Blazing a Path for the Future of Medicine
Bringing Together and
Educating World-Class Minds

Message from the Dean

Hideyuki Okano, MD, PhD
Dean, Graduate School of Medicine

The value of a university lies in its ability to produce new ideas, and through scholarship create things that are of value to society. The top-level researchers in the Keio University Graduate School of Medicine pursue advanced research across a wide range of fields including the biological sciences, basic medical science, clinical medicine, and social medicine. Research conducted with an enthusiasm for science has not only scientific value, but it can lead to remarkable advances in drug discovery; and when conducted with clinical specimens it can provide the seeds for new scientific discoveries, breakthroughs in thinking, and improved methods for the diagnosis, treatment, and prevention of disease. Advancing the biological understanding of humans through clinical studies and other research is the fundamental characteristic of the Graduate School of Medicine. In parallel, the importance of social medicine is also on the rise, as public policy is increasingly informed by the analysis of big data from fields such as molecular epidemiology and public health.

Dr. Shibasaburo Kitasato, the first dean of Keio University School of Medicine, sought to achieve a greater coordination between basic and clinical sciences that would unite the school as one family. The close connection between basic science and clinical medicine is a major reason why Keio remains one of Japan's most prominent institutions of learning. The Graduate School of Medicine continuously promotes cooperative research between the life sciences, basic medical science, clinical medicine, and social medicine in order to educate students who can actively contribute to the world. Furthermore, it continues to invest in new research facilities and equipment while increasing the number of courses conducted in English, fostering an interdisciplinary education and research system, pursuing links with renowned domestic and overseas research institutions, and forging research ties between academia and industry. The number of students who publish their degree theses in respected international journals is increasing, and many students pursue international study abroad opportunities. We hope these students will go on to tackle some of the world's most challenging medical problems.

Keio is leading the vanguard of the future of medicine, and we hope more motivated individuals will consider joining us to take on this challenge together.

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HISTORY OF KEIO MEDICINE

In 1917, world-renowned microbiologist Dr. Shibasaburo Kitasato was appointed as the first dean of the School of Medicine. The young Kitasato had dedicated his career to making medicine more accessible to the public, founding his own institute of medicine with the help of Keio founder Yukichi Fukuzawa.
Established in 1956, the Graduate School of Medicine has continued to vigorously pursue its ideal of educating medical scientists and clinical researchers who will help define future international standards in an environment that unites basic science and clinical medicine.

Yukichi Fukuzawa
Keio University Founder
1835 - 1901

Yukichi Fukuzawa
Keio University Founder
1835 - 1901

From Bench to Bedside
Medical Researchers With a Bright Future

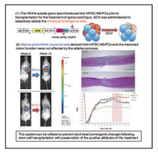
Special Messages

At Keio University Graduate School of Medicine, students are conducting internationally recognized exceptional research, and many students have received awards for their work. Students from all over the world are also joining the ranks at Keio and are contributing to successes in medical research.

Kota Kojima

(2018 Graduate)

After Graduation: **Instructor**
Department of Orthopedic Surgery, School of Medicine, Keio University



The transplantation of human iPS cell-derived neural stem / progenitor cells (hiPSC-NS/PCs) has been proven effective in treating spinal cord injuries, but it is understood that some cell lines may form tumors and show diminished motor function. It is necessary to minimize this risk of tumorigenesis when considering future clinical applications of this method. I thought that we might be able to prevent tumorigenesis by preemptively inserting what are called suicide genes into transplanted cells, which I have made the focus of my research. This suicide gene (HSV-TK) was inserted into iPSC-NS/PCs confirmed to be at high risk of tumorigenicity, which were then transplanted into mice with spinal cord injuries. The suicide gene activated six weeks later, and we succeeded in selectively removing undifferentiated cells that are at high risk of tumorigenicity without impairing motor function. It has been suggested that this system could be a key to decrease risk and ensure safe clinical application.

Message to Prospective Students
I think a lot of people hesitate to go on to graduate school because they may not have experience doing basic research. My spinal regeneration laboratory conducts joint research with orthopedics and physiology labs, so I've been able to learn everything from basic knowledge and technical skills to how to prepare presentations and research papers, all in an environment that is truly interdisciplinary. From basic to clinical research, there are experts in a range of fields who can help you choose a research topic that is right for you. I encourage anyone who has even the slightest interest in research to consider coming to work with us.

PhD Degree Thesis:
"Selective Ablation of Tumorigenic Cells Following Human Induced Pluripotent Stem Cell-Derived Neural Stem/Progenitor Cell Transplantation in Spinal Cord Injury." Stem Cells Translational Medicine. 2019 Mar; 8(3): 260-270.

Akisa Nemoto

(2018 Graduate)

After Graduation: **PhD Program, Keio University Graduate School of Medicine**

Parkinson's disease (PD), which mainly affects motor function, is the second most common neurodegenerative disorder after Alzheimer's disease. In our physiology lab, we create and analyze disease models for disorders, including PD, using the common marmoset, a small primate. I have established an induced Neuron (iN) technique in which we use a direct induction method to acquire neurons from fibroblasts obtained from marmoset skin. When we applied this method to a PD model, we found accelerated degeneration of neurites when compared with wild-type PD and were able to confirm the pathology of phosphorylated alpha synuclein found in PD patients. With this kind of in vitro analysis, we are able to not only confirm pathology non-invasively but we also hope that our research will lead to personalized predictive modeling that can identify at-risk individuals before the onset of disease.

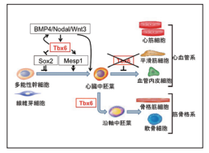
Message to Prospective Students
The Graduate School of Medicine brings together students from diverse backgrounds, and there is always something new to discover through daily discussions during class and in the lab. Personally I have been able to broaden my knowledge base in fields beyond medicine through interdisciplinary electives and integrated research across disciplines. Shinanomachi Campus is home to the latest medical findings and innovations, a place where we constantly strive to push research one step forward. I'm eager to work together with like-minded peers who are just as committed to their research as we are here at Keio.

Master's Degree Thesis:
In vitro analysis and direct induction of nerve cells using fibroblasts derived from marmoset models of Parkinson's disease

Taketaro Sadahiro

(2018 Graduate)

After Graduation: **Clinical Lecturer, Cardiology Department, University of Tsukuba Hospital**



Cardiomyocytes derived from pluripotent stem cells are essential for cardiac regenerative medicine. A common method for deriving these cardiomyocytes is to use multiple humoral factors (cytokines) to induce cardiac mesoderm and myocardial differentiation. However, this method has three issues: 1) the induction process is complicated; 2) induction efficiency is unstable; and 3) the liquid factor currently used is expensive. Through direct reprogramming-based screening, we discovered a gene, Tbx6, that directly induces cardiac mesodermal cells from fibroblasts, and found that introducing Tbx6 into pluripotent stem cells such as mouse ES cells and human iPS cells can induce cardiac mesodermal cells without having to use humoral factors. By adjusting the expression period of Tbx6, we also found that we can induce skeletal muscle and chondrocytes that differentiate from mesoderm, showing that Tbx6 is an important factor controlling not only cardiac, but whole mesodermal differentiation from pluripotent stem cells.

Message to Prospective Students
If I could I could go back in time, I would tell my younger self how lucky I am to have done my graduate research at Keio University. Can clinicians do basic research? Can they make new discoveries? Exploring the unknown can cause anxiety, but it also comes with great anticipation and expectation. And I have many friends and colleagues here who are building world-class research projects from the ground up.

During life's long journey, there is only so much time that can be spent totally immersed in research to the point of forgetting to eat or sleep. I hope that the four years that current graduate students spend here will be something they treasure for the rest of their lives.

PhD Degree Thesis:
Tbx6 Induces Nascent Mesoderm from Pluripotent Stem Cells and Temporally Controls Cardiac versus Somite Lineage Diversification.

郭 又嘉

(2018 Graduate)

After Graduation: **PhD Program, Keio University Graduate School of Medicine**

MuERV-L is a mouse transposable element whose activity peaks in totipotent 2-cell stage embryos and in a minority population of mouse embryonic stem cells. During the master course I had been working on immunopurifing MuERV-L-associated complexes and analyze them by liquid chroma-tography mass spectrometry. I confirmed the major transposible element protein L1ORF1p to be a MuERV-L-associated protein that interacts with MuERV-L in an RNA independent manner, and propose a hypothetical role of MuERV-L that sequesters untimely expressed factors to protect totipotent cells from differentiation.

Message to Prospective Students
Life in Keio University School of Medicine has been a wonderful experience for me. Perspective students would expect sound scientific literacy and extensive alumni networking once enrolled, secured with prolific scholarship options.
As Japan's top-notch medical school, Keio University School of Medicine is the perfect institute for graduate students who seek a biomedical career in the future.

Master's Degree Thesis:
Role of Murine Endogenous Retrovirus L in Preimplantation Embryos

Graduate School of Medicine

Admission Capacity

Master's Program (2-year) : 20 Students

http://www.med.keio.ac.jp/en/admissions/wasters/

PhD Program (4-year) : 80 Students

http://www.med.keio.ac.jp/en/admissions/doctoral/

Admission Policy

The Graduate School welcomes the following students who possess abundant knowledge and research ability without regard to nationality:

Highly motivated students who desire to become world-class researchers in medicine and medical science

- Students who can comfortably read, comprehend, and critique English journal articles in the life sciences and medical fields
- Students who possess abundant basic knowledge of the medical and life sciences

Curriculum Policy

● Master's Program

The Master's Program is open to applicants with a background outside of medicine, and aims to train high-quality specialists and researchers in a variety of fields related to medicine. During the first year, students take lectures in basic medicine and conduct research in preparation for their master's thesis. The curriculum is designed to imbue the student with the ability to acquire a deep understanding of the fields of medical science and medical care most relevant to their chosen occupation goals; both in their current state and future outlook.

● PhD Program (Medical Science Specialty)

The curriculum is designed in accordance with the principles of practical learning. Accordingly, all required courses are taught in English in order to equip students for careers in the international arena. Students can attend seminars that are hosted regularly by the Keio Medical Society, which consist of lectures, presentations, and discussions held in English with leading researchers from Japan and abroad. PhD students develop internationally-minded, practical research skills. Students can also conduct research for their degree at leading partner institutes in Japan.

● PhD Program (Applied Medicine Specialty)

This specialty comprises two unique sub-specialties in clinical oncology and clinical research. In each, students participate in lectures, write reports, and gain practical research experience in a wide range of domains.

Diploma Policy

● Master's Program

In the Master's Program, the student must submit a master's degree thesis and undergo a review. In the fall of the second year, a presentation assembly is held in order for students to present their research progress and receive advice and instruction from experts other than their supervisor.

● PhD Program

In the PhD Program, a progress audit is held in the third year; and after submitting a doctoral thesis (in English) of which the candidate is the first author (published article or a collection comprising multiple theses), a final assessment is held that is open to all Keio-affiliated personnel. Students who demonstrate exceptional research achievements can apply for their degree during their third year.

Curriculum and Eligibility

● Master's Program (2-year) [Admission Capacity: 20 Students]
Training Researchers and Specialists for Success in a Variety of Fields Related to Medicine

The Graduate School of Medicine Master's Program strongly emphasizes:

1) -Acquiring the basic knowledge and abilities necessary for growth and success in the student's chosen medicine-related field as a specialist or researcher.
2) -Adequately equipping the student to have a nuanced understanding of the current state of his or her medicine-related field as well as its future outlook.
3) -Being intimately familiar with all aspects of illness including ramifications on patients, families, and medical caregivers.

The program is designed for students of the natural sciences or humanities/social sciences. It seeks to imbue students with deep knowledge of medicine gained through direct study and research in Keio's hospital and research labs in order to become successful professionals or to continue on to the PhD Program.

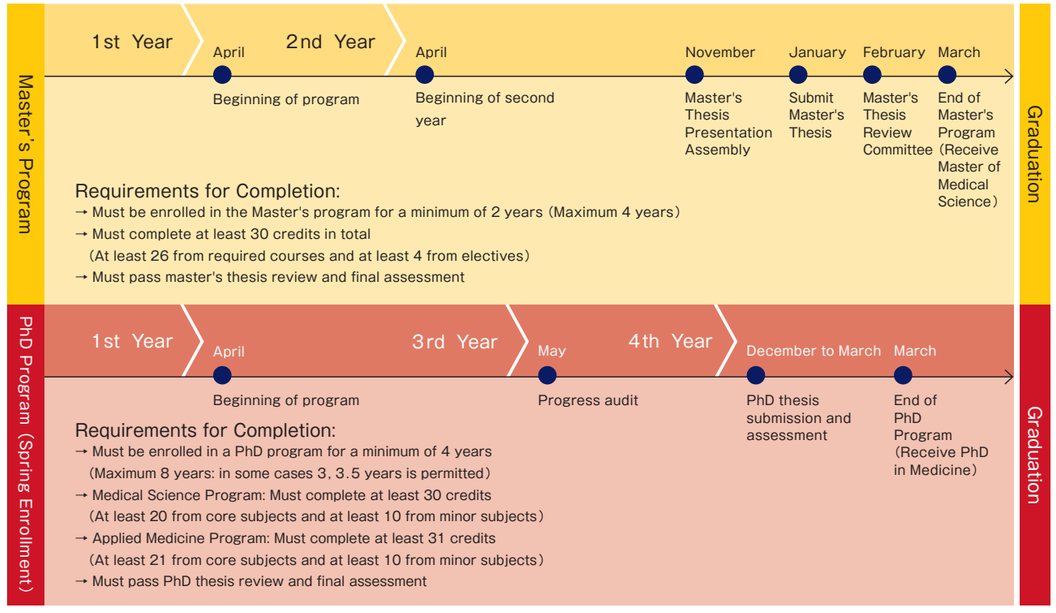
● PhD Program (4-year) [Admission Capacity: 80 Students]
Training Creative, Independent Researchers in a Wide Range of Fields

This program is designed for graduates of a 6-year medical, dentistry, veterinary, or pharmacy school; as well as graduates of a master's degree program. The goal of the Medical Science Specialty is to train students to conduct creative research in the fields of basic medical science and clinical medicine, as well as research into the mechanisms of diseases and the development of new therapeutic approaches. The Applied Medicine Specialty is designed mainly for practicing physicians and other medical professionals. Its aim is to guide students in using their clinical knowledge and analytical skills to plan and conduct comprehensive clinical trials and interdisciplinary research especially in the fields of oncology and cardiology.
The program seeks to advance cooperative research with outside research institutions and organizations; and seeks to encourage high-quality, fruitful research through the uninhibited interaction between doctoral students and other researchers at Keio, as well as with researchers from industry. Students can also experience first hand the process of acquiring patents and creating intellectual property in this collaborative environment.

Research Facilities

Excellent medical research relies as much on human effort and ingenuity as it does on state-of-the-art facilities and equipment. The Keio University Graduate School of Medicine provides access to both, with cutting-edge facilities that include Shinanomachi Campus' Collaborative Research Resources, Laboratory Animal Center, RI Center, and Kitasato Memorial Medical Library. The Kitasato Memorial Medical Library boasts a rich collection of books and access to over 11,000 medical e-journals. The Laboratory Animal Center cares for and works with mice and other animals. Collaborative Research Resources provides microarray analysis equipment, next-generation sequencers, cell sorters, laser scanning microscopes, super-resolution microscopes, 3D X-ray microscopes, histological analysis equipment, electron microscopes, and more for a total of over 200 types of analysis equipment necessary for all manner of life sciences research, including omics, imaging, and disease modeling. With a simple registration process, all researchers—including students at the master's and doctoral levels—can use these facilities and receive technical support in a first-rate research environment.

Degree Granting Process



Cancer Professional Development Program

The Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) has organized the Human Resource Development Plan for Cancer from 2007 to 2011, and the Promotion Plan for the Platform of Human Resource Development for Cancer from 2012 to 2016. Under the support of these programs, Keio has offered various courses in order to develop high-quality cancer care specialists. From 2017, Keio will offer the following programs in order to develop leaders in cancer care who can advance cutting-edge cancer team treatment anywhere in the world. In 2017, we have started new Cancer Professional training plan with government support for training various cancer professionals who can take care of cancer patients with medically and socially different backgrounds.

Outline of the Cancer Professional Curriculum in the Graduate School of Medicine

● Master's Program

Cancer Rehabilitation Therapist / Researcher Course

This Master's Program course focuses on those who have attained a professional qualification in physical therapy, occupational therapy, or speech-language-hearing therapy. In addition to required courses, students study rehabilitation medicine and cancer rehabilitation. Students are also trained as rehabilitation specialists focusing on prevention and treatment methods for various functional disorders that arise in cancer patients. Students acquire practical clinical and research abilities, thereby enabling them to participate in interdisciplinary cancer teams and lead the future of cancer rehabilitation.

Cancer Professional (Master's) Program Outline (Ex.)

1st Year	Spring Semester	In addition to required courses, additional credits are taken in Cancer Professional (PhD) Program courses
	Autumn Semester	Choose and begin research under the supervision of the student's supervising professor Clinical training in Keio University Hospital
2nd Year	Whole Year	Clinical training and research in Keio University Hospital Training at an advanced cancer treatment partner institution (if desired)

● PhD Program (Applied Medicine Specialty)

[Clinical Oncology Track] Refining students clinical expertise and knowledge through training in planning optimal treatment strategies for cancer patients as a leader of an oncology team

Medical clinal oncology specialist course / Surgical oncology specialist course / Radiation oncology specialist course / Palliative care specialist course / Rehabilitation specialist course / Medical physicist course

[Clinical Research Track] Advancing translational research from basic research to clinical applications

Cancer translational research course

While designing and conducting clinical research under the guidance of their supervising professor, students also take courses in a range of topics from cancer diagnosis to treatment, as well as in fundamental topics in cancer medicine. In addition, students rotate in multiple hospital departments (including chemotherapy, molecular targeted therapy, radiation oncology, minimally-invasive surgery, palliative care, and rehabilitation medicine) and experience actual treatment practices and procedures in order to acquire interdisciplinary treatment knowledge. After four years, students are prepared to become high-level specialists who are capable of leading cutting-edge advancements in cancer care.

Cancer Professional (PhD) Program Outline (Ex.)

1st Year	Choose and begin research under the supervision of the student's supervising professor Take courses in basic cancer biology and a range of clinical cancer medicine
2nd Year	Clinical department rotations (Plan and carry out rotations in departments of your choosing for 11 months) By rotating through various departments, students are able to experience actual treatment procedures in areas such as chemotherapy, molecular targeted therapy, radiation therapy, minimally-invasive surgery, palliative care, and rehabilitation
3rd Year	Clinical training and research in Keio University Hospital Training at an advanced cancer treatment partner institution (if desired)
4th Year	Apply for PhD degree

Clinical Research Professional Program

The Applied Medicine specialty course trains students to become professionals in designing and conducting clinical and epidemiological research focused on humans. Generally this program is suitable for those with the following research interests:

1. **Clinical studies and epidemiological research in the field of clinical medicine**
2. **Medical technology research in all fields of medicine**
3. **Epidemiological research in the field of preventive medicine**

To conduct high-quality clinical research, nursing staff and pharmacists, not only the physician, are crucial. Furthermore, a research coordinator, data manager, biostatistician, and others from a range of fields are all essential. Accordingly, this program is open to talented individuals from various fields, not only trained physicians. This program requires a certain level of experience and clinical expertise, so please consult with your desired supervising professor before the application period opens. Students can enter either the Medical Science or the Applied Medicine speciality, conduct research as outlined above, and attain the degree of PhD in Medicine. Please discuss this with your desired supervising professor.

Shinanomachi Campus: A Global Medical Hub

Opening its Doors to the World

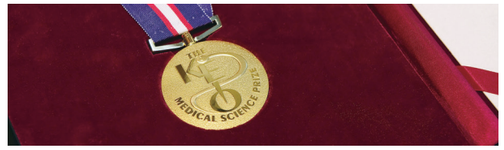
In the PhD Program, courses are conducted in English providing a truly international and practical learning environment that does not draw a distinction between Japanese students and international students. During the 2018 fall semester, a distance learning lecture series focused on ageing and longevity was jointly held by Cologne University (Germany), Keio University Graduate School of Medicine, and Keio University School of Economics. The theme of the 2018 lecture series was "Current issues of ageing and longevity in Japan and Germany - from medical and socio economic perspectives." PhD students are also strongly encouraged to study abroad and participate in overseas academic conferences in order to gain the skills necessary to succeed in the international arena.

In seminars hosted regularly by the Keio Medical Society and various departments, students can learn from leading researchers from Japan and abroad about the latest advances in medical research. At Keio, such international connections are considered essential for research.

In 2014 Keio University was selected to join the Japanese government's Top Global University Project as one of Japan's top universities providing a world-class level of research and education. The Keio University Global Research Institute (KGRI) was established in November 2016 to facilitate the further globalization of Keio in its standing as an international research university. At KGRI, Keio is integrating its efforts through three transdisciplinary research and education initiatives focusing on longevity, security, and creativity in order to confront the numerous challenges facing modern society. Through collaboration in research and education as well as exchanges of faculty centered around these three conceptual clusters, Keio seeks to deepen ties with other leading universities across the world while advancing truly cutting-edge, interdisciplinary research. The Graduate School of Medicine is taking a leading role in the longevity cluster, and has welcomed Guest Professors (Global) from strategic partner universities around the world to teach seminars and serve as advisors for graduate students.

Since the 1996, the Keio University Medical Science Fund has awarded The Keio Medical Science Prize yearly to recognize the outstanding and creative achievements of researchers in the fields of medicine and life sciences, in particular those contributing to scientific developments in medicine. The fund also provides grants to support the international research activities of young researchers, as well as to assist graduate students in attending academic conferences abroad(3,860,000 yen total for 2018).

Recent recipients of the Keio Medical Science Prize are:
2018: Feng Zhang, Massachusetts Institute of Technology
2018: Masashi Yanagisawa, WPI-IIIS, University of Tsukuba
2017: John E.Dick, Department of Molecular Genetics, University of Toronto
2017: Seiji Ogawa, Kansei Fukushi Research Center, Tohoku Fukushi University

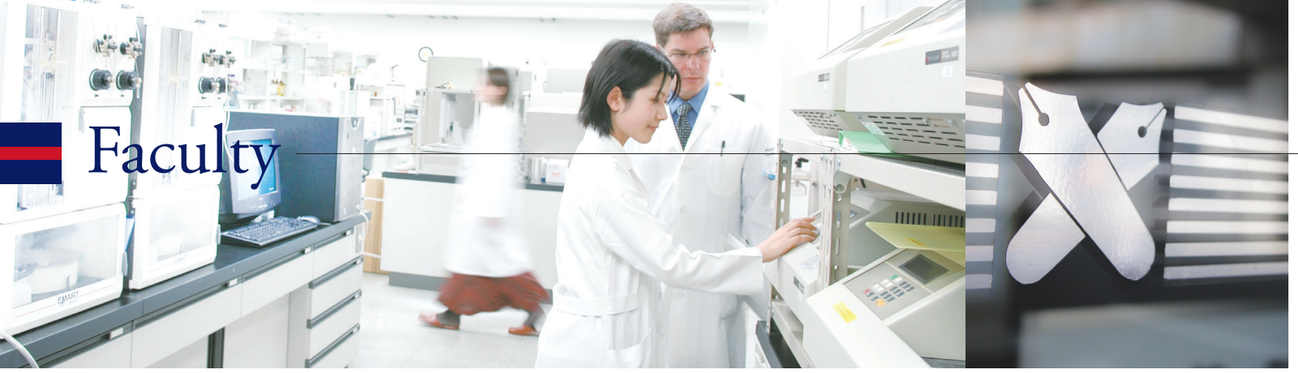


Strengthening International Ties

In 2012, the Graduate School of Medicine PhD Program established a joint summer school program with Peking University and Karolinska Institutet, with King's College London joining in 2014. Every year, students take courses and participate in lab work at one of the participating universities and can earn transferable credits. There are plans to develop this program into a double degree program in the future.

The host schools and themes are:
2012: Keio University / Cell Biology and Metabolism
2013: Karolinska Institutet / Infection, Inflammation, and Immunology
2014: Peking University / Cancer
2015: King's College London / Cardiovascular
2016: Keio University / Stem Cell Research and Regenerative Medicine
2017: Karolinska Institutet / Brain Aging
2018: Peking University / Chronic Inflammation
2019: King's College London / Big Data in Healthcare

Since 2008, Keio has partnered with the University of Texas MD Anderson Cancer Center and St. Luke's International Hospital in Tokyo to establish a joint educational platform called the Academy of Cancer Experts (ACE). The ACE's seminars and workshops are held in English and are taught by MD Anderson faculty members.



Faculty

http://faculty.med.keio.ac.jp/en/research/faculty/

List of PhD and Master's Program professors

Professor Kazunori Nakajima

Affiliation: Anatomy

Specialized Area: Mechanisms of cerebral cortical development

Research Content: We are interested in the cellular and molecular mechanisms of how the cells in the central nervous system, in particular the cells in the cerebral cortex, are born, migrate to their final destinations, develop unique structures such as layers, and finally form such a complex network to enable the various higher brain functions. We are also investigating how these developmental processes are disturbed by various perturbations.

Professor Yoshiaki Kubota

Affiliation: Anatomy

Specialized Area: Understanding the Formation of Vascular Networks

Research Content: Unlocking the mysteries of the dynamics of how the blood vessel network is able to reach remote locations of the body using the latest imaging techniques. On this foundation, developing completely new molecular targeted treatments for cancer and ischemia, etc.

Professor Hideyuki Okano

Affiliation: Physiology

Specialized Area: CNS development and regeneration

Research Content: Elucidating the clinical states of neurological disorders, and research into regenerative medicine of the CNS using neural stem cells and iPS cell technology. Development of genetically modified primate techniques, creation of new models of neurological and mental disorders, and the elucidation of the mechanisms of brain development and higher level brain function.

Professor Michisuke Yuzaki

Affiliation: Physiology

Specialized Area: Synapse formation and plasticity as the basis of higher brain functions and neuropsychiatric disorders

Research Content: Synapses are not only formed during development, but also continuously modified according to neuronal activities throughout adulthood. Synaptic plasticity is believed to be the basis of all higher brain functions, including learning and memory. Moreover, recent genetic studies have revealed that many neuropsychiatric disorders are caused by defects in genes encoding synaptic molecules. Thus, we aim to understand mechanisms by which synapses are formed, maintained and eliminated by neuronal activities using electrophysiological, molecular biological, and behavioral approaches.

Professor Masato Yasui

Affiliation: Pharmacology

Specialized Area: Water Biology and Medicine: understanding in vivo water dynamics and the roles of aquaporins

Research Content: A double-sided analysis of the structure-function relationship of aquaporins (water channels) consisting of a biochemical approach and molecular dynamic simulations. Furthermore, researching aquaporin regulation mechanisms and high-order functions, and building a basis for drug development.

Visiting Professor Makoto Suematsu

Affiliation: Biochemistry

Specialized Area: Biochemistry of diseases, Gas biology

Research Content: Investigating molecular mechanisms for genetic regulation of metabolism and metabolic regulation of genetics using advanced mass spectrometry

Professor Haruhiko Siomi

Affiliation: Molecular Biology

Specialized Area: RNA biology

Research Content: Understanding molecular mechanisms underlying genomic quality control in light of stem cell formation and maintenance through characterizations of molecular pathways leading to transposon silencing including RNAi. In addition, understanding diseases caused by defects in RNAi and its related pathways.

Professor Toru Takebayashi

Affiliation: Preventive Medicine and Public Health

Specialized Area: Preventive medicine; environmental and occupational medicine

Research Content: To achieve primary prevention for all in every community, my main research topic is tailor-made preventive medicine based on epidemiology with population-based cohort studies, combining multi-omics technologies, metabolomics in particular. Furthermore, pursuing social prevention efforts through establishing environmental and occupational standards for protecting population and workers' health through a scientific risk assessment process.

Professor Tomonori Okamura

Affiliation: Preventive Medicine and Public Health

Specialized Area: Public health; lifestyle-related disease; epidemiology; nutrition; community medicine; international collaborative research

Research Content: We are seeking to identify new biomarkers that predict incidence of lifestyle-related diseases, and also developing novel lifestyle modification (diet, etc.) that will prevent various diseases through large-scale cohort studies and international collaborative studies. Also we are performing regional intervention research through health training and community education, health policy making studies (Health Japan 21, Data Health), and establishing clinical guidelines based on epidemiologic evidence.

Professor Michiie Sakamoto

Affiliation: Pathology

Specialized Area: Tumor pathology, Liver pathology, Molecular pathology, Pathology informatics

Research Content: Analyze molecular mechanisms of human cancer development and progression. Establish precisional pathologic diagnosis, quantitative pathologic diagnosis and information technology based pathology.

Professor Yae Kanai

Affiliation: Pathology

Specialized Area: Pathology; Cancer epigenetics; Integrative disease omics analysis

Research Content: To participate in genome medicine and preventive/pre-emptive medicine by understanding the molecular mechanisms of diseases, therapeutic and diagnostic targets are explored based on integrative disease omics analysis, especially epigenome analysis, in human cancers derived from various organs, histopathologically-recognized precancerous lesions and cancer-prone metabolic and/or inflammatory disorders.

Professor Akihiko Yoshimura

Affiliation: Microbiology and Immunology

Specialized Area: Molecular immunology; understanding disease centered around cytokines and infllammation

Research Content:
1. Analysis of immune regulation mechanims by CIS/SOCS family genes and cytokines.
2. Analysis of cytokines and their signl transduction in various inflammatory diseases.
3. Functional analysis of Spred/Sprouty protein family.
4. T-cell reprogramming.

Professor Masaki Q. Fujita

Affiliation: Legal Medicine

Specialized Area: Forensic pathology; sudden death study

Research Content: Investigating the pathogenesis and predisposition of sudden unexpected death syndrome in young Asian males by performing genetic and comparative epidemiological studies. Establishing objective diagnosis methods in forensic medicine.

Professor Minoru Ko

Affiliation: The Sakaguchi Laboratory - Department of Systems Medicine

Specialized Area: Stem cells; early embryos; systems medicine; genomics, informatics

Research Content: Elucidating the structure and dynamics of gene regulatory networks; studying tissue regeneration and rejuvenation; promoting the extension of healthspan through the application of systematic and computational approaches to medicine.

Project Professor Yutaka Kawakami

Affiliation: Division of Cellular Signaling, Institute for Advanced Medical Research

Specialized Area: Investigation of immune- associated diseases (cancer, auto-immune disorders, etc.) and their modulation

Research Content: Investigation of immune-associated diseases such as cancer and auto-immune disorders, and developing gene therapies and immunotherapies; Investigation of tumor immuno-microenvironment and developing molecular targeted therapies.

Professor Shinichiro Okamoto

Affiliation: Hematology

Specialized Area: Basic and clinical studies on the pathogenesis of hematological malignancies and innovative therapeutic approaches with allogeneic stem cell transplantataion and molecular targeting agents.

Research Content: Targeting therapies for hematological malignancies with molecular targeted therapies; selective regulation of allo-immune reaction and potential use of this allo-reactivity for the eradication of MRD; Mechanisms of anti-tumor effects of the alloimmune response to umbilical cord blood transplant; QOL after treatment for hematological malignancies; new molecular targeted treatments and clinical research on MDS and myeloma, and basic research on the pathogenesis of hematological malignancies.

Visiting professor Shigeo Koyasu

Affiliation: Microbiology and Immunology

Specialized Area: Immunology; cell biology

Research Content: Analyzing the regulation mechanisms of natural and acquired immunity using molecular cell biological techniques and mouse models. Recently focusing on innate lymphoid cells.

Professor Kenya Honda

Affiliation: Microbiology and Immunology

Specialized Area: Immunology; microbiology; intestinal microbiota

Research Content: Clarifying effects of the intestinal microbiota on the host physiology. Also investigating the mechanisms of host response to pathogens.

Professor Hiroaki Miyata

Affiliation: Health Policy and Management

Specialized Area: Health policy and management; Quality of healthcare; Epidemiology; Evaluation; Social science method

Research Content: Health policy research and clinical research for i. Quality improvement initiative, ii. Healthcare technology/diagnosis/treatment innovation , iii. Sustainable, optimal healthcare system.

Professor Toshiro Sato

Affiliation: The Sakaguchi Laboratory - Department of Organoid Medicine

Specialized Area: Gastroenterology, Cancer biology, Regenerative medicine

Research Content: We develop organoid culture protocol for a variety of tissue cells and are study how tissue cell behaviour in a biological context. We particularly focus on applying organoid technology to cancer research and regenerative medicine.

Professor Hideyuki Saya

Affiliation: Institute for Advanced Medical Research

Specialized Area: Molecular mechanisms of malignant tumor formation

Research Content:
1) Developing new treatment strategies and property analysis of cancer stem cells;
2) Molecular analysis of the mechanisms of invasion, metastasis, and reoccurrence of cancer;
3) Analysis of the heterogeneous properties of cancer tissue structure and the plasticity of cancer cells.

Professor Keiichi Fukuda

Affiliation: Cardiology

Specialized Area: Development of treatment methods for intractable heart failure through the regeneration of cardiac muscle cells

Research Content: Cardiomyocyte regeneration using iPS stem cells to understand disease pathology, develop new treatments, and advance research in regenerative medicine. Developing multi-faceted research into the correlation of heart failure and sympathetic nerve function, the mechanisms of heart valve disease, and new treatment methods of pulmonary hypertension.

(As of May 1,2019) Refer to entrance examination instructions for an updated list of supervising professors.

Faculty

http://faculty.med.keio.ac.jp/en/research/faculty/

Professor Takanori Kanai

Affiliation Gastroenterology and Hepatology

Specialized Area Basic and clinical research of gastrointestinal immunity disorders

Research Content Clinical development of new drugs and treatments for IBD as well as liver and pancreatic immunity disorders. Developing preventive medicine that seeks to unify immunology, genetics, and nutritional science.

Professor Tsutomu Takeuchi

Affiliation Rheumatology

Specialized Area The molecular mechanisms and regulation of autoimmune disorders, and the development of targeted treatments

Research Content Molecular analysis of the pathogenesis of autoimmune diseases (rheumatoid arthrtis, systemic lupus erythematosus, etc.) and translational research towards the development of molecular targeting clinical applications.

Professor Yuko Kitagawa

Affiliation General and Gastroenterological Surgery

Specialized Area Gasteroenterology; surgical oncology; endoscopic surgery; multidisciplinary solid tumor therapy; surgical infections; bodily reactions to invasive surgery; sentinel node navigation surgery

Research Content Research utilizing an approach based on the sentinel node theory. Analyzing the mechanisms of metastasis of lymph node cancers and their regulation. Applying microscopic metastasis and capillary blood cancer cell detection methods to realize individualized, multidisciplinary treatment mehthods for digestive organ cancers. Research into reactions to invasive surgery, and surgery-related infections.

Professor Hideyuki Shimizu

Affiliation Cardiovascular Surgery

Specialized Area Cardiovascular surgery; Endovascular stent-graft; minimally invasive cardiac surgery; organ protection methods; artificial heart and blood vessels

Research Content Developing surgical methods with a basis in implementing major surgery and minimally invasive treatments for cardiac and aortic diseases; and research on perioperative organ protection methods. Development of new treatments and diagnostic methods for aortic aneurysm and aortic dissection.

Professor Kazunari Yoshida

Affiliation Neurosurgery

Specialized Area Surgical treatments for brain tumors; multidisciplinary treatments for malignant brain tumors; basicranial surgery; histological analysis of brain tumors

Research Content Developing surgical techniques based on surgical anatomy and analysis of clinical imaging of cranial diseases and brain tumors. Developing multidisciplinary therapies and diagnostics for malignant brain tumors (particularly germ cell tumors). Analysis of brain tumor malignancy using biological and histochemical techniques.

Professor Masaya Nakamura

Affiliation Orthopedic Surgery

Specialized Area Spine and Spinal Cord Surgery, Spinal Cord Disorder Therapies, Neuroscience (Spinal Cord Regeneration, Growth factors, Neuroimaging)

Research Content Multicenter collaborative research on spine and spinal cord disorders. Developing regenerative medicine for musculoskeletal disorders, especially for spinal cord injury and new assessment methods through MRI and CT. Working on (1) iPS cell-based transplant therapies, (2) hepatocyte growth factors, (3) suppression of axonal growth inhibitors.

Professor Jin Nakahara

Affiliation Neurology

Specialized Area Neurological therapeutics

Research Content We aim to develop actual therapeutics by every conceivable means – from advancement of translational research to home care medicine – to improve the quality of life of patients suffering from various neurological diseases.

Professor Hiroshi Itoh

Affiliation Nephrology, Endocrinology and Metabolism

Specialized Area Translational research on lifestyle-related diseases, metabolic syndrome and renal/vascular complications

Research Content Clarifying the endocrine and metabolic molecular mechanisms of metabolic syndrome associated with high blood pressure, diabetes, obesity, etc., and renal/vascular complications; translational research towards developing new treatments and applications from the perspectives of prevention, anti-aging medicine, and regenerative medicine.

Professor Tatsuo Kuroda

Affiliation Pediatric Surgery

Specialized Area Cellular kinetics of pediatric cancer; pediatric cancer stem cells, fetal surgery

Research Content Basic research on cellular kinetics and cancer stem cells of pediatric cancers associated with clinical trials of new treatment strategies. Develoment of fetal diagnostic and surgical techniques.

Professor Hisao Asamura

Affiliation General Thoracic Surgery

Specialized Area General thoracic surgery; thoracic oncology; TNM stage classification of cancer (UICC); cancer registry and database development; minimally invasive thoracic surgery

Research Content Multidisciplinary therapy of lung cancer, thymic epithelial tumor, pleural mesothelioma, and other thoracic malignancies; clinical trials including surgery for thoracic malignancies; TNM stage classification (UICC); development of minimally-invasive surgical techniques for lung cancers; lung cancer registry.

Professor Morio Matsumoto

Affiliation Orthopedic Surgery

Specialized Area Spine Surgery, Minimally Invasive Spine Therapies, Scoliosis

Research Content Developing prosthetics necessary for spinal surgery. Identifying scoliosis susceptible genes and developing new assesment and surgical methods. Multicenter collaborative research on spine disorders. Researching spine aging through MRI machines. Researching the invasiveness of spine surgery.

Professor Meigen Liu

Affiliation Rehabilitation Medicine

Specialized Area Rehabilitation Medicine, Neuroscience, Exercise Physiology

Research Content 1) Developing rehabilitation methods to induce plasticity of the central nervous system; 2) Development and clinical applications of brain machine interface; 3) Evaluation and prognosis prediction of injury; 4) Research concerning the exercise stress of disabled persons; 5) Advancing the research of cancer rehabilitaiton.

Professor Kazuo Kishi

Affiliation Plastic and Reconstructive Surgery

Specialized Area Skin Regeneration (Including Skin Appendages)

Research Content Developing skin reproduction methods that utilize adult animal cells based on the phenomenon of skin regeneration in fetal mice, and analyzing its cellular and molecular mechanisms.

Professor Tomonobu Hasegawa

Affiliation Pediatrics

Specialized Area Molecular Mechanisms of Human Growth and Sexual Differentiation

Research Content Analyzing the molecular mechanisms of human growth and sex differentiation (and disorders thereof) using human diseases and mouse models, while also developing new treatments for disorders of growth and sex development.

Professor Daisuke Aoki

Affiliation Gynecology

Specialized Area Gynecologic Oncology, Gynecologic Pathology, Molecular Cytogenetics, Hereditary Cancer, Fertility-Preserving Therapy in Gynecological Cancer, Cancer Screening

Research Content Pursuing new prevention and therapeutic methods based on analysis of cancer genomes and molecular cytogenesis; and also investigating diagnostic performance of profiles of biomarkers in cancer cells.

Professor Kazuo Tsubota

Affiliation Ophthalmology

Specialized Area Regenerative Medicine, Corneal Transplantation, Dry Eye, Refractive Surgery, Myopia, Presbyopia, Anti-Aging Medicine, Health Science, Food Science, Innovation

Research Content Our department focuses on cornea regeneration, developing new treatments for and elucidating the mechanisms of dry eye associated with visual display terminals (VDT) and Sjogren's syndrome. Recently, we are pursuing anti-aging medicine for the treatment and prevention of age-related macular degeneration, cataracts, presbyopia, myopia and glaucoma. We have expanded our outlook towards the health and food sciences while also studying ophthalmic optics and quality of life as well as researching the mechanisms and prevention of myopia. New endeavors focus on university-initiated industry, innovation and professional development.

Professor Mototsugu Oya

Affiliation Urology

Specialized Area Understanding the Oncogenesis of Urological Cancers and Developing Novel Cancer Therapies

Research Content Aiming for an integrative understanding of the development of cancer from precancerous lesions and the mechanisms of metastasis; developing innovative new treatments with a focus on the cellular-biological features in cytokine production and neoangiogenesis, etc.

Professor Masaru Mimura

Affiliation Neuropsychiatry

Specialized Area Neuropsychology and Geriatric Psychiatry

Research Content Elucidating and developing treatments and rehabilitation techniques targeted at higher-level brain function disorders and cognitive impairments caused by brain damage. Analyzing cognitive impairments of psychoneural disorders related to depression using functional neuroimaging.

Professor Takao Takahashi

Affiliation Pediatrics

Specialized Area Developmental Neurobiology, the Cell Cycle, Neural Stem Cells, Neocortical Histogenesis

Research Content Research concerning mechanisms of developmental disorders of higher cortical function with a focus on proliferation/differentiation behavior of neural stem cells/progenitors in normal and abnormal histogenesis of the neocortex.

Professor Hiroyuki Yamagishi

Affiliation Pediatrics

Specialized Area Pediatric Cardiology, Clinical Cardiac Development

Research Content Congenital heart disease (CHD) occurs in nearly 1 % of all live births and is the major cause of infant mortality and morbidity. Our research for identifying genetic causes and molecular mechanisms of CHD is essential not only to fully understand the disease, but also to enhance current knowledge about new preventive and/or therapeutic strategies.

Professor Mamoru Tanaka

Affiliation Obstetrics

Specialized Area Perinatal Medicine, Reproductive Medicine, Clinical Genetics, Embryology

Research Content Molecular biology concerning mammalian development; fetal medicine ranging from diagnostics to therapies; research and development of treatments of perinatal diseases utilizing mesenchyme stem cells.

Professor Masayuki Amagai

Affiliation Dermatology

Specialized Area Autoimmunity, Allergies, Skin Barrier, Skin Immunity

Research Content Elucidating pathophysiological and immunological mechanisms in tissue-specific autoimmune disorders, and clarifying fundamental mechanisms of peripheral tolerance by analyzing the skin as an immune organ. Clarifying the mechanisms of allergy diseases at the molecular level from the point of view of skin barrier dysfunction, and developing novel therapeutic and preventive strategies. Elucidating the pathophysiological mechanisms of severe forms of drug eruption.

Professor Kaoru Ogawa

Affiliation Otorhinolaryngology, Head and Neck Surgery

Specialized Area Protection and Repair of Inner Ear Sensory Cells, The Central Suppression Mechanisms of Tinnitus

Research Content Pursuing new treatments for chronic sensorineural hearing loss and tinnitus which are refractory in nature; 1) Regeneration of inner ear sensory cells (for hearing and balance); and 2) Research concerning cellular protective mechanisms against various kinds of damage such as acoustic trauma.

Professor Naoyuki Shigematsu

Affiliation Radiation Oncology

Specialized Area Radiation Oncology, Radiation Therapy, Radiation Biology

Research Content Radiation oncology; radiation biology
In clinical research, performing adaptive magnification of stereotactic radiation therapy, intensity modulated radiotherapy, image-guided radiotherapy, as well as radiation within tissue and cavities in various types of cancer treatments. Also evaluating the effectiveness of chemotherapy combined with radiation therapy.
In basic research, examining chromosome and genetic mutation as a result of radiation exposure; and molecular biological investigation to predict the efficacy of radiation therapy.

(As of May 1,2019) Refer to entrance examination instructions for an updated list of supervising professors.

Faculty

http://faculty.med.keio.ac.jp/en/research/faculty/

Professor Masahiro Jinzaki

Affiliation: Diagnostic Radiology

Specialized Area: Diagnostic Radiology

Research Content:
1.Constructing optimum image diagnostic algorithms in the field of cardiology and urology.
2.Aiming for further human-body visualization by developing new devices or techniques (microcirculatory system, lymphatic system, and peripheral nervous system).
3.Assessing clinical application of four-dimensional dynamic imaging.

Professor Junichi Sasaki

Affiliation: Department of Emergency and critical care

Specialized Area: Acute medicine, traumatology, burn care, surgical infections, infection prevention and control, biological reactions and pharmacokinetics under invasive stress

Research Content: Analysis of biological reactions under invasive stress conditions using two-hit animal models (endotoxin administration after burn priming, etc.) and analysis of pharmacokinetics as it relates to antimicrobial and antifungal drugs in critically ill patients
Regenerative medicine in critical care (such as the application of cell technology for burn treatment)

Professor Mitsuru Murata

Affiliation: Laboratory Medicine

Specialized Area: Genetic Testing, Clinical Lab Standardization, Understanding and Preventing Thrombotic Disorders, Basic Platelet Research

Research Content: Researching, standardizing and spreading the use of clinical tests in medical practice using genome information and genetic analysis techniques. Elucidating the mechanisms of blood clot formation from a molecular perspective, and through identifying hereditary and acquired risk factors, establishing effective preventions and treatments. Basic research of blood platelet formation and establishing evaluation methods of platelet function.

Professor Koichi Matsuo

Affiliation: Collaborative Research Resources (Laboratory of Cell and Tissue Biology)

Specialized Area: Anatomy, Bone cell biology

Research Content: Elucidating the development and homeostasis of the skeleton through cell-cell interaction.

Professor Michito Hirakata

Affiliation: Center for Medical Education

Specialized Area: Medical pedagogy; Rheumatology; Clinical Immunology

Research Content: Medical pedagogy: 1) Reform of the admission system, 2) Development of "Medical Professionalism", 3) Introduction of simulation, 4) Implementation of competency-based education, and 5) Establishment of continuous basic- and postgraduate- educational programs, to improve the Quality of Medical Education.
Rheumatology: Investigating the production mechanism, clinical significance, and disease state mechanism of "autoantibodies", which are characteristic features of autoimmune disorders such as rheumatic diseases and connective tissue diseases.

Professor Naoki Hasegawa

Affiliation: Center for Infectious Disease and Infection Control

Specialized Area: Clinical Infectious Diseases. Respiratory Infections. Infection Control

Research Content: Searching for disease mechanisims or biomarkers to evaluate disease activity of respiratory infectious diseases sucjh as penumococcal pneumonia, pseudomonas aeruginosa pneunonia, influenza, mycobacterial infectious diseases including non-tuberculous mycobacterium and HIV infection. Evaluating the PK–PD evaluation of pulmonary antimicrobial drugs in the lungs by obtaining respiratory tract fluids using bronchoscope. Promotiom of PK/PD based appropriate usage of newly-develpoed antibiotics. Developing, evaluating, and examining the clinical importance of ART in HIV management.

Professor Hiroshi Morisaki

Affiliation: Anesthesiology

Specialized Area: Sepsis and Myocardial Function; Gastrointestinal Defense Mechanisms; Volatile Anesthetics and Microcirculatory Disorders; Epidural Anesthesia and Immune System

Research Content: Clarifying the underlying mechanisms of host defense system against invasive stress. We are currently engaged in both basic and clinical research regarding protective approaches for myocardial dysfunction during sepsis and gut barrier function in the critically ill, and modulation of the immune system by epidural and/or inhalational anesthesia.

Professor Taneaki Nakagawa

Affiliation: Dentistry and Oral Surgery

Specialized Area: Periodontology

Research Content: 1) Research on periodonotopathic bacteria;
2) Resarch on oral tissue regeneration using mesenchymal stem cells and iPS cells;
3) Analysis of the sensitivity of antimicrobial agents against periodontopathic bacteria;
4) Clinical research on sonic toothbrush cleaning.

Professor Yusuke Tanigawara

Affiliation: Pharmacokinetics and Pharmacodynamics

Specialized Area: Pharmacokinetics, Clinical Pharmacology

Research Content: Researching drug disposition, pharmacodynamics, pharmacogenomics and pharmacometrics. The research includes elucidating the individual differences in drug response and development of optimal dosing methodology and drug response biomarkers, aiming towards precision medicine.

Professor Koji Shimoda

Affiliation: Laboratory Animal Center

Specialized Area: Laboratory animal science; welfare of laboratory animals; developmental engineering of mice

Research Content: Consideration of the welfare of animals used in experiments, while inspecting, evaluating, and verifying the implementation of appropriate animal experimentation. Using transgenic techniques to produce various types of model mice for biomedical research.

Professor Toshiaki Monkawa

Affiliation: Medical Education Center

Specialized Area: Medical education; Nephrology

Research Content: Medical pedagogy including the development of education utilizing ICT (Information and Computer Technology), and development of the interprofessional education program. Elucidating mechanisms of water, electrolyte, and acid-base disorders; renal tubule differentiation and regeneration.

Professor Haruhiko Ogata

Affiliation: Center for Diagnostic and Therapeutic Endoscopy

Specialized Area: Pathogenesis and development of treatment for inflammatory bowel disease, endoscopic diagnosis and treatment of gastrointestinal disease.

Research Content: Understanding the pathogenesis of inflammatory bowel disease by image enhancing and in vivo observation of the gastrointestinal mucosa using endoscopic devices equipped with super-magnifying functionality and capsule endoscopes equipped with additional functionality that can achieve pan-enteric surveillance.

Professor Naohisa Yahagi

Affiliation: Cancer Center (Advanced Minimally Invasive Therapy Unit)

Specialized Area: Minimally Invasive treatment for Gastrointestinal Neoplasia

Research Content: Developing new procedures for advanced minimally-invasive treatments such as endoscopic resection and laparoscopic resection. And developing new therapeutic instruments for advanced minimally-invasive treatments, including NOTES (natural orifice translumenal endoscopic surgery) and LECS (laparoscopy and endoscopy combined surgery).

Professor Kenjiro Kosaki

Affiliation: Center for Medical Genetics

Specialized Area: Clinical Genetics, Teratology, Pediatrics

Research Content: 1) Clinical genomics includling diagnosis and management of rare diaseases and genetic counseling. 2) Elucidation of genetic causes of genetic diseases with a focus on "undiagnosed diseases".

List of Master's Program professors

Professor Mayumi Kajimura

Affiliation: Biology

Specialized Area: Coupling of brain blood circulation and metabolism

Research Content: The phenomenon of the connection between local nerve action and metabolism in cerebral blood flow is known as neurovascular coupling (NVC). We seek to elucidate the actual molecular action of NVC which forms the basis of cerebral metabolic regulation through the evaluation of spatial-temporal uneven information of low-molecular metabolites (such as when, where, and how much). <http://k-ris.keio.ac.jp/Profiles/74/0007369/profile.html>

Professor Masatoshi Nara

Affiliation: Letters

Specialized Area: Ethics, Medical Ethics

Research Content: Applying ethical theories and methodologies to analyze ethical problems raised in clinical medicine and medical research. Recently focusing on ethical problems in reproductive medicine, misconduct in medical research, protection of personal information, and conflict of interest.

Professor Tomofumi Anegawa

Affiliation: Business

Specialized Area: Health Economics, Applied Economics

Research Content: Applying economics to analyze medical care, education, energy, and other related industries. In particular, studying the economics of drugs, the medical device industry and intellectual property rights, and geographical variation in medical care. Furthermore, establishing a grand design for cross-disciplinary and multi-generational research and education as a key to realize halthy aging.

Professor Ryuji Tanosaki

Affiliation: Center for Transfusion Medicine and Cell Therapy

Specialized Area: Hematology-oncology and cell therapy, in particular hematopoietic stem cell transplantation and transfusion medicine

Research Content: Transfusion medicine and cell therapy, in particular allogeneic hematopoietic stem cell transplantation for malignant lymphoma, including adult T-cell leukemia/lymphoma. Cell processing center management.

Professor Hiroyoshi Inoue

Affiliation: Chemistry

Specialized Area: Radiology, Pharmaceutical Chemistry, Natural Products

Research Content: I am responsible for radiation health and safety at Keio University`s Shinanomachi Campus. Our research is primarily interested in developing ways to safely concentrate and dispose of radioisotopes. In addition, we are interested in developing biosensors using isotopic marking and aptamer technology for age related disease diagnostics and food monitoring. Another aspect of our research focuses on the identification of useful functional components from nature and ways to develop these for synthetic applications.

Professor Hiroshi Nakamura

Affiliation: Business

Specialized Area: Industrial Organization (Life Science and Health Care Industries), Strategic Management

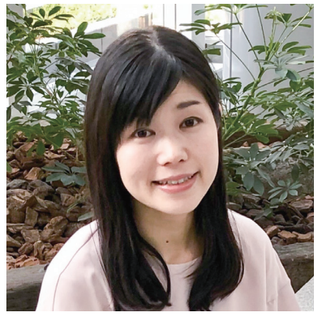
Research Content: Organizational reform and management strategies of companies in order to bring about innovation in the life science industries-Policies concerning the creation of innovative products while reducing economic/financial burden on patients and governments-Cooperation among different types of occupations and functions in healthcare

(As of May 1,2019) Refer to entrance examination instructions for an updated list of supervising professors.

Student Voices

Master's Program

While working at Keio University Hospital's Department of Rehabilitation, I realized that recent developments in cancer diagnosis and treatment technology are changing the issues that patients face. I felt that, even if someone is diagnosed with cancer, their rehabilitation needs to progress in line with their treatment in order for them to continue living their lives to the fullest. That's when I decided to take the Cancer Professional Development Program. Since the second year of the program, I have been conducting research on cases involving bone metastasis. Professors at Keio University are all outstanding scientific scholars and openly engage in discussions with students in the spirit of founder Yukichi Fukuzawa's principle of "learning while teaching, teaching while learning. "Many of the classes offered by the Cancer Professional Development Program are held jointly with Keio's PhD programs, so I know I'm always learning about the latest developments in medicine.



2 Year Master's Student

Ayami Fujio

Department of Rehabilitation Medicine

PhD Program

After graduating from the Keio University Faculty of Pharmacy, I wanted to study medicine in more depth than you're afforded as an undergraduate and enrolled in the Graduate School of Medicine, where I now spend my days focused on research. This medical environment is very exciting and educational for me as a non-doctor because I'm surrounded by professionals who discuss research from a clinical perspective. Another defining characteristic of the school is the opportunity for collaboration across fields like medicine, pharmaceutical science, and engineering, which are closely linked here at Keio. Currently I am trying to clarify the mechanisms of gastric cancer development and progression using mouse models. Every day brings new discoveries, and there is nothing quite like the excitement you feel when you achieve the results you were hoping for, or conversely, when your findings are totally unexpected. But that doesn't mean that my research is always successful. My supervisor, Professor Saya, often says, "You'll never hit a dead end doing research. There's always another path you can take." As a researcher, I keep his words in mind as I strive to go wherever the data may take me.

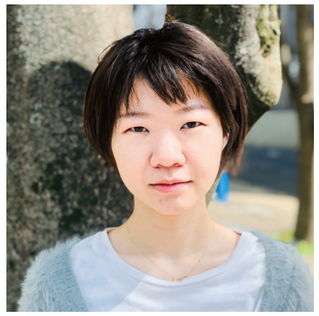
2nd Year PhD Student

Juntaro Yamasaki

Division of Gene Regulation, Institute for Advanced Medical Research

International Student in the PhD Program

I had immense interest in basic research and started studying abroad as soon as I finished my undergraduate studies. I was new to research but was fortunate enough to have many helpful teachers and senior researchers in the lab. In addition to my regular classes, I've been able to attend insightful seminars and meetings with internationally minded professors and researchers from abroad, which I think is the kind of experience you can only have at Keio. During my master's program, I did research on the interaction between astrocytes and macrophages during the formation of glial scars in the subacute phase of spinal cord injury. After realizing that I still had more to learn and needed more training if I wanted to become a scientist, I decided to pursue a doctoral degree. I'm now planning new projects that looks into treating neurodegenerative diseases using iPS cells. Here at Keio, I feel like my life is busy yet extremely rewarding.



1st Year PhD Student

SUN YIJI

Department of Physiology

Scholarships

A variety of schlolarships are available for students who wish to study at Keio University.

Please read the criteria carefully to check which ones you are eligible for.

Before Enrollment

Two major scholarships for students seeking admission to the Graduate School of Medicine are:

- MEXT (The Japanese Ministry of Education, Culture, Sports, Science and Technology) Scholarship
  Embassy recommendation / University recommendation
  Please visit: http://www.ic.keio.ac.jp/en/study/mext/index.html

- Keio Design the Future Award
  The Graduate School of Medicine will recommend one nominee to the Award Committee from among the students who passed the entrance examination. If the student passes the final selection by the Award Committee, they will receive reimbursement of all academic fees and a monthly stipend after entering Keio.
  Please visit: http://www.ic.keio.ac.jp/en/life/scholarship/dfaward.html

After Enrollment

There are three main categories according to sponsors and some schoarships are only for privately financed international students.
For scholarships now available for current students (privately financed international students),
Please visit: http://www.ic.keio.ac.jp/en/life/scholarship/available.html

Offered by Keio University

For all graduate students:

Name of Scholarship	Eligibility	Yearly Stipend	Application Period
Keio Research Encouragement Scholarship	Highly motivated 1st year Master's students showing great research promise.	JPY 300,000, JPY 500,000, JPY 700,000 (Determined by examination)	April
Keio Graduate School Scholarship (For privately financed international students)	International students of master's and doctoral course who have high motivation for academic achievement, an excellent academic record, good character, and financial difficulty in paying study-related expenses. (Status of residence must be "student")	JPY 500,000	September or October
Shinzo Koizumi Foundation Scholarship	Graduate school students except for final year who have high motivation for academic achievement, an excellent academic record, good character, and financial difficulty in paying study-related expenses.	JPY 360,000	October or November

School-Specific Scholarships for Graduate School of Medicine students :

Name of Scholarship	Purpose	Eligibility	Yearly Stipend	Application Period
Master's Program Scholarship	To encourage master's students to pursue their education further in Keio's PhD programs.	2nd year Master's students who will continue to a PhD program in the following year.	Maximum: JPY 1,000,000	February
Doctoral Program Scholarship	To encourage and support students in their PhD studies.	1st and 2nd year PhD students; also 3rd and 4th year doctoral students who exhibit excellence in research.	Maximum: JPY 1,000,000	July
Iichiro Ushioda Memorial Scholarship	To train high-quality researchers in the PhD programs.	PhD students with excellent character and academic performance.	Maximum: JPY 360,000	November
Keio Medical Otsuka Fumon / Fusako Fellowship	To develop future leaders of medicine in Japan.	PhD students with excellent character and academic performance.	Maximum: JPY 1,000,000	November

Offered by JASSO

JASSO is an independent administrative institution established under MEXT (The Japanese Ministry of Education, Culture, Sports, Science and Technology). JASSO provides a scholarship to self-supporting international students.

Name of Scholarship	Eligibility	Monthly Stipend	Application Period
Monbukagakusho Honors Scholarship	Privately Financed International Students	JPY 48,000	April

Offered by private foundations and local governments

For scholarship offered by private foundations and local governments, please visit the Internaional Center's website:
http://www.ic.keio.ac.jp/en/life/scholarship/