

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	Professor Associate Professor Specially Appointed Assistant Professor	Min Yao Toyoyuki Ose Jian Yu	structural biology, protein crystallography, protein science, biophysics, nucleic acid, translation, pathogenic bacteria, SBDD http://altair.sci.hokudai.ac.jp/g6/
	Associate Professor	Ryota Uehara	cell division, cytoskeleton, motor proteins, mitotic spindle, contractile ring, self-organization, phenotypic plasticity, live cell imaging, cell manipulation http://tenure-track.cris.hokudai.ac.jp/lab/uehara/
	Specially Appointed Lecturer	Shinji Nakaoka	mathematical biology, systems biology, bioinformatics, microbial ecology, precision medicine, multi-omics, mathematical modeling, machine learning, big data analysis http://altair.sci.hokudai.ac.jp/infmcb/
Biomaterials Science	Professor Assistant Professor Assistant Professor	Kenji Monde Tohru Taniguchi Yuta Murai	chemical biology, chirality, vibrational circular dichroism, bio organic chemistry, organic synthesis, chiroptical spectroscopy http://altair.sci.hokudai.ac.jp/infchb/
	Professor Assistant Professor Assistant Professor Assistant Professor	Nobuyuki Tamaoki Yuna Kim Kazuya Matsuo Yoshimitsu Sagara	motor protein, synthetic molecular machine, organic synthesis, photochemistry, smart molecules, molecular assembly, light energy, nano machine http://tamaoki.es.hokudai.ac.jp/
Functional Cellular Science	Professor Associate Professor	Tokiyoshi Ayabe Kiminori Nakamura	mucosal immunity, innate immunity, Paneth cell, antimicrobial peptide, α -defensin, dysbiosis, microbiota, ulcerative colitis, Crohn's disease, lifestyle disease http://altair.sci.hokudai.ac.jp/infsig/
	Professor Assistant Professor	Masataka Kinjo Akira Kitamura	fluorescence correlation spectroscopy, cell biology, live cell imaging, biophysics, protein aggregation, protein misfolding, nuclear receptor, wavefront control http://altair.sci.hokudai.ac.jp/infmcd/

Transdisciplinary Life Science Course, Division of Life Science

Laboratory	Supervisors		Research Topics
Functional and Regulatory Life Science	Professor Associate Professor Assistant Professor	Shin-Ichiro Nishimura Hiroshi Hinou Fayna Maria Garcia Martin	drug discovery, biopharmaceuticals, antibody, glycoconjugates, glycomics, biomarkers, chemical biology http://altair.sci.hokudai.ac.jp/g4/
	Professor	Toshiaki Koda	disease model mice, poly-glutamine disease, Huntington's disease, embryonic engineering http://altair.sci.hokudai.ac.jp/infemb/index.html
Biomolecular Adaptation Science (Inter-field Cooperation with AIST)	Visiting Professor Visiting Professor Visiting Associate Professor Visiting Associate Professor	Sakae Tsuda Yasuo Komatsu Hidemasa Kondo Yu Hirano	antifreeze protein, gene expression analysis, protein structure, oligonucleotide, functional RNA, oligonucleotide therapeutics http://altair.sci.hokudai.ac.jp/g_renkei/top.html https://unit.aist.go.jp/bpri/bpri-bimo/research_kakusan.html

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List of Supervisors and Research Fields

Master's Course

Biosystems Science Course, Division of Life Science

Laboratory	Supervisors		Research Topics
Higher Order Cellular Functions	Professor Assistant Professor Assistant Professor	Kazuma Tanaka Tetsuo Mioka Takuma Kishimoto	cell polarity, phospholipid asymmetry, membrane traffic, flippase, yeast http://www.igm.hokudai.ac.jp/molint/index.html
	Professor Assistant Professor	Tomomichi Fujita Ooikock Teh	plant, evolutionary development, stem cell, cell polarity, cell cycle, cell proliferation and differentiation, environmental stress, abscisic acid, moss, space utilization science http://www.sci.hokudai.ac.jp/PlantSUGOIne/
	Associate Professor	Masaaki Watahiki	auxin, feedback gene regulation, live imaging, plant morphogenesis http://www.sci.hokudai.ac.jp/watahiki/mkwhp/index.html
	Professor	Sanae M. M. Iguchi-Ariga	protooncogene, mutagen, oxidative stress, cancer, neurodegenerative disease, cellular and molecular biology, proliferation, transformation, apoptosis http://www.agr.hokudai.ac.jp/emolb/index.html
Environmental Life Science	Professor Assistant Professor	Atsushi Kato Hidetaka Ito	gene expression, genome evolution, non-coding RNAs, retrotransposon, heat stress, epigenetic effects, plants, arabidopsis http://www.sci.hokudai.ac.jp/grp/keitai/sci.hokudai/KeitaiIII_mail.htm
	Professor Assistant Professor	Junji Yamaguchi Takeo Sato	environmental adaptation, ubiquitin-proteasome system, nutrient metabolism, signal transduction, nutrient stress, plant immunity, proteomics http://www.sci.hokudai.ac.jp/CSF2-web/
	Associate Professor	Yukako Chiba	mRNA stability, stress response, arabidopsis https://www.sci.hokudai.ac.jp/~yukako/
	Professor	Satoshi Naito	<i>Arabidopsis thaliana</i> , translation arrest, mRNA degradation, methionine biosynthesis http://www.agr.hokudai.ac.jp/arabi/
	Associate Professor Assistant Professor Assistant Professor	Ryouichi Tanaka Hisashi Ito Atsushi Takabayashi	photosynthesis, chlorophyll, cyanobacteria, algae, higher plants, arabidopsis, plant molecular biology, plant biochemistry http://www.lowtem.hokudai.ac.jp/plantadapt/ayumi/

Biosystems Science Course, Division of Life Science

Laboratory	Supervisors		Research Topics
Animal Behavior and System Control	Professor Assistant Professor	Toshiya Matsushima Nina Patzke	neuro-economics and foraging theory, impulsiveness and risk sensitivity, birds, imprinting (Toshiya Matsushima); comparative neuroanatomy, encephalization, large brains of whales and cetaceans, cognitive hypothesis, thermogenesis hypothesis (Nina Patzke) http://www.sci.hokudai.ac.jp/~matusima/chinou3/Welcome.html
	Professor Assistant Professor	Makoto Mizunami Hiroshi Nishino	learning, olfaction, memory, insect, microbrain, neuroethology, physiology, genetics, pest control https://www.sci.hokudai.ac.jp/~mizunami/MICROB-2/ http://www.es.hokudai.ac.jp/labo/nishino/
	Professor	Hiroto Ogawa	brain, neuroscience, electrophysiology, imaging, information processing, neural circuit, coding, sensorimotor integration, insect https://www.sci.hokudai.ac.jp/~hogawa/index2.html
	Associate Professor	Kazuhiro Wada	vocal learning, critical period, epigenetics, neural activated gene, songbird, neuroethology, genome, behaviour, DNA methylation, stuttering http://www.wada-lab.org/
	Associate Professor	Masayo Soma	behavior, cognition, communication, bird song, learning, life history http://www.lfsci.hokudai.ac.jp/search/system/soma.html
	Associate Professor	Hitoshi Aonuma	Synthetic neuroethology, neurobiology, electrophysiology, biomechanics, robotics inspired biology, neurogenetics, neuromodulation, social behavior, aggression, ultra fast movement, insect http://ncmac2.es.hokudai.ac.jp/index.html
	Associate Professor	Nobuaki Tanaka	sensory processing, neuroendocrine system, Drosophila genetics, pygmy squid https://www.sci.hokudai.ac.jp/grp/tanaka/lab/index.html

Biosystems Science Course, Division of Life Science

Laboratory	Supervisors		Research Topics
Reproductive and Developmental Sciences	Professor	Masakane Yamashita	oocyte maturation, spermatogenesis, meiosis, translational control, transgenic fish https://www.sci.hokudai.ac.jp/~myama/index_e.html
	Professor	Yoshinao Katsu	endocrinology, steroid hormone, nuclear receptor, thermoreceptor, evolution, endocrine disruptor https://www.repdev-katsu.jp/index.html
	Professor Assistant Professor Assistant Professor	Asato Kuroiwa Shusei Mizushima Ikuya Yoshida	sex determination, sex chromosome, X chromosome inactivation, fertilization, evolution, the spiny rat, chicken, quail, mouse https://sites.google.com/site/kuroiwagroup/home
	Associate Professor	Kazuhiro Kitada	model animals, human diseases, genome modification, gene function, mouse, rat https://sites.google.com/site/kitadalab/
	Associate Professor	Tomoya Kotani	oocyte, embryonic development, maternal factor, real-time imaging, zebrafish, mouse
	Associate Professor	Atsushi Kimura	transcription, epigenetics, gene regulation, long noncoding RNA, dual promoter-enhancer, reproduction, spermatogenesis, protease https://www.sci.hokudai.ac.jp/~akimura/Molecular/Welcome.APK.html
	Associate Professor	Katsueki Ogiwara	ovary, ovulation, follicle selection, endocrine regulation, mouse, zebrafish, medaka https://www.sci.hokudai.ac.jp/~kogi/Reproductive2/Welcome.html

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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
Biomolecular Science	Professor Associate Professor Assistant Professor	Katsumi Maenaka Kimiko Kuroki Atsushi Furukawa	immunology, infectious disease, cell surface receptor, X-ray crystallography, protein engineering, biologics, drug discovery, chemical library screening, in silico screening, virology, microbiology http://convallaria.pharm.hokudai.ac.jp/bunshi/
Fine Synthetic Chemistry	Professor Associate Professor Assistant Professor Assistant Professor	Yoshihiro Sato Yoshihiro Oonishi Tsuyoshi Mita Ryohei Doi	organic synthesis, organometallic chemistry, transition-metal catalysis, asymmetric catalysis, natural product synthesis, utilization of gaseous molecules, green chemistry http://gouka.pharm.hokudai.ac.jp/
Pharmacology	Professor Lecturer Lecturer Assistant Professor	Masabumi Minami Taiju Amano Hiroshi Nomura Natsuko Hitora	neuropharmacology, electrophysiology, emotion, pain, addiction, BBB http://www.pharm.hokudai.ac.jp/yakuri/index.html
Molecular Design of Pharmaceutics	Professor Associate Professor Assistant Professor Assistant Professor	Hideyoshi Harashima Yuma Yamada Takashi Nakamura Yusuke Sato	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	Hideyoshi Harashima Ikramy Abdel Raheem Khalil Ibraheem	vascular-targeted drug delivery, nanomedicine, active targeting, tumor, liver, adipose tissue, specific ligand http://www.pharm.hokudai.ac.jp/mirai/

Biomedical and Pharmaceutical Science Course, Division of Life Science

Fields	Supervisors		Research Topics
Pathophysiology & Therapeutics	Professor Lecturer Specially Appointed Assistant Professor	Hiroshi Takeda Kouji Nakagawa Naoto Okubo	inflammatory bowel disease, MIF, hypoxia, ghrelin, anorexia http://www.pharm.hokudai.ac.jp/byoutai/index.html
Center for Research and Education on Drug Discovery (Synthetic Drug Discovery)	Professor Lecturer Assistant Professor	Satoshi Ichikawa Fumika Yakushiji Akira Katsuyama	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 Specially Appointed Associate Professor Assistant Professor Specially Appointed Assistant Professor Specially Appointed Assistant Professor Specially Appointed Assistant Professor Specially Appointed Assistant Professor	Katsumi Maenaka Naoyoshi Maeda Masato Sumi Takao Nomura Hideo Fukuhara Syunsuke Kita Takashi Tadokoro	biologics, drug discovery, chemical library screening, in silico screening, intractable disease http://japanese-apricot.pharm.hokudai.ac.jp/

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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 Assistant Professor Assistant Professor Specially Appointed Assistant Professor	Jian Ping Gong Takayuki Kurokawa Tasuku Nakajima Daniel R King Takayuki Nonoyama	design and creation of high strength/high toughness gels and elastomers, elucidation of dynamics and fracture mechanism of soft matter, creation of low friction gels, clarification of friction and lubrication mechanism of gels, creation of high-toughness soft composite materials and clarification of fracture mechanism, gel mechanochemistry, biomineralization and soft ceramics, biomaterials and artificial cartilages URL: http://altair.sci.hokudai.ac.jp/g2/index_e.html
	Professor Associate Professor Assistant Professor	Kuniharu Ijiro Hideyuki Mitomo Yusuke Yonamine	development of DNA-based nanodevices, creation of biotemplated nanoarchitecture for bioapplications, controlled self-assembly of metal nanoparticles for photonics applications, dynamic structure control using soft matters such as hydrogel URL: https://chem.es.hokudai.ac.jp/en/
Biomolecular Soft Matter	Professor Lecturer Assistant Professor	Makoto Demura Takashi Kikukawa Takashi Tsukamoto	Peptides, proteins, membrane proteins, functional analysis, NMR, photobiology, rhodopsin, photoactive proteins, biomimicry, biomaterials, soft matters, bioinformatics, ion transport, membrane transporters URL: http://altair.sci.hokudai.ac.jp/infana/
	Associate Professor	Tomoyasu Aizawa	protein engineering, structural biology, protein, peptide, NMR metabolomics URL: http://altair.sci.hokudai.ac.jp/g5/
Soft Matter Biophysics	Professor Assistant Professor	Hisashi Haga Seiichiro Ishihara	collective cell migration, 3D morphogenesis, cancer invasion, collagen gel, matrigel, anisotropic gel, molecular cell biology, mechanobiology, biomechanics, polymer physics URL: http://altair.sci.hokudai.ac.jp/g3/
	Professor Associate Professor	Toshiyuki Nakagaki Katsuhiko Sato	soft matter physics, active soft mater, cell movement, biomechanics, ethology, behavioral intelligence, contractile protein, rheology, amoeboid movement, ciliary motion, nematoda, peristaltic locomotion, development, morphogenesis, transport network, model simulation, mathematical modeling, slime mold, ciliate, flagellate URL: http://pel.es.hokudai.ac.jp/

Division of Soft Matter, Graduate School of Life Science

Laboratory	Supervisors		Research Topics
Soft Matter Medical Science	Associate Professor	Masumi Tsuda	biomaterial, artificial cartilage, cancer stem cell, molecular targeted therapy, regenerative medicine, neuroregeneration URL: http://patho2.med.hokudai.ac.jp
	Lecturer	Tomohiro Onodera	Orthopaedic Surgery, Tissue Engineering, Cartilage Biology, Glycobiology, Clinical application, Alginate Gel, Human Clinical Trial. URL: http://www.hokudaiseikei.jp/

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