

## List of Supervisors and Research Fields

Master's Course

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

Laboratory	Supervisors		Research Topics
Bioinformation and Molecular Science	Associate Professor Specially Appointed Assistant Professor	OSE Toyoyuki  Jian Yu	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	UEHARA Ryota	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/infmcb/index-e.html">https://altair.sci.hokudai.ac.jp/infmcb/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	Professor Associate Professor	AYABE Tokiyoshi  NAKAMURA Kiminori	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, ALS, molecular interaction, Live cell imaging, FCS, FCCS, 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>

## Transdisciplinary Life Science Course, Division of Life Science

Laboratory	Supervisors		Research Topics
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 Professor  Visiting Associate Professor Visiting Associate Professor	TSUDA Sakae 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/research_kakusan.html">https://unit.aist.go.jp/bpri/bpri-bimo/research_kakusan.html</a>

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### Biosystems Science Course, Division of Life Science

Laboratory	Supervisors		Research Topics
Higher Order Cellular Functions	Professor Assistant Professor Assistant Professor	TANAKA Kazuma  MIOKA Tetsuo 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 Assistant Professor	FUJITA Tomomichi  NARAMOTO Satoshi Ooikock Teh	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>
	Professor	IGUCHI-ARIGA M. M. Sanae	protooncogene, mutagen, oxidative stress, cancer, neurodegenerative disease, cellular and molecular biology, proliferation, transformation, apoptosis <a href="http://www.agr.hokudai.ac.jp/emolb/index.html">http://www.agr.hokudai.ac.jp/emolb/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	SATO Takeo	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>
	Associate Professor Assistant Professor Assistant Professor	TANAKA Ryouichi  ITO Hisashi TAKABAYASHI Atsushi	photosynthesis, chlorophyll, cyanobacteria, algae, higher plants, arabidopsis, plant molecular biology, plant biochemistry <a href="http://www.lowtem.hokudai.ac.jp/plantadapt/ayumi/">http://www.lowtem.hokudai.ac.jp/plantadapt/ayumi/</a>

## Biosystems Science Course, Division of Life Science

Laboratory	Supervisors		Research Topics
Behavior and System Control	Professor Assistant Professor	MIZUNAMI Makoto NISHINO Hiroshi	learning, olfaction, memory, insect, microbrain, neuroethology, physiology, genetics, pest control <a href="https://www.sci.hokudai.ac.jp/~mizunami/MICROB~2/">https://www.sci.hokudai.ac.jp/~mizunami/MICROB~2/</a> <a href="http://www.es.hokudai.ac.jp/labo/nishino/">http://www.es.hokudai.ac.jp/labo/nishino/</a>
	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 Assistant Professor	WADA Kazuhiro Nina Patzke	<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> ) <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>
	Associate Professor	AONUMA Hitoshi	Synthetic neuroethology, neurobiology, electrophysiology, biomechanics, robotics inspired biology, neurogenetics, neuromodulation, social behavior, aggression, ultra fast movement, insect <a href="http://ncmac2.es.hokudai.ac.jp/index.html">http://ncmac2.es.hokudai.ac.jp/index.html</a>
	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>

## Biosystems Science Course, Division of Life Science

Laboratory	Supervisors		Research Topics
Reproductive and Developmental Sciences	Professor	KATSU Yoshinao	endocrinology, steroid hormone, nuclear receptor, thermoreceptor, evolution, endocrine disruptor <a href="https://www.repdev-katsu.jp/index.html">https://www.repdev-katsu.jp/index.html</a>
	Professor Assistant Professor Assistant Professor	KUROIWA Asato YOSHIDA Ikuya MIZUSHIMA Shusei	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>
	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, dual promoter-enhancer, 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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# List of Supervisors and Research Fields

Master's Course

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

Fields	Supervisors	Research Topics
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 ※Fall selection will not be conducted.	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>
Neuroscience ※Fall selection will not be conducted.	Specially Appointed Professor Associate Professor Visiting Associate Professor SUZUKI Toshiharu TARU Hidenori HATA Saori	neuroscience, cell biology, genetics, synapse, aging, protein trafficking, synaptopathy, neurodegenerative diseases <a href="http://www.pharm.hokudai.ac.jp/shinkei/index.html">http://www.pharm.hokudai.ac.jp/shinkei/index.html</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 ※Fall selection will not be conducted.	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 DOI Ryohei	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>

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

Fields	Supervisors		Research Topics
Synthetic and Industrial Chemistry ※Fall selection will not be conducted.	Professor Lecturer Assistant Professor	MATSUNAGA Shigeaki 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/youki/index.html">http://www.pharm.hokudai.ac.jp/youki/index.html</a>
Pharmacology ※Fall selection will not be conducted.	Professor Lecturer Lecturer Assistant Professor	MINAMI Masabumi AMANO Taiju NOMURA Hiroshi HITORA Natsuko	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 ※Fall selection will not be conducted.	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) ※Fall selection will not be conducted.	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 ※Fall selection will not be conducted.	Professor Lecturer Assistant Professor	OGAWA Mikako TAKAKURA Hideo SUZUKI Motofumi	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 ※Fall selection will not be conducted.	Associate 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
Pharmacokinetics ※Fall selection will not be conducted.	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, pharmaceutics <a href="http://www.pharm.hokudai.ac.jp/doutai/index.html">http://www.pharm.hokudai.ac.jp/doutai/index.html</a>
Center for Research and Education on Drug Discovery (Synthetic Drug Discovery) ※Fall selection will not be conducted.	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) ※Fall selection will not be conducted.	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>

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Master's Course

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

Laboratory	Supervisors		Research Topics
Soft Matter Materials Science	Professor Professor	Jian Ping Gong KUROKAWA Takayuki	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 <a href="https://altair.sci.hokudai.ac.jp/g2/index_e.html">https://altair.sci.hokudai.ac.jp/g2/index_e.html</a>
	Associate Professor Specially Appointed Associate Professor Assistant Professor	NAKAJIMA Tasuku NONOYAMA Takayuki Daniel R King	
Soft Matter Materials Science	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>
	Professor Lecturer 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>
Biomolecular Soft Matter	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>
	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>
Soft Matter Biophysics	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>

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

Laboratory	Supervisors		Research Topics
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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