematical Biology		<ul style="list-style-type: none"> Mathematical modeling of microbial community dynamics: understanding community assembly rules in microbial societies Quantitative data analysis of microbial community dynamics: mining community assembly rules in microbial societies 	NAKAOKA Shinji, Associate Professor YAMAGUCHI Ryo, Assistant Professor	A B
Transformational Soft Matter		<ul style="list-style-type: none"> Transformational research to create new functional materials from a basic understanding of polymer gels Deepening of Functional Hydrogels from Fundamental to Application 	KUROKAWA Takayuki, Professor	A C
Soft Matter Structure & Physics		<ul style="list-style-type: none"> Investigation of the underlying mechanism between structure and physics of soft matter 	LI Xiang, Associate Professor	A C
Embryonic and Genetic Engineering		<ul style="list-style-type: none"> Modulation of Autophagy System in Triplet Repeat Disease Creation of novel model mice using the genome editing technology 	KODA Toshiaki, Professor	A B

Cooperative organization for Graduate School of Life Science

Faculty, HU	<ul style="list-style-type: none"> RIES Prof. TAMAOKI (AB), Prof. NAKAGAKI (AC), Prof. IJIRO (AC), Faculty of Medicine Assoc. Prof. TSUDA (Prof. TANAKA Lab.) (AC) HU Hospital Lecturer ONODERA (Prof. IWASAKI Lab.) (AC)
Others	<ul style="list-style-type: none"> AIST Hokkaido Prof. Tsuda, Prof. Komatsu (B) NIMS, Tsukuba Prof. Hanagata (B), Prof. Nakanishi (C)
International	<ul style="list-style-type: none"> USA; North Carolina State University, Duke University, Iowa State University France; ESPCI*, PSL Research University, CNRS, University Pierre and Marie Curie, University Paris Diderot (*cotutelle program)