

## List of Supervisors and Research Fields

Master's Course

### Transdisciplinary Life Science Course, Division of Life Science

Fields	Supervisors		Research Topics
Bioinformation and Molecular Science	Associate Professor	OSE Toyoyuki	Protein, nucleic acid, translational control, signal transduction, infection regulation, disease related factor, X-ray/neutron structural biology, quantum biology, protein crystallography, computer science, protein science, biophysics <a href="https://altair.sci.hokudai.ac.jp/g6/index-e.html">https://altair.sci.hokudai.ac.jp/g6/index-e.html</a>
	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 <a href="https://tenure-track.cris.hokudai.ac.jp/lab/uehara/">https://tenure-track.cris.hokudai.ac.jp/lab/uehara/</a>
	Associate 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 <a href="https://altair.sci.hokudai.ac.jp/infmc/b/index-e.html">https://altair.sci.hokudai.ac.jp/infmc/b/index-e.html</a>
Biomaterials Science	Professor Lecturer Assistant Professor	MONDE Kenji TANIGUCHI Tohru MURAI Yuta	Chemical Biology, Chirality, Organic Synthesis, Inhibitors, Vibrational Circular Dichroism, Helix, Lipid Mediator, Glycoconjugate, Medicinal Chemistry <a href="https://altair.sci.hokudai.ac.jp/infchb/">https://altair.sci.hokudai.ac.jp/infchb/</a>
	Professor Associate Professor Assistant Professor	TAMAOKI Nobuyuki Yuna Kim MATSUO Kazuya	molecular machine, motor protein, photochromic compound, azobenzene, liquid crystal, self-organization, inter-molecular interaction, organic synthesis, nano bio-machine, single molecular measurement, chirality <a href="http://tamaoki.es.hokudai.ac.jp/english/index.html">http://tamaoki.es.hokudai.ac.jp/english/index.html</a>
Functional Cellular Science	Associate Professor Specially Appointed Assistant Professor	NAKAMURA Kiminori YOKOI Yuki	innate immunity, antimicrobial peptide, mucosal immunity, intestinal epithelial cell, Paneth cell, alpha-defensin, stem cell, intestinal microbiota, intestinal environment, inflammatory bowel disease, lifestyle diseases, food and medicine, preventive medicine, therapeutics <a href="https://altair.sci.hokudai.ac.jp/infsig/english/">https://altair.sci.hokudai.ac.jp/infsig/english/</a>
	Lecturer	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 <a href="https://altair.sci.hokudai.ac.jp/infmcd/English/top_eng.html">https://altair.sci.hokudai.ac.jp/infmcd/English/top_eng.html</a>

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Functional and Regulatory Life Science	Professor Professor	NISHIMURA Shin-Ichiro HINOUE Hiroshi	Chemical biology, Medicinal chemistry, Glycomedicine, Automated glycosynthesis, Glycomics, Glycobiology, Biomarker discovery, Dynamic epitope, Glycopeptide, Antibody drug, Glycoconjugates probe, Microarray <a href="https://altair.sci.hokudai.ac.jp/g4/index.html">https://altair.sci.hokudai.ac.jp/g4/index.html</a>
Biomolecular Adaptation Science (Inter-field Cooperation with AIST)	Visiting Professor Visiting Associate Professor Visiting Associate Professor	KOMATSU Yasuo KONDO Hidemasa HIRANO Yu	Antifreeze protein, Ice-binding function, Snow mold fungi, Gene expression, Biomolecular NMR, X-ray structural analysis, Biodiversity, Cell-preservation peptide, Reporter Assay, 3D molecular structure, Gene detection, Nucleic acid drugs, Functional DNA/RNA, Molecular detection, Cell-function evaluation, Electrochemistry <a href="https://altair.sci.hokudai.ac.jp/g_renkei/top_e.html">https://altair.sci.hokudai.ac.jp/g_renkei/top_e.html</a> <a href="https://unit.aist.go.jp/bpri/bpri-bimo/research1.html">https://unit.aist.go.jp/bpri/bpri-bimo/research1.html</a>

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### Biosystems Science Course, Division of Life Science

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Higher Order Cellular Functions	Professor Assistant Professor	TANAKA Kazuma KISHIMOTO Takuma	cell polarity, phospholipid asymmetry, membrane traffic, flippase, yeast <a href="http://www.igm.hokudai.ac.jp/molint/index.html">http://www.igm.hokudai.ac.jp/molint/index.html</a>
	Professor Assistant Professor	FUJITA Tomomichi NARAMOTO Satoshi	plant, evolutionary development, stem cell, cell polarity, cell cycle, cell proliferation and differentiation, environmental stress, abscisic acid, moss, space utilization science, <i>Physcomitrella patens</i> , <i>Marchantia polymorpha</i> , <i>Arabidopsis thaliana</i> <a href="https://www.sci.hokudai.ac.jp/PlantSUGOIne_en/">https://www.sci.hokudai.ac.jp/PlantSUGOIne_en/</a>
	Associate Professor	WATAHIKI Masaaki	auxin, feedback gene regulation, live imaging, plant morphogenesis <a href="http://www.sci.hokudai.ac.jp/watahiki/mkwhp/index.html">http://www.sci.hokudai.ac.jp/watahiki/mkwhp/index.html</a>
Environmental Life Science	Associate Professor	ITO Hidetaka	plants, epigenetics, transposon, environmental stress <a href="https://www.sci.hokudai.ac.jp/Cellfunction_Structure3/">https://www.sci.hokudai.ac.jp/Cellfunction_Structure3/</a>
	Associate Professor Assiatant Professor	SATO Takeo TAKAGI Junpei	environmental adaptation, ubiquitin signal, nutrient metabolism, signal transduction, nutrient stress, plant immunity, proteomics <a href="http://www.sci.hokudai.ac.jp/CSF2-web/en">http://www.sci.hokudai.ac.jp/CSF2-web/en</a>
	Associate Professor	CHIBA Yukako	mRNA stability, stress response, arabidopsis <a href="https://www.sci.hokudai.ac.jp/~yukako/">https://www.sci.hokudai.ac.jp/~yukako/</a>

## Biosystems Science Course, Division of Life Science

Fields	Supervisors		Research Topics
Behavior and System Control	Professor	OGAWA Hiroto	brain, neuroscience, electrophysiology, imaging, information processing, neural circuit, coding, sensorimotor integration, insect <a href="https://www.sci.hokudai.ac.jp/~hogawa/English/">https://www.sci.hokudai.ac.jp/~hogawa/English/</a>
	Associate Professor	WADA Kazuhiro	<Kazuhiro Wada> vocal learning, critical period, epigenetics, neural activated gene, songbird, neuroethology, genome, behaviour, DNA methylation, stuttering ( <a href="http://www.wada-lab.org/">http://www.wada-lab.org/</a> )
	Assistant Professor	Nina Patzke	<Nina Patzke> Comparative neuroanatomy, encephalization, large brains of whales and cetaceans, cognitive hypothesis, thermogenesis hypothesis ( <a href="https://patzkelab.org/author/ninapatzkegmxde/">https://patzkelab.org/author/ninapatzkegmxde/</a> )
	Associate Professor	SOMA Masayo	behavior, cognition, communication, bird song, learning, life history <a href="http://www.lfsci.hokudai.ac.jp/search/system/soma.html">http://www.lfsci.hokudai.ac.jp/search/system/soma.html</a>
Reproductive and Developmental Sciences	Associate Professor	TANAKA Nobuaki	sensory processing, neuroendocrine system, Drosophila genetics, pygmy squid <a href="https://www.sci.hokudai.ac.jp/grp/tanaka/lab/index.html">https://www.sci.hokudai.ac.jp/grp/tanaka/lab/index.html</a>
	Assistant Professor	NISHINO Hiroshi	
	Professor	KATSU Yoshinao	endocrinology, steroid hormone, nuclear receptor, evolution, endocrine disruptor <a href="https://www.repdev-katsu.jp/index.html">https://www.repdev-katsu.jp/index.html</a>
	Professor	KUROIWA Asato	sex determination, sex chromosome, X chromosome inactivation, fertilization, evolution, the spiny rat, chicken, quail, mouse <a href="https://sites.google.com/site/kuroiwagroup/home">https://sites.google.com/site/kuroiwagroup/home</a>
	Assistant Professor	YOSHIDA Ikuya	
	Assistant Professor	MIZUSHIMA Shusei	
Associate Professor	KITADA Kazuhiro	model animals, human diseases, genome modification, gene function, mouse, rat <a href="https://sites.google.com/site/kitadalab/">https://sites.google.com/site/kitadalab/</a>	
Associate Professor	KOTANI Tomoya	oocyte, embryonic development, maternal factor, real-time imaging, zebrafish, mouse	
Associate Professor	KIMURA Atsushi	transcription, epigenetics, gene regulation, long noncoding RNA, multifunctional genome, reproduction, spermatogenesis, protease <a href="https://www.sci.hokudai.ac.jp/~akimura/Molecular/Welcome.APK.html">https://www.sci.hokudai.ac.jp/~akimura/Molecular/Welcome.APK.html</a>	
Associate Professor	OGIWARA Katsueki	ovary, ovulation, follicle selection, endocrine regulation, mouse, zebrafish, medaka <a href="https://www.sci.hokudai.ac.jp/~kogi/Reproductive2/Welcome.html">https://www.sci.hokudai.ac.jp/~kogi/Reproductive2/Welcome.html</a>	

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## Biomedical and Pharmaceutical Science Course, Division of Life Science

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Biochemistry	Professor Associate Professor Assistant Professor KIHARA Akio SASSA Takayuki OHNO Yusuke	lipid, membrane, biochemistry, metabolism, lipid mediator, barrier formation <a href="http://www.pharm.hokudai.ac.jp/seika/index.html">http://www.pharm.hokudai.ac.jp/seika/index.html</a>
RNA Biology	Professor Lecturer Assistant Professor Assistant Professor NAKAGAWA Shinichi MAITA Hiroshi YOKOI Saori KURIHARA Misuzu	noncoding RNA, epigenetics, nuclear structures, RNA processing <a href="https://sites.google.com/site/hokudairnabiologyj/home">https://sites.google.com/site/hokudairnabiologyj/home</a>
Immunology	Professor Lecturer Lecturer Assistant Professor MATSUDA Tadashi MUROMOTO Ryuta KASHIWAKURA Junichi KITAI Yuichi	host defense, immunity, inflammation, infection, cytokine, oncogenesis, signal transduction <a href="http://www.pharm.hokudai.ac.jp/eisei/">http://www.pharm.hokudai.ac.jp/eisei/</a>
Biomolecular Science	Professor Associate Professor Assistant Professor MAENAKA Katsumi KUROKI Kimiko FURUKAWA Atsushi	immunology, infectious disease, cell surface receptor, X-ray crystallography, protein engineering, biologics, drug discovery, chemical library screening, in silico screening, virology, microbiology <a href="http://convallaria.pharm.hokudai.ac.jp/bunshi/">http://convallaria.pharm.hokudai.ac.jp/bunshi/</a>
Natural Products Chemistry	Professor Assistant Professor Assistant Professor Assistant Professor Assistant Professor WAKIMOTO Toshiyuki MATSUDA Kenichi YOSHIMURA Aya URIA Agustinus	bioactive natural products, isolation, structure elucidation, stereochemistry, structure-activity relationship, molecular targets, biosynthesis, drug leads, bioprobes <a href="http://www.pharm.hokudai.ac.jp/tennen/index.html">http://www.pharm.hokudai.ac.jp/tennen/index.html</a>
Fine Synthetic Chemistry	Professor Associate Professor Assistant Professor SATO Yoshihiro OONISHI Yoshihiro MORISAKI Kazuhiro	organic synthesis, organometallic chemistry, transition-metal catalysis, asymmetric catalysis, natural product synthesis, utilization of gaseous molecules, green chemistry <a href="http://gouka.pharm.hokudai.ac.jp/">http://gouka.pharm.hokudai.ac.jp/</a>
Synthetic and Industrial Chemistry	Professor Lecturer Assistant Professor MATSUNAGA Shigeki YOSHINO Tatsuhiko KOJIMA Masahiro	synthetic organic chemistry, asymmetric catalysis, bimetallic cooperative catalysis, natural product synthesis, oligosaccharide synthesis based on new glycosidation method <a href="http://www.pharm.hokudai.ac.jp/yakuzou/">http://www.pharm.hokudai.ac.jp/yakuzou/</a>
Organic Chemistry for Drug Development	Professor Lecturer Assistant Professor SHUTO Satoshi WATANABE Mizuki FUJIWARA Koichi	medicinal chemistry: drug design <a href="http://www.pharm.hokudai.ac.jp/yuuki/index.html">http://www.pharm.hokudai.ac.jp/yuuki/index.html</a>

## Biomedical and Pharmaceutical Science Course, Division of Life Science

Fields	Supervisors		Research Topics
Molecular Catalysis	Professor	URAGUCHI Daisuke	Molecular Catalysis, Organic Synthesis, Mechanistic Analysis
Pharmacology	Professor Lecturer	MINAMI Masabumi AMANO Taiju	neuropharmacology, electrophysiology, emotion, pain, addiction, BBB <a href="http://www.pharm.hokudai.ac.jp/yakuri/index.html">http://www.pharm.hokudai.ac.jp/yakuri/index.html</a>
Molecular Design of Pharmaceutics	Professor Associate Professor Assistant Professor Assistant Professor	HARASHIMA Hideyoshi YAMADA Yuma NAKAMURA Takashi SATO Yusuke	drug delivery system, organelle-targeting, nanomedicine, gene delivery, siRNA delivery, intracellular trafficking, imaging, vaccine, cancer therapy <a href="http://www.pharm.hokudai.ac.jp/yakusetu/index.html">http://www.pharm.hokudai.ac.jp/yakusetu/index.html</a>
(Innovative Nanomedicine)	Professor Associate Professor Assistant Professor Assistant Professor	HARASHIMA Hideyoshi YAMADA Yuma NAKAMURA Takashi SATO Yusuke	vascular-targeted drug delivery, nanomedicine, active targeting, tumor, liver, adipose tissue, specific ligand <a href="http://www.pharm.hokudai.ac.jp/mirai/">http://www.pharm.hokudai.ac.jp/mirai/</a>
Molecular Imaging	Professor Lecturer Assistant Professor	OGAWA Mikako TAKAKURA Hideo NAKAJIMA Kohei	molecular imaging, imaging probe, PET, optical imaging, MRI <a href="http://www.pharm.hokudai.ac.jp/bunseki/index.html">http://www.pharm.hokudai.ac.jp/bunseki/index.html</a>
Clinical Pharmaceutics & Therapeutics	Professor Assistant Professor Assistant Professor	KOBAYASHI Masaki NARUMI Katsuya FURUGEN Ayako	transporter, clinical research, cancer pharmacotherapy <a href="http://rinshoyakuzaigaku.pharm.hokudai.ac.jp/">http://rinshoyakuzaigaku.pharm.hokudai.ac.jp/</a>

## Biomedical and Pharmaceutical Science Course, Division of Life Science

Fields	Supervisors	Research Topics	
Molecular and Cellular Medicine	Professor Assistant Professor Professor Assistant Professor	OHNISHI Shunsuke  OKUBO Naoto MAEHARA Osamu	Mesenchymal stem cells, Cell therapy, Regenerative medicine, Kampo medicine
Pharmacokinetics	Professor Associate Professor Lecturer Lecturer Assistant Professor Assistant Professor	SUGAWARA Mitsuru  TAKEKUMA Yoh  KASHIWAGI Hitoshi SATO Yuki  IMAI Syungo  KATO Izumi	pharmacokinetics, transporter, drug metabolism, pharmaceuticals <a href="http://www.pharm.hokudai.ac.jp/doutai/index.html">http://www.pharm.hokudai.ac.jp/doutai/index.html</a>
Advanced Prevention and Research Laboratory for Dementia	Specially Appointed Professor Visiting Professor Associate Professor Visiting Associate Professor Specially Appointed Assistant Professor	SUZUKI Toshiharu  KOMANO Hiroto  TARU Hidenori  HATA Saori  Yuriko Sobu	neuroscience, cell biology, genetics, synapse, protein trafficking, vesicular trafficking neurodegenerative diseases, Alzheimer's disease, biomarker
Center for Research and Education on Drug Discovery (Synthetic Drug Discovery)	Professor Lecturer Assistant Professor	ICHIKAWA Satoshi  YAKUSHIJI Fumika  KATSUYAMA Akira	organic synthesis, natural products, drug discovery, chemical library screening, in silico screening, intractable disease, chemical biology <a href="https://japanese-apricot.pharm.hokudai.ac.jp/gouseiyaku/index.php">https://japanese-apricot.pharm.hokudai.ac.jp/gouseiyaku/index.php</a>
Center for Research and Education on Drug Discovery (Biologics and Drug Development)	Professor Associate Professor Specially Appointed Associate Professor Assistant Professor Specially Appointed Assistant Professor Specially Appointed Assistant Professor Specially Appointed Assistant Professor	MAENAKA Katsumi  FUKUHARA Hideo  MAEDA Naoyoshi  SUMI Masato  NOMURA Takao  KITA Syunsuke  TADOKORO Takashi	biologics, drug discovery, chemical library screening, in silico screening, intractable disease <a href="http://japanese-apricot.pharm.hokudai.ac.jp/">http://japanese-apricot.pharm.hokudai.ac.jp/</a>

## Biomedical and Pharmaceutical Science Course, Division of Life Science

Fields	Supervisors		Research Topics
Genome Biology	Associate Professor	OHTA Shinya	genome, chromatin, aging, cellular senescence, cancer, human, yeast model, genomics, proteomics, microscopy, biochemistry <a href="https://www.igm.hokudai.ac.jp/3dgenome/ja/index.html">https://www.igm.hokudai.ac.jp/3dgenome/ja/index.html</a>
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. <a href="https://www.igm.hokudai.ac.jp/molcell/en/">https://www.igm.hokudai.ac.jp/molcell/en/</a>

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### Division of Soft Matter, Graduate School of Life Science

Fields	Supervisors		Research Topics
Soft Matter Materials Science	Professor  Associate Professor Associate Professor Associate Professor	GONG Jian Ping  NAKAJIMA Tasuku NONOYAMA Takayuki 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) <a href="https://altair.sci.hokudai.ac.jp/g2/index_e.html">https://altair.sci.hokudai.ac.jp/g2/index_e.html</a> (2) <a href="https://life.sci.hokudai.ac.jp/fa/lab/soft-matter-collaborative-research-unit">https://life.sci.hokudai.ac.jp/fa/lab/soft-matter-collaborative-research-unit</a>
	Professor  Assistant Professor	KUROKAWA Takayuki  Daniel R King	Polymer gel, Double network gel, Friction of gel, Artificial cartilage, Cell culture substrate, Soft composite material, Adsorption and adhesion, Donnan potential <a href="https://altair.sci.hokudai.ac.jp/tsl/">https://altair.sci.hokudai.ac.jp/tsl/</a>
	Professor  Associate Professor  Assistant Professor	IJIRO Kuniharu  MITOMO Hideyuki  YONAMINE Yusuke	Self-organization, self-assembly, functional device, biosensor, DNA, protein, biomolecule, cell, molecular recognition, drug delivery system, vaccine, gold nanoparticle, surface plasmon, stimuli- responsivity, capsule <a href="https://chem.es.hokudai.ac.jp/en/">https://chem.es.hokudai.ac.jp/en/</a>
Biomolecular Soft Matter	Professor  Associate Professor  Assistant Professor	DEMURA Makoto  KIKUKAWA Takashi  TSUKAMOTO Takashi	photoactive proteins, photobiology, rhodopsin, membrane protein, ion pump, membrane transport, transporter, NMR, biomimicry <a href="https://altair.sci.hokudai.ac.jp/infana/">https://altair.sci.hokudai.ac.jp/infana/</a>
	Professor	AIZAWA Tomoyasu	protein science, structural biology, protein engineering, NMR, metabolome, biomarker research, biological defense, innate immunity, antimicrobial peptides, allergen, cytokines, microbiological control <a href="https://altair.sci.hokudai.ac.jp/g5/">https://altair.sci.hokudai.ac.jp/g5/</a>

## Division of Soft Matter, Graduate School of Life Science

Fields	Supervisors		Research Topics
Soft Matter Biophysics	Professor Assistant Professor	HAGA Hisashi ISHIHARA Seiichiro	Cell Mechanics, Collective Cell Behavior, 3D Morphogenesis, Cancer Invasion, Atomic Force Microscopy <a href="https://altair.sci.hokudai.ac.jp/g3/">https://altair.sci.hokudai.ac.jp/g3/</a>
	Professor Associate Professor Assistant Professor	NAKAGAKI Toshiyuki SATO Katsuhiko NISHIGAMI Yukinori	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 <a href="http://pel.es.hokudai.ac.jp/index-en.html">http://pel.es.hokudai.ac.jp/index-en.html</a>
Soft Matter Medical Science	Associate Professor	TSUDA Masumi	biomaterial, cancer stem cell, molecular targeted therapy, regenerative medicine, cartilage regeneration, neuroregeneration <a href="http://patho2.med.hokudai.ac.jp">http://patho2.med.hokudai.ac.jp</a>
	Lecturer	ONODERA Tomohiro	Orthopaedic Surgery, Joint Surgery, Regenerative Medicine, Musculoskeletal System, Animal Model, Scaffold, Cartilage, Bone, Meniscus, Biomaterials, Soft Matter, Clinical Application, Translational Research <a href="http://www.hokudaiseikei.jp/">http://www.hokudaiseikei.jp/</a>

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