

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 Assistant Professor	Min Yao Toyoyuki Ose Koji Kato	structural biology, protein crystallography, protein science, biophysics, nucleic acid, translation, pathogenic bacteria, SBDD http://altair.sci.hokudai.ac.jp/g6/
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	Kazushige Kawabata	cell mechanics, mechanosensing, collective cell migration, cancer invasion, anisotropic gel, self-organization, diffusion, polymer physics, biomechanics http://altair.sci.hokudai.ac.jp/g3/ http://altair.sci.hokudai.ac.jp/g1/
	Professor Associate Professor Specially Appointed Assistant Professor	Tokiyoshi Ayabe Kiminori Nakamura Naoya Sakuragi	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 Specially Appointed Assistant Professor	Masataka Kinjo Akira Kitamura Johtaro Yamamoto	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
Functional and Regulatory Life Science	Specially Appointed Assistant 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/
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

List of Supervisors and Research Fields

Master's Course

Biosystems Science Course, Division of Life Science

Laboratory	Supervisors		Research Topics
Functional Genome 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
	Associate Professor	Kazuhiro Kitada	model animals, human diseases, genome modification, gene function, mouse, rat https://sites.google.com/site/kitadalab/
	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
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

Biosystems Science Course, Division of Life Science

Laboratory	Supervisors		Research Topics
Environmental Life Science	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/
	Associate Professor	Yasuhiro Takada	psychophilic bacteria, cold-adapted enzymes, enzyme activity at low temperatures, cold-induced gene expression, regulation of gene expression http://www.sci.hokudai.ac.jp/~ytaka/takada.html
	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/
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 http://www.sci.hokudai.ac.jp/~hogawa/index.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/

Biosystems Science Course, Division of Life Science

Laboratory	Supervisors		Research Topics
Animal Behavior and System Control	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, neurorobotics, roboticbiology, neurogenetics, neuromodulation, social behavior, aggression, insect http://ncmac2.es.hokudai.ac.jp/index.html
	Associate Professor	Nobuaki Tanaka	sensory processing, neuroendocrine system, Drosophila genetics, pygmy squid http://www.cris.hokudai.ac.jp/tanaka/Lab/index.html
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 http://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	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

List of Supervisors and Research Fields

Master's Course

Biomedical and Pharmaceutical Science Course, Division of Life Science

Fields	Supervisors		Research Topics
Biochemistry ※Fall selection will not be conducted.	Professor Associate Professor Assistant Professor	Akio Kihara Takayuki Sassa Yusuke Ohno	lipid, membrane, biochemistry, metabolism, lipid mediator, barrier formation http://www.pharm.hokudai.ac.jp/seika/index.html
RNA Biology ※Fall selection will not be conducted.	Professor Lecturer Assistant Professor	Shinichi Nakagawa Hiroshi Maita Saori Yokoi	noncoding RNA, epigenetics, nuclear structures, RNA processing http://www.pharm.hokudai.ac.jp/RNAbio/index.html
Neuroscience	Professor Associate Professor Assistant Professor Assistant Professor	Toshiharu Suzuki Hidenori Taru Saori Hata Tadashi Nakaya	cell biology, alzheimer's disease, synapse formation, vesicular trafficking by kinesin motor, alcadein, X11L, app, als, gene expression. http://www.pharm.hokudai.ac.jp/shinkei/index.html
Immunology ※Fall selection will not be conducted.	Professor Lecturer Lecturer Assistant Professor	Tadashi Matsuda Ryuta Muromoto Junichi Kashiwakura Yuichi Kitai	host defense, immunity, inflammation, infection, cytokine, oncogenesis, signal transduction http://www.pharm.hokudai.ac.jp/eisei/index.html
Biomolecular Science	Professor Assistant 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/
Natural Products Chemistry	Professor Lecturer Assistant Professor	Toshiyuki Wakimoto Takefumi Kuranaga Kenichi Matsuda	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	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/
Synthetic and Industrial Chemistry ※Fall selection will not be conducted.	Professor Assistant Professor	Shigeki Matsunaga Tatsuhiko Yoshino	synthetic organic chemistry, asymmetric catalysis, bimetallic cooperative catalysis, natural product synthesis, oligosaccharide synthesis based on new glycosidation method http://www.pharm.hokudai.ac.jp/yakuzou/

Biomedical and Pharmaceutical Science Course, Division of Life Science

Fields	Supervisors		Research Topics
Organic Chemistry for Drug Development ※Fall selection will not be conducted.	Professor Lecturer Assistant Professor	Satoshi Shuto Mizuki Watanabe Hayato Fukuda	medicinal chemistry: drug design http://www.pharm.hokudai.ac.jp/yuuki/index.html
Catalysis in Organic Synthesis	Professor Associate Professor	Tamotsu Takahashi Zhiyi Song	organometal, catalytic reaction, selective reaction, organic material, asymmetric synthesis http://www.cat.hokudai.ac.jp/takahashi/
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 Kouji 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 Specially Appointed Assistant Professor	Hideyoshi Harashima Yu Sakurai 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/
Molecular Imaging	Professor Lecturer	Mikako Ogawa Hideo Takakura	molecular imaging, imaging probe, PET, optical imaging, MRI http://www.pharm.hokudai.ac.jp/bunseki/index.html
Clinical Pharmaceutics & Therapeutics ※Fall selection will not be conducted.	Professor Associate Professor Assistant Professor Assistant Professor	Ken Iseki Masaki Kobayashi Katsuya Narumi Ayako Furugen	transporter, clinical research, cancer pharmacotherapy, infection control http://rinshoyakuzaigaku.pharm.hokudai.ac.jp/

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/org/byoutai01.html
Pharmacokinetics ※Fall selection will not be conducted.	Professor Associate Professor Assistant Professor Assistant Professor	Mitsuru Sugawara Yoh Takekuma Masato Sumi Yuki Sato	pharmacokinetics, transporter, drug metabolism, pharmaceuticals http://www.pharm.hokudai.ac.jp/lab_17.html
Center for Research and Education on Drug Discovery (Synthetic Drug Discovery) ※Fall selection will not be conducted.	Professor Lecturer Specially Appointed Assistant Professor	Satoshi Ichikawa Fumika Yakushiji Takanori Matsumaru	organic synthesis, natural products, drug discovery, chemical library screening, in silico screening, intractable disease http://japanese-apricot.pharm.hokudai.ac.jp/gouseiyaku/
Center for Research and Education on Drug Discovery (Biologics and Drug Development)	Professor Specially Appointed 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 Akira Matsuda Naoyoshi Maeda Izumi Kato 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/

List of Supervisors and Research Fields

Master's Course

Division of Soft Matter, Graduate School of Life Science

Supervisors		Research Topics
Professor	Jian Ping Gong	Our laboratory deals with soft matter "gel". In addition to soft and large deformation, we aim to create polymer gels with superior functions as like living body, especially mechanical function, elucidate the principle of its function expression, and apply gel to biological substitute soft tissues such as cartilage. We also aim to extend the results of these gel studies to other soft matter materials and apply them to industrial materials. Typical research topics are 1) design and creation of high strength · high toughness gels and elastomers, 2) elucidation of dynamics and fracture mechanism of soft matter, 3) creation of low friction gels, clarification of friction and lubrication mechanism of gels, 4) creation of high-toughness soft composite materials and clarification of fracture mechanism, 4) gel mechanochemistry, 5) biomineralization and soft ceramics, 6) biomaterials and artificial cartilages. URL: http://altair.sci.hokudai.ac.jp/g2/index_e.html
Professor	Takayuki Kurokawa	
Assistant Professor	Tasuku Nakajima	
Assistant Professor	Daniel R King	
Specially Appointed Assistant Professor	Takayuki Nonoyama	
Professor	Makoto Demura	Biodesign of protein function and its structural basis to soft materials. - Innovative approach to biomimicry, biodesign and bio-inspired materials based on fundamental sciences. - NMR metabolomics, protein science, structural biology, antimicrobial peptide, genetic engineering. - Molecular mechanism of light-harvesting proteins and its application to active soft matter. URL: http://altair.sci.hokudai.ac.jp/infana/
Lecturer	Takashi Kikukawa	
Assistant Professor	Takashi Tsukamoto	
Associate Professor	Tomoyasu Aizawa	protein engineering, structural biology, protein, peptide, NMR metabolomics URL: http://altair.sci.hokudai.ac.jp/g5/
Professor	Hisashi Haga	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/
Assistant Professor	Kazuya Furusawa	
Professor	Toshiyuki Nakagaki	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/
Associate Professor	Katsuhiko Sato	
Assistant Professor	Shigeru Kuroda	
Professor	Kuniharu Ijiri	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: http://chem.es.hokudai.ac.jp/en/
Associate Professor	Hideyuki Mitomo	

Division of Soft Matter, Graduate School of Life Science

Supervisors		Research Topics
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, Arginate Gel, Human Clinical Trial. URL: http://www.hokudaiseikei.jp/