

List of Supervisors and Research Fields

As of September 1, 2025

Master's Course

Transdisciplinary Life Science Course, Division of Life Science

Fields	Supervisors		Research Topics
Bioinformation and Molecular Science	Professor Assistant Professor	OSE Toyoyuki INABA Satomi	Protein, nucleic acid, enzyme, signal transduction, infection regulation, disease related factor, X-ray/neutron structural biology, cryo-EM, NMR, quantum biology, protein crystallography, computer science, protein science, biophysics https://altair.sci.hokudai.ac.jp/g6new/
	Associate Professor Assistant Professor	UEHARA Ryota ISHIHARA Sumire	Cell division, ploidy, cytoskeleton, motor protein, self organization, cancer, aging, liver disease, microscopic analysis, biochemistry, molecular biology, cell culture, mouse model, transcriptome, mathematical modeling, compound screen https://altair.sci.hokudai.ac.jp/uehara_lab/
	Professor Assistant Professor	NAKAOKA Shinji YAMAGUCHI Ryo	mathematical biology, systems biology, bioinformatics, microbial ecology, precision medicine, multi-omics, mathematical modeling, machine learning, big data analysis https://altair.sci.hokudai.ac.jp/infmcb/index-e.html
Biomaterials Science	Professor Associate Professor Specially Appointed Associate Professor Assistant Professor	MONDE Kenji TANIGUCHI Tohru YUYAMA Kohei SWAMY Mahadeva M. M.	Chemical Biology, Chirality, Organic Synthesis, Inhibitors, Vibrational Circular Dichroism, Helix, Lipid Mediator, Glycoconjugate, Medicinal Chemistry, Organic Probe Synthesis, Deep Tissue Imaging, Extracellular vesicle https://altair.sci.hokudai.ac.jp/infchb/
	Professor Assistant Professor	FUJIWARA Koichi PADINHARE KAYAKALI Hashim	Machine Learning, Biosignal Processing, Medical Device and Medical AI Development https://life.sci.hokudai.ac.jp/en/tl/lab/biomedical-data-science

Transdisciplinary Life Science Course, Division of Life Science

Fields	Supervisors		Research Topics
Functional Cellular Science	Professor Assistant Professor Specially Appointed Assistant Professor	NAKAMURA Kiminori YOKOI Yuki OHIRA Shuya	innate immunity, antimicrobial peptide, mucosal immunity, intestinal epithelial cell, Paneth cell, alpha-defensin, stem cell, intestinal microbiota, intestinal environment, inflammatory bowel disease, lifestyle diseases, mental health, aging, cancer, allergy, food and medicine, preventive medicine, therapeutics https://altair.sci.hokudai.ac.jp/infsig/english/
	Associate Professor	KITAMURA Akira	Fluorescence Correlation Spectroscopy, Fluorescence Cross Correlation Spectroscopy, single molecule detection, neurodegenerative disease, ALS, glaucoma, molecular interaction, Live cell imaging, proteostasis, protein aggregation, C. elegans https://altair.sci.hokudai.ac.jp/infmcd/English/top_eng.html
	Associate Professor	ADACHI Hiroaki	Plant-microbe interaction, Plant pathology, Plant immunity, Pathogen infection, Immune receptor, Effector, Signaling, Genome, Genetics, Protein-protein interaction, Biochemistry, Cell biology, Molecular biology, Plant physiology, Cell development, Live cell imaging, Structural biology, Structure modeling, Gene editing https://life.sci.hokudai.ac.jp/en/fa/lab/plant-immunity
Functional and Regulatory Life Science	Professor Assistant Professor	HINOUE Hiroshi YOKOI Yasuhiro	Chemical biology, Medicinal chemistry, Glycomedicine, Automated glycosynthesis, Glycoblotting, Glycomics, Glycotyping, Glycobiology, Biomarker discovery, Dynamic epitope, Glycopeptide, Antibody drug, Glycoconjugates probe, Microarray, Glycoionization, Mass Spectrometry https://altair.sci.hokudai.ac.jp/g4/index.html
Biomolecular Adaptation Science (Inter-field Cooperation with AIST)	Visiting Professor Visiting Professor Visiting Associate Professor	KOMATSU Yasuo KONDO Hidemasa HIRANO Yu	Antifreeze protein, Ice-binding function, Snow mold fungi, Gene expression, Protein crystallography, Biodiversity, Cell-preservation peptide, 3D molecular structure, Gene detection, Nucleic acid drugs, Functional DNA/RNA, Molecular detection, Cell-function evaluation, Electrochemistry https://altair.sci.hokudai.ac.jp/g_renkei/English/index.html

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Master's Course

Biosystems Science Course, Division of Life Science

Fields	Supervisors		Research Topics
Higher Order Cellular Functions	Professor	FUJITA Tomomichi	plant, evolutionary development, stem cell, cell polarity, cell cycle, cell proliferation and differentiation, environmental stress, mechanical stress, abscisic acid, moss, space utilization science, terraforming, <i>Physcomitrium patens</i> , <i>Arabidopsis thaliana</i> https://keitai1.sci.hokudai.ac.jp/en.html/
	Associate Professor	NARAMOTO Satoshi	(1) Molecular mechanisms of polar auxin transport, (2) Evolutionary process of polar auxin transport, (3) Roles of auxin in the morphological diversification of land plants, (4) Adaptation to environmental stress, (5) Evolution of symbiosis and leaf morphology https://keitai1.sci.hokudai.ac.jp/en.html/
	Associate Professor	WATAHIKI Masaaki	auxin, feedback gene regulation, live imaging, plant morphogenesis http://www.sci.hokudai.ac.jp/watahiki/mkwhp/index.html
Environmental Life Science	Professor	NAKANO Ryohei Thomas	Plant and Microbial Molecular Ecology. Plant microbiota, plant-microbe interactions, growth-defense tradeoff. Plant and microbial molecular genetics, biochemistry, microbiota profiling, metagenomics, <i>Arabidopsis thaliana</i> , multi-omics, advanced bioinformatics. https://rtnakanolab.com/
	Assistant Professor	Tomohisa Shimasaki	
	Associate Professor	ITO Hidetaka	plants, epigenetics, transposon, environmental stress https://sgd.sci.hokudai.ac.jp/
	Associate Professor Assistant Professor	SATO Takeo TAKAGI Junpei	environmental adaptation, ubiquitin signal, nutrient metabolism, signal transduction, nutrient stress, plant immunity, proteomics https://biol.sci.hokudai.ac.jp/en/
	Professor	CHIBA Yukako	mRNA stability, stress response, arabidopsis https://chibalab.main.jp/lab/

Biosystems Science Course, Division of Life Science

Fields	Supervisors		Research Topics
Behavior and System Control	Professor Assistant Professor	OGAWA Hiroto FUKUTOMI Matasaburo	brain, neuroscience, electrophysiology, imaging, information processing, neural circuit, coding, sensorimotor integration, insect, electric fish, electrosensory system, electric communication, corollary discharge. https://ogawalab.sci.hokudai.ac.jp/English/ https://researchmap.jp/matalab?lang=en
	Professor Assistant Professor	WADA Kazuhiro TOJI Noriyuki	vocal learning, critical period, epigenetics, neural activated gene, songbird, neuroethology, genome, behaviour, DNA methylation, stuttering (http://www.wada-lab.org/)
	Professor	SOMA Masayo	behavior, cognition, communication, bird song, learning, life history http://www.lfsci.hokudai.ac.jp/search/system/soma.html
	Associate Professor	TAKEUCHI Yuichi	Laterality, Intraspecific polymorphism, Learning, Phenotypic plasticity, Neural circuits, Development of behavior, Evolution, Gene expression http://www.neuroecology-takeuchi.com/english.html
	Associate Professor Assistant Professor Assistant Professor	TANAKA Nobuaki NISHINO Hiroshi Michael Schleyer	Drosophila melanogaster, insect, cephalopod, pygmy squid, sensory processing, learning and memory, decision making, neurophysiology, neuroanatomy, genetics, optogenetics, behavioral studies, pest control, biomimetics, dopamine https://sites.google.com/view/nktanakalab https://www.es.hokudai.ac.jp/labo/nishino/research_english.html https://www.schleyerlab.com/
	Lecturer	TSUNEMATSU Tomomi	Dream, sleep, genetically engineered mice, electrophysiology, optical imaging, optogenetics and programming. https://www2.sci.hokudai.ac.jp/faculty/en/researcher/tomomi-tsunematsu

Biosystems Science Course, Division of Life Science

Fields	Supervisors		Research Topics
Reproductive and Developmental Sciences	Professor	KATSU Yoshinao	endocrinology, steroid hormone, nuclear receptor, evolution, endocrine disruptor https://www.repdev-katsu.jp/index.html
	Professor Specially Appointed Assistant Professor	KUROIWA Asato YOSHIDA Ikuya	sex determination, sex chromosome, X chromosome inactivation, evolution, the spiny rat, mouse, chicken, emu https://sites.google.com/site/kuroiwagroup/home
	Associate Professor	KITADA Kazuhiro	model animals, human diseases, genome modification, gene function, mouse, rat https://www2.sci.hokudai.ac.jp/dept/bio/teacher/kitada-kazuhiro
	Associate Professor	KOTANI Tomoya	oocyte, embryonic development, maternal factor, real-time imaging, zebrafish, mouse
	Professor Assistant Professor	KIMURA Atsushi FUJIMORI Chika	transcription, epigenetics, gene regulation, long noncoding RNA, multifunctional genome, reproduction, testis, ovary, pituitary, spermatogenesis, protease https://apkimuralab.com/
	Associate Professor	OGIWARA Katsueki	ovary, ovulation, follicle selection, endocrine regulation, mouse, zebrafish, medaka https://sites.google.com/view/hokudai-ogiwara-eng/home
	Associate Professor	MIZUSHIMA Shusei	birds, early development, fertilization, molecular biology, primordial germ cell

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List of Supervisors and Research Fields

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Master's Course

Biomedical and Pharmaceutical Science Course, Division of Life Science

Fields	Supervisors		Research Topics
Biochemistry	Professor Lecturer Assistant Professor	KIHARA Akio NAGANUMA Tatsuro JOJIMA Keisuke	lipid, barrier function, ceramide, metabolism http://www.pharm.hokudai.ac.jp/seika/index.html
RNA Biology	Professor Associate Professor Assistant Professor Assistant Professor	NAKAGAWA Shinichi MAITA Hiroshi YOKOI Saori KURIHARA Misuzu	noncoding RNA, epigenetics, nuclear structures, RNA processing https://sites.google.com/site/hokudairnabiologyj/home
Epithelial biology	Professor Assistant Professor Assistant Professor	KIMURA Shunsuke KITAI Yuichi NAKATA Kazuaki	Epithelial cells, Mucosal immunology, immunity, inflammation, infection, oncogenesis, signal transduction
Biomolecular Science	Professor Professor Associate Professor	MAENAKA Katsumi KUROKI Kimiko KITA Shunsuke	immunology, infectious disease, cell surface receptor, X-ray crystallography, cryo electron microscopy, protein engineering, biologics, drug discovery, chemical library screening, in silico screening, virology, microbiology http://convallaria.pharm.hokudai.ac.jp/bunshi/
Natural Products Chemistry	Professor Associate Professor Assistant Professor	WAKIMOTO Toshiyuki MATSUDA Kenichi YOSHIMURA Aya	bioactive natural products, isolation, structure elucidation, stereochemistry, structure-activity relationship, molecular targets, biosynthesis, drug leads, bioprobes http://www.pharm.hokudai.ac.jp/tennen/index.html
Fine Synthetic Chemistry	Professor Associate Professor Assistant Professor Assistant Professor	SATO Yoshihiro OONISHI Yoshihiro MORISAKI Kazuhiro NAKAMURA Kento	organic synthesis, organometallic chemistry, transition-metal catalysis, asymmetric catalysis, natural product synthesis, utilization of gaseous molecules, green chemistry http://hokudaigouka.main.jp/
Synthetic Natural Products Chemistry	Professor Associate Professor Assistant Professor	NAGATOMO Masanori WATANABE Mizuki SHIMAKAWA Tsukasa	total synthesis, functional analysis, biologically active natural products, synthetic chemistry, organic synthesis, organic chemistry, structure-activity relationship, ion channel, anticancer, antimicrobial, densely functionalized molecules, drug leads, computational chemistry, flow reaction, radical reaction https://www.pharm.hokudai.ac.jp/tengo_105/home-en/

Biomedical and Pharmaceutical Science Course, Division of Life Science

Fields	Supervisors		Research Topics
Molecular Catalysis	Professor Associate Professor Assistant Professor	URAGUCHI Daisuke ASANO Keisuke ZHAO Qiang	Molecular Catalysis, Organic Synthesis, Mechanistic Analysis
Pharmacology	Professor Associate Professor Associate Professor Specially Appointed Assistant Professor	MINAMI Masabumi AMANO Taiju KIMURA Iku KATAGIRI Chiaki	neuropharmacology, electrophysiology, emotion, pain, addiction, BBB http://www.pharm.hokudai.ac.jp/yakuri/index.html
Molecular Design of Pharmaceuticals	Professor Associate Professor	YAMADA Yuma SATO Yusuke	drug delivery system, organelle-targeting, nanomedicine, gene delivery, siRNA delivery, intracellular trafficking, imaging, vaccine, cancer therapy http://www.pharm.hokudai.ac.jp/yakusetu/index.html
(Innovative Nanomedicine)	Professor Specially Appointed Assistant Professor Professor Associate Professor	HARASHIMA Hideyoshi Mahmoud Abu Bakr Ahmed YOUNIS YAMADA Yuma SATO Yusuke	vascular-targeted drug delivery, nanomedicine, active targeting, tumor, liver, adipose tissue, specific ligand http://www.pharm.hokudai.ac.jp/mirai/
Molecular Imaging	Professor Associate Professor Assistant Professor Assistant Professor	OGAWA Mikako IEDA Naoya HARADA Mei GOTO Yuto	molecular imaging, imaging probe, PET, optical imaging, MRI http://www.pharm.hokudai.ac.jp/bunseki/index.html
Clinical Pharmaceuticals & Therapeutics	Professor Lecturer Assistant Professor Assistant Professor	KOBAYASHI Masaki NARUMI Katsuya OKAMOTO Keisuke UEDA Hinata	transporter, clinical research, cancer pharmacotherapy http://rinshoyakuzaigaku.pharm.hokudai.ac.jp/
Molecular and Cellular Medicine	Professor Lecturer Assistant Professor Assistant Professor	OHNISHI Shunsuke OKUBO Naoto MAEHARA Osamu TSUGE Atsushi	Mesenchymal stem cells, Cell therapy, Regenerative medicine, Kampo medicine

Biomedical and Pharmaceutical Science Course, Division of Life Science

Fields	Supervisors		Research Topics
Pharmacokinetics	Professor Associate Professor Lecturer Lecturer Assistant Professor	SUGAWARA Mitsuru TAKEKUMA Yoh KASHIWAGI Hitoshi SATO Yuki NASHIMOTO Shunsuke	pharmacokinetics, transporter, drug metabolism, pharmaceutics https://www.pharm.hokudai.ac.jp/lab_17.html
Center for Research and Education on Drug Discovery (Synthetic Drug Discovery)	Professor Lecturer Assistant Professor	ICHIKAWA Satoshi KATSUYAMA Akira YAMAMOTO Kazuki	organic synthesis, natural products, drug discovery, chemical library screening, in silico screening, intractable disease, chemical biology https://japanese-apricot.pharm.hokudai.ac.jp/gouseiyaku/index.php
Center for Research and Education on Drug Discovery (Biologics and Drug Development)	Professor Associate Professor Specially Appointed Lecturer Assistant Professor	MAENAKA Katsumi TARU Hidenori NOMURA Takao SUMI Masato	biologics, middle molecules, drug discovery, chemical library screening, cryo electron microscopy, disease models, in silico screening, intractable disease http://japanese-apricot.pharm.hokudai.ac.jp/
Genome Biology	Associate Professor	OHTA Shinya	genome, chromatin, aging, cellular senescence, cancer, human, yeast model, genomics, proteomics, microscopy, biochemistry https://www.igm.hokudai.ac.jp/3dgenome/ja/index.html
Microbial Oncology	Associate Professor	KAMIYA Naoko	<i>Helicobacter pylori</i> , <i>cagA</i> , gastric carcinogenesis
Molecular Cell Biology	Associate Professor Assistant Professor	OKAZAKI Tomohiko MORIMOTO Nao	Our research goal is to understand how cells integrate numerous external and internal signals into meaningful biological outputs by focusing on (1) post-translational modifications and logistics of proteins, or (2) inter-organelle communications. In addition, we are also studying (3) the interactions between immune and nervous systems and (4) neuroethology using <i>Drosophila</i> . Through these studies, we wish to discover the sophisticated (crazy cool) systems of living organisms for surviving in a complex world. https://www.igm.hokudai.ac.jp/molcell/en/

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As of September 1, 2025

Master's Course

Division of Soft Matter, Graduate School of Life Science

Fields	Supervisors		Research Topics
Soft Matter Materials Science	Professor Associate Professor Associate Professor	GONG Jian Ping NAKAJIMA Tasuku INDEI Tsutomu	Soft & wet matter, polymer gel, double network gel, gel more durable than metal, self-healing gel, self-growing gel, bonding gel, thermal toughening gel, low friction gel, super lubricating gel, color changing gel, Sea glue gel, artificial cartilage, cell scaffold gel (1) https://altair.sci.hokudai.ac.jp/g2/index_e.html (2) https://life.sci.hokudai.ac.jp/fa/lab/soft-matter-collaborative-research-unit
	Associate Professor	NONOYAMA Takayuki	Polymer Materials Science, Field Materials Science, Hydrogels, Elastomers, Natural Polymers, Inorganic Compounds, Composite Materials, Stimuli-Responsive Materials, Biomedical Materials, Industrial Materials, Food Texture/Properties, Development of Real-Space Observation Techniques for Polymers https://sites.google.com/elms.hokudai.ac.jp/nonoyama-lab
	Professor Assisitant Professor	KUROKAWA Takayuki YASUI Tomoki	Polymer gel, Double network gel, Friction of gel, Artificial cartilage, Cell culture substrate, Soft composite material, Adsorption and adhesion, Donnan potential https://altair.sci.hokudai.ac.jp/tsl/en/
	Professor Associate Professor	IJIRO Kuniharu MITOMO Hideyuki	Self-organization, self-assembly, functional device, biosensor, DNA, protein, biomolecule, cell, molecular recognition, drug delivery system, vaccine, gold nanoparticle, surface plasmon, stimuli- responsivity, capsule https://chem.es.hokudai.ac.jp/en/
	Professor Assistant Professor	LI Xiang YASUDA Takashi	Polymer solution, polymer gel, rubber, nanostructure, molecular dynamics, light scattering, X-ray scattering, neutron scattering, Raman spectroscopy, rheology, polymer synthesis, polymer physics https://www.xiangli-lab.com/en

Division of Soft Matter, Graduate School of Life Science

Fields	Supervisors		Research Topics
Biomolecular Soft Matter	Associate Professor Assistant Professor	KIKUKAWA Takashi TSUKAMOTO Takashi	Photoactive proteins, photobiology, rhodopsin, optogenetics, directed molecular evolution, membrane protein, ion pump, membrane transport, transporter https://altair.sci.hokudai.ac.jp/infana/
	Professor Assistant Professor	AIZAWA Tomoyasu ARAI Tatsuya	protein science, structural biology, protein engineering, nuclear magnetic resonance (NMR), metabolome, biomarker research, gut microbiota, biological defense, innate immunity, antimicrobial peptides, allergen, cytokines, microbiological control https://altair.sci.hokudai.ac.jp/g5/english.php
Soft Matter Biophysics	Professor Assistant Professor	HAGA Hisashi ISHIHARA Seiichiro	Cell Mechanics, Collective Cell Behavior, 3D Morphogenesis, Cancer Invasion, Atomic Force Microscopy https://altair.sci.hokudai.ac.jp/g3/
	Professor Associate Professor Assistant Professor	NAKAGAKI Toshiyuki NISHIGAMI Yukinori OHMURA Takuya	ciliate, amoeba, slime mold, protozoa, nematode, live cell imaging, field work, evolutionary ecology, biomechanics, locomotion, memory and learning, mathematical modeling, computer simulation, nonlinear dynamics, active soft matter, Belousov-Zhabotinski reaction, pattern formation, scaling theory, network of biochemical reactions https://pel.es.hokudai.ac.jp/
Soft Matter Medical Science	Associate Professor	TSUDA Masumi	biomaterial, cancer stem cell, molecular targeted therapy, regenerative medicine, cartilage regeneration, neuroregeneration http://patho2.med.hokudai.ac.jp
	Associate Professor	ONODERA Tomohiro	Orthopaedic Surgery, Joint Surgery, Regenerative Medicine, Musculoskeletal System, Animal Model, Scaffold, Cartilage, Bone, Meniscus, Biomaterials, Soft Matter, Clinical Application, Translational Research http://www.hokudaiseikei.jp/

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