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# Serving Global Welfare with Knowledge

The Institute of Medical Science, The University of Tokyo (IMSUT) was established by Dr. Shibasaburo Kitasato in 1892 as the Institute of Infectious Diseases (IID). In 1967 it was then reorganized and underwent a name change from IID to IMSUT. With a 127-year history beginning in Meiji, spanning the Taisho, Showa and Heisei eras and now entering Reiwa, at IMSUT, we explore the universal truth of biological phenomena and the principles of diseases. Through this exploration, we aim to contribute to all of human society by offering development of innovative disease prevention and treatment strategies and their social implementation.

To that end, we emphasize the free and interdisciplinary research environment in which various disciplines such as computer science, the natural sciences, engineering, agriculture, pharmacy, medicine, ethics, public policy studies, etc. can mutually inspire and build off each other with "medical science" as a keyword. Individual researchers and healthcare professionals promote creative research, technology development and advanced medical treatment driven by their intellectual curiosity. Specifically, aiming at controlling infectious diseases, cancer, and other intractable diseases such as immune disorders or neuromuscular diseases, we will develop project-type research on genomic medicine, regenerative medicine, and disease model animals. Also we are promoting advanced medical approaches such as gene/virus therapy, cell therapy, pioneering vaccine development and AI medical care. In order to achieve the above tasks, IMSUT has three core research departments promoting basic and translational research based on the free pursuit of ideas: Department of Basic Medical Science, Department of Cancer Biology, and Department of Microbiology and Immunology. To address the most important issues necessary for social implementation of diverse research results, we have established eight research centers and five research facilities. Examples include the Human Genome Center, which houses a supercomputer (SHIROKANE) with the highest computing performance in Japan specializing in the life sciences, and the Advanced Clinical Research Center. Moreover, IMSUT hospital, which is the only national university institute-affiliated hospital in Japan, is conducting clinical trials and advanced medical treatments based on world-leading research results. On top of that, last year, among the national university-affiliated research institutes of Japan serving the life science field, IMSUT was officially authorized by the Minister of Education, Culture, Sports, Science and Technology, Japan, as the only International Joint Usage/Research Center. The mission of IMSUT as the center is to accelerate basic and clinical research in a global framework. Currently, in addition to the main unit Shirokanedai Campus, we dispatch faculty members and researchers to the Research Center for Asian Infectious Diseases (Beijing) and Amami Laboratory of Injurious Animals (Amami Oshima), etc. A total of more than 1,000 academic, administrative, technical, and hospital staff and researchers, etc., play active roles, including over 200 students belonging to 8 graduate schools of our university.



Dean Yuji Yamanashi, ph.D.



THE INSTITUTE OF MEDICAL SCIENCE THE UNIVERSITY OF TOKYO

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# IMSUT Organization

Department Heads' Meeting

Dean Professor Yuji Yamanashi

#### Vice Dean for General Affa Professor Makoto Nakanis

Faculty Meeting **General Faculty Meeting** 

### Committees

epartment of Microbiology and Immunology

- Chair Professor Kensuke Miyake
- Division of Virology

**Research Facilities** 

**Research Departments** 

- Division of Infectious Genetics
- Division of Molecular Virology
- Division of Vaccine Science
- Division of Malaria Immunology

### Chair Professor Jun-ichiro Inoue

• Division of Molecular Pathology Division of Cellular and Molecular Biology

**Department of Cancer Biology** 

- Division of Genetics
- Division of Cancer Cell Biology

### Department of Basic Medical <u>Sciences</u> Chair Professor Mutsuhiro Takekawa

 Division of Neuronal Network Division of Cell Signaling and Molecular Medicine

### Director Professor Satoru Miyano

- Laboratory of Genome Database
- Laboratory of DNA Information Analysis
- Laboratory of Molecular Medicine
- Laboratory of Genome Technology
- Laboratory of Sequence Analysis
- Laboratory of Functional Analysis in silico
- Department of Public Policy

### Center for Experimental Medicine and Systems Biology

### Director Professor Yasuhiro Yamada

- Division of Stem Cell Pathology
- Laboratory of Innate Immunity
- Laboratory of Reproductive Systems Biology
- Laboratory of Genetically Engineered Mouse Research
- Division of Genome Engineering

### Advanced Clinical Research Center

### Director Professor Toshio Kitamura

- Division of Molecular Therapy
- Division of Cellular Therapy Division of Advanced Genome Medicine
- Division of Infectious Diseases
   Division of Bioethics
- Division of Clinical Genome Research
- Division of Innovative Cancer Therapy
- Division of Advanced Medicine Promotion

### Center for Stem Cell Biology and Regenerative Medicine

#### Director Professor Hideki Taniguchi

- Division of Regenerative Medicine
- Division of Stem Cell and Molecular Medicine
- Division of Stem Cell Transplantation
- Division of Stem Cell Signaling
   Division of Stem Cell Biology
- Division of Stem Cell Processing 
   FACS Core Laboratory
- Division of Stem Cell Pathology Stem Cell Bank

#### International Research Center for Infectious Diseases

#### Director Professor Yoshihiro Kawaoka

- Department of Special Pathogens
- Department of Infectious Disease Control
- (Division of Viral Infection)
- (Division of Systems Virology)
- Pathogenic Microbes Repository Unit

#### **IMSUT Distinguished Professor Units**

 Division of Mucosal Immunology Division of Stem Cell Therapy

### Director Project Professor Ken Ishii

- Division of Mucosal Barriology
- Division of Innate Immune Regulation
- Division of Clinical Vaccinology
- Division of Mucosal Vaccines Division of Mucosal Symbiosis

#### lealth Intelligence Cente

### Director Professor Seiya Imoto

 Division of Health Medical Data Science • Division of Health Medical Computational Science

### Center for Gene & Cell Therapy

Director Professor Arinobu Tojo

Division of Molecular and Medical Genetics

Director Professor Tomoji Mashimo

Division of Animal Genetics

Director Professor Tomoji Mashimo

### Medical Proteomics Laboratory

Director Professor Jun-ichiro Inoue

Director Professor Yasushi Kawaguchi

Laboratory of Molecular Genetics

Director Professor Yuji Yamanashi

(Frontier Research Unit)



<b>al Affairs</b> Ikanishi	<b>Vice Dean for Finance</b> Professor Atsushi Iwama	Vice Dean for Research Support Professor Yoichi Furukawa	
MSUT Hospita	ıl		
Director Professor Ar	<b>Depu</b> inobu Tojo Profe	<b>ity Director</b> essor Hiroshi Yotsuyanagi	
Medical Car	re Unit		
Departments Department of Department of Department of Department of Departments Department of Department	of Internal Medicine of Hematology/Oncology of Infectious Diseases and App of Rheumatology and Allergy of General Medicine of Applied Genomics of Surgery of Surgery of Anesthesia	<ul> <li>plied Immunology</li> <li>Department of Radiology</li> <li>Department of Palliative Medicine</li> <li>Department of Diagnostic Pathology</li> <li>Department of Joint Surgery</li> <li>Department of Surgical Neuro-Opcology</li> </ul>	
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<ul> <li>Department of</li> <li>Department of</li> <li>Department of</li> <li>Surgical Cent</li> <li>Department of</li> <li>Department of</li> </ul>	of Medical Informatics of Radiological Technology f Cell Processing and Transfusion ter of Medical Supply Center of Laboratory Medicine	<ul> <li>Department of Pathology</li> <li>Department of Clinical Genomics</li> <li>Department of Clinical Nutrition</li> <li>Radiation Control Office</li> <li>Regional Medical Liaison Office</li> </ul>	
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Center for Clini	cal Safety and Infection Control		
Clinical Res	earch Support Unit		
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Department	of Nursing Department	t of Pharmacy	
Department	of AIDS Vaccine Developme	nt	
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·••	Common Research Facilities	s	
	Technical Office		
	Dean's Office	A	
	Administration Office		
100 m	General Manager Takat	niko Kato	
	Administrative Affairs D	Division Manager Ryuta Takemoto	
	Research Support Div	vision Manager Isao Uehara	
Call.	Hospital Division	Manager Takaaki Fukuoka	
Atsushi Iw	rama	Hideki Taniguchi	

# IMSUT historia

### **Institute for Infectious Diseases**

### 1892

Foundation of the Institute for Infectious Diseases (IID), as a private institute by Dr. Shibasaburo Kitasato

### 1894

Relocation to Atagocho, Shiba-ku and opening of the affiliated hospital

Discovery of Sersinia Pestis and **Development of Serum Therapy** for Diphteria by Dr. Shibasaburo

1906 Completion of the new building 1955 Isolation of Multidrug-resis-tant *Shigella* by Dr. Osamu Kitamoto

### 1914 Reorganization under the Ministry of Education

1915

Rat-bite

Fever

Discovery of

Spirochete by

Dr. Kenzo

Futaki

1905 Relocation of the

institute to Shirokanedai, Minato-ku

### 1899

Reorganization as a national institute under the control of the Ministry of Internal Affairs

### 1897

**Discovery of Shigella** by Dr. Kiyoshi Shiga





# Completion of the First

### 1947

Transfer of about half of IID personnel to the newly founded "National Institute of Health" . under control of the Ministry of Public Health and Welfare

Name changed from Tokyo Imperial University to the University of Tokyo

Elucidation of Mosquito-borne Japanese Encephalitis by Dr. Tokushiro

Mitamura Discovery of the Pathogen of Lympho-granuloma Urethritis (Chlamydia) by Dr. Yoneji Miyagawa

### 1930

Determination of the Etiology of Tsutsugamushi Disease (Rickettsia) by Dr. Mataro Nagayo







Institute for Infectious Diseases in Meiji Perior



1965

Center

tant *Shigella* by Dr. Osamu Kitamoto

Discovery of Interferon by Dr. Yasuichi Nagano

1953

Discovery of the Blood Group Glycolipids by Dr. Tamio

1954

Discovery of Trichomycin by

1952

Dr. Seigo Hosova

Yamakawa

Establishment of

Animal Research

the Laboratory

1966

the Amami

Laboratory of

Establishment of

**Injurious Animals** 

## 1967 Reorganization of the Institute of

Diseases into th nstitute of Medical Science

Completion of the Second Building



1991

Institute of Medical Science

1980

Building

Genetics

Completion of the Third

Establishment of the

Laboratory of Molecular



1992 100<sup>th</sup> Founding Anniversary of the

## 1998

Establishment of the Center for Experimental Medicine (now "Center for **Experimental Medicine** and Systems Biology")

1995 Completion of the Fourth Building

# Elucidation of the Function of GTP-binding Proteins by Dr. Yoshito Kajiro Discovery of the Src-family Oncogenes by Dr. Kumao Toyoshima

●IMSUT Landmark Achievements

Elucidation of Hereditary Hemolytic Anemia by Dr. Shiro

Contribution to the Eradication of Filariasis by Dr. Manabu Sassa

Elucidation of Synaptic Ultra-structure by Dr. Kiyoshi Hama

Start of Bone Marrow and Umbilical Cord Blood Transplantation Medicine by Dr. Shigetaka Asano Start of HIV/AIDS Treatment in Japan by Dr. Kaoru Shimada

Determination of the Structure and Function of N-linked Oligosaccharides by Dr. Akira Kobata Elucidation of the Genetic Information of HTLV Virus by Dr. Mitsuaki Yoshida Elucidation of Protease-dependent Virus Pathogenicity by Dr. Yoshiyuki Nagai Determination of the DNA Sequence of Human Chromosome 21 by Dr. Yoshiyuki Sakaki



Opening of the 

2000

Reorganization of

23 departments into

. 3 big departments;

Microbiology and

**Biology and Basic** 

Medical Sciences

Establishment of

**Clinical Research** 

the Advanced

2001

Center

Immunology, Cancer

Institute

### 2005

Establishment of the International Research Center for Infectious Diseases

### 2006

Establishment of the Research Center for Asian Infectious Diseases with collaborating sites in Beijing and Harbin

Establishment of the Medical Proteomics Laboratory

### 2008

Establishment of the Center for Stem Cell Biology and Regenerative Medicine

### 2009

Official recognition as a Joint Usage/Research Center

### 2018

Official recognition as an International Joint Usage/ Research Center

Reorganization of the University of Tokyo as a national university corporation

### 2003



Completion of new research facilities, the General Research Building and Hospital Building



# 2017

125th Founding Anniversary and 50<sup>th</sup> Reorganization Anniversary of the Institute



2015 Establishment of the Health Intelligence Center

### 2014

Establishment of the Center for Gene & Cell Therapy

### 2011

Establishment of the International Research and Development Center for Mucosal Vaccines

### Department of Microbiology and Immunology

The growing concern in emerging and re-emerging infections increases demand for

understanding and controlling these infectious diseases. Our department focuses on: the

elucidation of molecular interactions between pathogens and hosts; molecular recognition

of microbial products by the immune system; and molecular mechanisms controlling host

defense systems. The department is composed of 5 divisions. Our department particularly

studies the pathogens such as Influenza virus, Ebola virus, Herpes Simplex Virus, and

malaria. We are going to understand molecular mechanisms underlying host-pathogen

interactions and develop novel vaccines or approaches to control infectious diseases and

related immune disorders. Our department has been successfully promoting joint research

projects in the area of infection and immunity in collaboration with many other groups in

Japan and foreign countries. The department is also promoting collaborative projects with

IMSUT Research Hospital as well as various groups in pharmaceutical companies for the

development of drugs as well as vaccines. Another important mission of our department is

to promote development of young independent investigators in the fields of microbiology

#### Division of Virology

Professor	Yoshihiro Kawaoka, D.V.M., Ph.D.
Visiting Professor	Takeshi Noda, D.V.M., Ph.D.
Associate Professor	Masaki Imai, D.V.M., Ph.D.
Project Associate Professor	Tokiko Watanabe, D.V.M., Ph.D.
Project Associate Professor	Seiya Yamayoshi, D.V.M., Ph.D.

### Division of Innate Immunity Professor Kensuke Miyake, M.D., Ph.D.

Associate Professor Shin-Ichiroh Saitoh, Ph.D. Division of Molecular Virology Professor Yasushi Kawaguchi, D.V.M., Ph.D.

Project Senior Assistant Professor V.M., Ph.D. Hid Division of Malaria Immunology Professor Ce

Professor

Division of Vaccine Science

Associate Professor



Chair : Kensuke Miyake

Ken Ishii, M.D., Ph.D.

Hideo Negishi, Ph.D.

Cevayir Coban, M.D.

Kouii Kobivama, Ph.D.

Figure shows 5 divisions in the Department of Microbiology and Immunology. Three divisions focus on pathogens such as Influenza virus, Ebola virus, Herpes Simplex Virus, and malaria, whereas two divisions focus on host immune responses against pathogens. These divisions work together to understand the molecular bases underlying host-pathogen interaction and to develop novel vaccines or novel therapy for infectious diseases.

### **Department of Basic Medical Sciences**

Division of Neuronal Network

Professor Toshiya Manabe, M.D., Ph.D. Division of Cell Signaling and Molecular Medicine Professor Mutsuhiro Takekawa, M.D., Ph.D.

The Department of Basic Medical Sciences is established to explore new fields in basic life science with the common aim of understanding the life processes at ever deeper levels. In other words, the goal of this department is to develop fundamental bases for clinically-oriented translational research without regards to specific diseases or research fields. This department is currently composed of the following two groups: the Division of Neuronal Network and the Division of Cell Signaling and Molecular Medicine. A brief summary of each division is described below. I) Division of Neuronal Network is interested in the molecular mechanisms of higher brain functions in mammals such as emotion and learning/memory and in etiology of psychiatrical and neurological disorders. This Division focuses especially on the roles of functional molecules localized in synapses, for instance, neurotransmitter receptors, signal transduction molecules and adhesion molecules, in neuronal information processing, using electrophysiological, biochemical, molecular biological and behavioral approaches. 2) Division of Cell Signaling and Molecular Medicine aims to elucidate the regulatory mechanisms of intracellular signal transduction systems that are responsible for cell fate decisions, such as MAP kinase cascades and stress granules. This Division also aims to develop new diagnostic or therapeutic tools for currently intractable disorders in which these pathways are involved (e.g., cancer, auto-immune diseases, and neurodegenerative diseases).

### Department of Cancer Biology

#### Division of Molecular Pathology

and immunology.

Professor	Yoshinori Murakami, M.D., Ph.I
Project Professor	Takayuki Morisaki, M.D., Ph.I
Visiting Professor	Naohiko Koshikawa, Ph.I
Visiting Associate Professor	Daisuke Matsubara, M.D., Ph.I

Division of Cellular and Molecular Biology
 Professor Jun-ichiro Inoue, Ph.D.
 Associate Professor Takeharu Sakamoto, D.V.M., Ph.D.
 Division of Genetics

Professor

Yuji Yamanashi, Ph.D.

Division of Cancer Cell Biology
 Professor Makoto Nakanishi, M.D., Ph.D.
 Associate Professor Atsuya Nishiyama, Ph.D.

Chair : Jun-ichiro Inoue

Formation and development of cancer is a multi-step process that involves alteration of structure and function of various genes, including those involved in regulation of cell growth, differentiation, and cell-cell and cell-extracellular matrix interaction. In the Department of Cancer Biology, we aim to clarify the entire picture of tumor formation and development based on these gene products. To do so we apply various multidisciplined approaches in addition to molecular and cellular biological techniques and mouse genetics, such as proteomics, molecular imaging, structural biology, physical chemistry and mathematical sciences. Our goal is to understand the molecular bases of cell growth and

differentiation, malignant transformation, tumor invasion, metastasis, and angiogenesis, with regard to pathogenic mechanisms in human cancer. The findings of our research should be the subjects of translational research. Ongoing research investigations are as follows. Division of Molecular Pathology: 1) Molecular analysis of cancer progression by aberrant cell adhesion and its application to diagnosis and treatment of cancer. 2) Genomic, epigenomic and molecular pathological analyses of lung, bile-duct and other solid tumors and adult T-cell leukemia. Division of Cellular and Molecular Biology: 1) Elucidation of the molecular mechanisms of transcription factor NF-  $\kappa$  B activation and its roles in cancer development and pathogenesis of various diseases. 2) Studies on regulatory mechanisms of the tumor microenvironment and therapeutic development targeting these mechanisms. Division of Genetics: 1) Studies on molecular signals that regulate a variety of cellular activities, aiming to address how deregulated cellular signals cause neoplastic or other intractable disorders. 2) Pathophysiological analyses of animal models for the above-mentioned diseases, aiming to develop new therapeutic approaches. Division of Cancer Cell Biology: 1) Elucidation of in vivo anticancer mechanisms and development of innovative cancer therapies. 2) Molecular basis underlying DNA methylation abnormalities in early stages of carcinogenesis.







Fig.1 A hippocampal slice prepared from the mouse brain



Fig.2 Arsenite induces formation of cytoplasmic stress granules

### Human Genome Center

- Laboratory of Genome Database Satoru Miyano, Ph.D. Professor Analysis Professor Satoru Mivano, Ph.D. Laboratory of Molecular Medicine Professor
- Tatsuhiro Shibata, M.D., Ph.D. Senior Assistant Professor Atsushi Niida, Ph.D

Director : Satoru Mivano

enome Technology	Laboratory of Functional Analysis in	n Silico
Satoru Miyano, Ph.D.	Professor	Kenta Nakai, Ph.D.
Yoshinori Murakami, M.D., Ph.D.	Senior Assistant Professor	Ashwini Ajay Patil, Ph.D.
equence Analysis	Project Senior Assistant Professor	Sung-Joon Park, Ph.D.
Satoru Miyano, Ph.D.	Department of Public Policy	
essor Tetsuo Shibuya, Ph.D.	Professor	Kaori Muto, Ph.D.
	enome Technology Satoru Miyano, Ph.D. Yoshinori Murakami, M.D., Ph.D. equence Analysis Satoru Miyano, Ph.D. essor Tetsuo Shibuya, Ph.D.	enome Technology Satoru Miyano, Ph.D. Yoshinori Murakami, M.D., Ph.D. equence Analysis Satoru Miyano, Ph.D. Satoru Miyano, Ph.D. essor Tetsuo Shibuya, Ph.D.

The implementation of genomic medicine has started. By promoting personalized genomic medicine based on genomic and medical information, Human Genome Center is to contribute to our society through development of diagnostic methods, novel treatment, and prevention for diseases. With the technology of artificial intelligence and the supercomputer system SHIROKANE specialized for biomedical research, our center is pursuing the following items.

#### 1) Biomedical research for personalized genomic medicine

With high technologies symbolized as silicon sequencer, etc., we conduct cutting-edge researches to understand the SHIROKANE4&S common diseases such as cancer by analyzing the personal genome, epigenome, transcriptome, proteome, metabolome, drug effects, and environmental factors, and to translate the results for personalized diagnosis, prevention and treatment. Especially, we develop and implement cancer clinical sequence based on whole genome sequencing.

#### 2) Medical informatics for personalized genomic medicine

We develop medical informatics that organizes medical knowledge/information, analyzes and interprets personal genomic information and their medical data for personalized genomic medicine. By taking advantage of the artificial intelligence technology and the supercomputer, we develop the infrastructure in place to suit large-scale human genome-related databases, drug adverse reaction database, large-scale data analysis computational /statistical software for life and health that accelerates personalized genomic medicine.

#### 3) Policy science for ethical, legal and social issues (ELSI)

To promote to promote life/medical sciences, study of ELSI is important for public understanding of its concepts. In particular, social consensus should be built to make best use of personal genome. By empirical methods or comparative policy studies, we conduct various researches on future impacts towards disease notification and shared decision-making and access to their clinical/genomic information, and affordable health care. We address policy statements based on these studies.

### Center for Experimental Medicine and Systems Biology

#### Division of Stem Cell Pathology

Professor Yasuhiro Yamada, M.D., Ph.D. Laboratory of Innate Immunity

Kensuke Miyake, M.D., Ph.D. Professor

- Laboratory of Reproductive Systems Biology Project Professor Masahito Ikawa, Ph D Associate Professor Manabu Ozawa. Ph.D.
- Laboratory of Genetically Engineered Mouse Research Invited Professor Kimi Araki, Ph D

The Center for Experimental Medicine and Systems Biology was established in July, 2007, renewed from The Center for Experimental Medicine organized in 1998. The center consists of five laboratories, Division of Stem Cell Pathology, Laboratory of Innate Immunity, Laboratory of Reproductive Systems Biology, Laboratory of Genetically Engineered Mouse Research, and Laboratory of Systems Biology.

The purposes of the center are to develop animal models for human diseases and establish in vivo experimental platforms in various research fields including stem cell biology, immunology, and cancer biology. To achieve these purposes, we take advantage of the embryo engineering technologies as well as genome editing technologies to devise the in vivo experimental systems that link the basic science and medicine.

After the completion of the genome projects, an accurate and complete genome sequence of various organisms have been made available. However, the function of genes, the epigenetic mechanisms that control gene expressions, the role of genomic elements, including non-coding elements, are not fully understood, especially at an organismal level.

Gene targeting technology has provided powerful strategies for uncovering many aspects of gene functions in vivo. Genetically-engineered mice have offered the opportunities of not only analyzing the complex gene function in vivo, but also presenting various human disease models, where new therapeutic approaches can be explored. Moreover, application of CRISPR/Cas system enables efficient and rapid genome editing in rodents. Our center has a mission to provide scientists at IMSUT and other academic institutes with genetically-engineered animal models to conduct research on human diseases. Our center is also developing novel technologies for establishing advanced animal models for biomedical research. We hope that our effort promotes the specialized, comprehensive or interdisciplinary research, which connect different research fields, including stem cell biology, immunology, and cancer biology.



# Advanced Clinical Research Center

#### Division of Molecular Therapy

- Professor Arinobu Tojo, M.D., D.M.Sc. Associate Professor Satoshi Takahashi, M.D., D.M.Sc. Visiting Associate Professor Hiroaki Taniguchi. M.D.. Ph.D. Division of Cellular Therapy
- Toshio Kitamura, M.D., D.M.Sc. Professor Associate Professor Susumu Govama, M.D., Ph.D.
- Division of Infectious Diseases Hiroshi Yotsuvanagi, M.D., D.M.Sc. Professor Associate Professor Takeva Tsutsumi, M.D., D.M.Sc.
- Advanced Clinical Research Center (ACRC) collaborates with basic research groups in IMSUT to translate the research outcomes into medical practice at IMSUT Hospital. ACRC also performs clinical sciences targeting malignancies (including leukemia), infectious and immunological diseases. ACRC aims to translate its own research outcomes into early-phase clinical trials and to undertake the feed-back experiments from its own clinical experiences. For this purpose, ACRC is developing novel therapeutics utilizing various resources including tissue stem cells, molecular targeted agents, recombinant viruses and

Professor

Professor

Professor

Associate Professor

Associate Professor

Project Associate Professor

medical informatics. Each division of ACRC performs peculiar medical research based on the concept of bench to bed, and proposes the ideas elucidating clinical problems from bed to bench. Therefore, each division has a close contact with basic scientists inside and outside IMSUT.

Currently, ACRC consists of 8 divisions: namely, Division of Molecular Therapy and Division of Cellular Therapy in which hematological oncologists are working, Division of Infectious Diseases in which professionals for HIV/AIDS, viral hepatitis and other infectious disorders are working, Division of Clinical Genome Research in which surgical oncologists are working, Division of Innovative Cancer Therapy in which professionals for brain tumor surgery are developing oncolytic virotherapy, Division of Advanced Medicine Promotion which contributes to regulatory sciences in medicine, Division of Advanced Genome Medicine involved in training biomedical graduate students, and Division of Bioethics which handles ethical issues in life science. All are the group of physician scientists.

### Center for Stem Cell Biology and Regenerative Medicine

Division of Paganarati	va Madiaina	Division of Stom Coll Signaling
Professor	Hideki Taniguchi, M.D., Ph.D.	Professor
Associate Professor	Keisuke Sekine, Ph.D.	Division of Stem Cell Processin
Division of Stem Cell a	nd Molecular Medicine	Professor
Professor	Atsushi Iwama, M.D., Ph.D.	Division of Stem Cell Pathology
Division of Stem Cell T	ransplantation	Professor
Professor	Arinobu Tojo, M.D.,D.M.Sc	
Associate Professor	Satoshi Takahashi M D D M Sc	

Stem cell research has been a focus of attention as medicine of the 21st century replacing artificial organs and organ transplantation therapy, and also has a strong impact on the research field of cancer and other diseases. Center for Stem Cell and Regenerative Medicine was launched as a core research center for stem cell-based medicine. The center has 7 divisions, Division of Regenerative Medicine, Division of Stem Cell and Molecular Medicine, Division of Stem Cell Transplantation, Division of Stem Cell Signaling, Division of Stem Cell Processing, Division of Stem Cell Pathology and Division of Stem Cell Biology. The Center aims to translate research outcomes of stem cell biology into pre-clinical and clinical studies, and also to innovation of therapeutic approaches to cancer stem cells and various diseases. It also serves to clarify various clinical problems using cutting-edge research tools such as patient-derived iPS cells. To support our research, we have FACS Core Laboratory and Stem Cell Bank and a service to generate patient-derived iPS cells.



Lustre File System

(1.5PFLOPS)

Human Genome Cente ercomputer System SHIROKANE

Director : Yasuhiro Yamada

Division of Genome Engineering Professor Tomoii Mashimo, Ph D

Mouse

9 THE INSTITUTE OF MEDICAL SCIENCE, THE UNIVERSITY OF TOKYO

#### Division of Clinical Genome Research

- Yoichi Furukawa, M.D., Ph.D. Tsuneo Ikenoue, M.D., Ph.D. Project Senior Assistant Professor Kivoshi Yamaguchi, Ph.D. Division of Innovative Cancer Therapy
- . Tomoki Todo, M.D., Ph.D. Minoru Tanaka, M.D., Ph.D. Division of Advanced Medicine Promotion
  - Fumitaka Nagamura, M.D., D.M.Sc. Masanori Nojima M D Ph D

- Division of Advanced Ger me Medicine Associate Professor Yoshihiro Hirata M.D. Ph.D.
- Senior Assistant Professor Yasuo Matsubara, M.D., Ph.D.
- Division of Bioethics Associate Professor
- Avako Kamisato, Ph.D.



Position of ACRC in IMSUIT

- Toshio Kitamura, M.D., D.M.Sc. vision of Stem Cell Processing
  - Hideki Taniguchi, M.D., Ph.D.
  - Yasuhiro Yamada M.D. Ph.D.

#### Division of Stem Cell Biology Project Associate Professor

- FACS Core Laboratory Professor
- Stem Cell Bank
- Professor

#### Director : Hideki Taniguchi

- Satoshi Yamazaki, Ph.D
- Atsushi Iwama, M.D., Ph.D.
- Hideki Taniquchi, M.D., Ph.D.



### International Research Center for Infectious Diseases

Department of Special Pathogens Yoshihiro Kawaoka, D.V.M., Ph.D. Professor Department of Infectious Disease Control Yasushi Kawaguchi, D.V.M., Ph.D. Professor

(Division of Viral Infection Associate Professor Takeshi Ichinohe, Ph D (Division of Systems Virology)

Associate Professor Kei Sato. Ph.D.

Director : Yoshihiro Kawaoka

Pathogenic Microbes Repository Unit Yasushi Kawaguchi, D.V.M., Ph.D. Professo

Countermeasures against emerging and re-emerging infectious diseases require not only the urgent development of novel vaccines and antivirals, but also long-term basic research and the development of other human resources. Accordingly, the Institute of Medical Science, University of Tokyo and the Research Institute of Microbial Diseases, Osaka University, jointly established the International Research Center for Infectious Diseases in 2005, with the purpose of training infectious disease specialists and undertaking research that will ultimately promote the control of infectious diseases. This Center is composed of two departments (the Department of Special Pathogens and the Department of Infectious Disease Control) and one unit (the Pathogenic Microbes Repository Unit).



Fig. 1: Sequestration of TBK1 vellow) into severe fever with thrombocytopenia syndrome viru NSs-induced unique cytoplasmic structures (red)

Director · Ken Ishii

Tetsuro Matano, M.D., D.M.Sc.

Director : Seiya Imoto

Yoshiyuki Goto, Ph.D.

### International Research and Development Center for Mucosal Vaccines

#### Division of Mucosal Barriology

Professor	Ken Ishii, M.D., Ph.D.
Visiting Professor	Koji Hase, Ph.D.
Visiting Associate Professo	r Shintaro Sato, Ph.D.
Division of Innate Immune I	Regulation
Project Professor	Satoshi Uematsu, M.D., Ph.D.

Division of Clinical Vaccinology Project Professor Kohtaro Fujihashi, D.D.S., Ph.D. Project Associate Division of M Professor Visiting Profe

Project Associate Professor	USUKE KUIDSIIIIId, PII.D.
Division of Mucosal Vaccines	
Professor	Ken Ishii, M.D., Ph.D.
Visiting Professor	Jun Kunisawa, Ph.D.
Visiting Associate Professor	Tomonori Nochi, Ph.D.
Project Senior Assistant Professor	Rika Nakahashi. Ph.D.

International Research and Development Center for Mucosal Vaccines (IMV) was established 2011 to conduct research and development of next-generation of vaccine focusing/targeting the mucosal immune system. IMV aims to contribute to develop novel vaccines, diagnostics and therapeutics that will enable us to control of emerging/reemerging infectious diseases including tuberculosis, malaria, AIDS, AMR and other infectious diseases as well as non-communicable diseases such as cancer, allergy, diabetes, atherosclerosis. We are conducting basic research for molecular and cellular understanding of the mucosal immune system towards more effective and safer vaccine development. In addition to long term collaborations within researchers at IMSUT and between national and international relevant researchers, IMV promotes public private partnership between academia, industries and government to facilitate further collaboration and funding.



Division of Mucosal Symbiosis

Project Associate Professor

Invited Professor

### Health Intelligence Center

Division of Health Medical Data Science Professor Seiva Imoto, Ph.D. Division of Health Medical Computational Science Professor

Satoru Miyano, Ph.D.

Currently, the cost of whole-genome sequencing analysis for an individual runs less than thousand USD. This cost should be decreased to hundred USD within several years. It is obvious that almost all of us can have own whole-genome sequence information. We are making an effort on development statistical data analysis technologies enhanced with supercomputing in order to create methods for the prediction and prevention of diseases and for improving our health based on genomic big data including whole-genome, transcriptome, epigenome and meta-genome of microbiota, and time-series big data of health and medical records.



mended drugs by Al with their targets and evidence

## Center for Gene & Cell Therapy

Division of Molecular and Medical Genetics Professor Takashi Okada, M.D., Ph.D. Invited Professor Project Professor

IMSUT hospital has been playing a lead role in gene therapy and hematopoietic stem cell transplantation in Japan. In order to strengthen this clinical development even further, IMSUT established the Center for Gene & Cell Therapy (CGCT) in 2014. CGCT particularly focuses on the development of gene therapy / cell therapy for intractable cancer and chronic diseases, e.g. oncolytic virotherapy, engineered T cell therapy, gene therapy for neurodegenarative disorders and hemophilia using AAV vectors, T cell therapy for post-transplant viral infections, and cell therapy using mesenchymal stem/stromal cells.

Professor

Professor Professor

Professor

### Laboratory Animal Research Center

#### Division of Animal Genetics Professor Tomoii Mashimo, Ph.D.

The Laboratory Animal Research Center (LARC) was founded in 1965 as the first modern animal facility in Japan. Currently 386 researchers from 37 laboratories are engaged in this facility, where about 30,000 mice are housed. The mice are strictly maintained in the SPF condition. The Animal Center building of LARC was improved in 1998 to perform genome engineering in animals, to make infectious experiments (P2A, P3A), and to house bigger animals, such as rats and rabbits. Techniques of mouse embryo manipulation and generating genetically modified mice, including genome editing technologies, have been introduced into the LARC.

### Amami Laboratory of Injurious Animals

Tomoji Mashimo Ph D

Professor

This laboratory was established in 1965 at Amami-oshima Island for studies on endemic diseases. This laboratory has three major themes in research: (I) The analysis of pathogenicity of viruses and the development of vaccines for infectious diseases using non-human primate models, (2) The study of assisted reproductive technology in non-human primate, and (3) The development of new therapies for Habu venom using molecular biological and immunological techniques.

## Laboratory of Molecular Genetics

(Frontier Research Unit) Misako Yoneda D.V.M. Ph.D Associate Professor Kazuo Tatebavashi, Ph.D. Associate Professor

The faculty members of the Frontier Research Unit advance cutting edge medical research based on their independent ideas.

Arinobu Tojo, M.D., D.M.Sc. Tomoki Todo, M.D., Ph.D. Toshio Kitamura, M.D., D.M.Sc. Fumitaka Nagamura, M.D., D.M.Sc. Koji Tamada, M.D., Ph.D. Project Kenzahuro Tani M.D. Ph.D.

Project Professor Visiting Professor Associate Professor Associate Professor Project Associate Professor

Hideaki Tahara, M.D., Ph.D. Shin-ichi Muramatsu, M.D., Ph.D. Satoshi Takahashi M.D. D.M.Sc. Tokiko Nagamura-Inoue, M.D., D.M.Sc. Hiroaki Uchida M D Ph D



mote Science-Based Medicine 📥 Conquer Intractable

Director : Tomoji Mashimo



Animal Center building

Director : Tomoii Mashimo



nkey, (c) DFAT cell

Director : Yuji Yamanashi

## Medical Proteomics Laboratory

Professor	Jun-ichiro Inoue, Ph.D.	Project Professor	Koichi Tanaka
Professor	Kouhei Tsumoto, Ph.D.	Associate Professor	Masaaki Oyama, Ph.D.

Proteins play important roles in regulating complex biological events and their functional disorders often lead to a variety of diseases such as cancer and infection. The mission of our laboratory is to develop advanced technologies for antibody engineering, small-molecule screening, mass spectrometry and electron microscopy to perform an integrative proteomic analysis of disease-related protein-protein interaction networks not only from a physicochemical, structural biology point of view but also from a bioinformatical, systems biology point of view. We are also widely involved in many collaborative research projects to facilitate the utilization of these medical proteomics technologies inside and outside the institute.

### Physical Biocher ems/Structural Biolog Antibody engineering Mass spectrometry J

Director : Jun-ichiro Inoue

Fig I. Protein interaction network analysis in medical proteomics

Director : Yasushi Kawaguchi

### **Research Center for Asian Infectious Diseases**

Professor	Yasushi Kawaguchi, D.V.M., Ph.D.	Project Professor	Zene Matsuda, M.D., Ph.D., D.Sc.	Project Associate Professor	Takaomi Ishida, Ph.D.
Professor	Yoshihiro Kawaoka, D.V.M., Ph.D.	Project Professor	Mitsue Hayashi, Ph.D.	Project Associate Professor	Seiya Yamayoshi, D.V.M., Ph.D.
Professor	Jun-ichiro Inoue, Ph.D.	Visiting Professor	Kunito Yoshiike, D.Sc.	Project Senior Assistant Professo	or Jin Gohda, Ph.D.

IMSUT's Research Center for Asian Infectious Diseases is conducting collaborative research with four institutes, supported by the Japan Agency of Medical Research and Development (AMED). Collaborating institutes are: the Institute of Biophysics and Institute of Microbiology of Chinese Academy of Sciences (Beijing); the Harbin Veterinary Research Institute of Chinese Academy of Agricultural Sciences; the National Institute of Infectious Diseases (Tokyo). Center's research focuses on basic and translational studies, targeting HIV-1, MERS coronavirus, Dengue virus, avian and human influenza viruses, and drug-resistant bacteria. In Beijing, IMSUT scientists are working with Chinese scientists mainly on HIV-1 membrane fusion and latency.



Fig. Detection of membrane fusion with split reporter proteins The membrane fusion can be quantitatively measured by the dual split proteins (DSPs) containing split *Renilla* luciferase (RL) and split GFP domains

### IMSUT Distinguished Professor Units

#### Division of Stem Cell Therapy

IMSUT Distinguished Professor Project Associate Professor Project Associate Professor

#### Hiromitsu Nakauchi, M.D., Ph.D. Tomovuki Yamaguchi, Ph.D. Eiji Mizutani, Ph.D.

Division of Mucosal Immunology IMSUT Distinguished Professor Project Associate Professor Project Senior Assistant Professor

Hiroshi Kiyono, D.D.S., Ph.D. Yosuke Kurashima, Ph.D. Rika Nakahashi, Ph.D.

#### **Division of Stem Cell Therapy**

Our goal is to "Establish a New Frontier of Stem Cell Therapy by Connecting the Basic Science and Clinical Medicine." We are working to uncover new diseases, elucidating the causes of disease and developing therapeutic modalities by connecting the knowledge and methodology of basic science such as immunology, molecular biology, cell biology and developmental engineering with clinical medicine.

We are also actively collaborating with international institutes including Stanford University in the US and Canadian Institutes of Health Research in Canada.

#### Division of Mucosal Immunology

The mucosal immune system not only senses pathogenic antigens such as microbial pathogens and allergens, but also establishes tolerance that does not react excessively to beneficial antigens such as food-derived proteins and commensal microorganisms. Our laboratory's mission is to elucidate and understand the uniqueness of the mucosal immune system which controls the immunological balancing act between the elimination and commensalism with harmful and beneficial antigens, respectively, and aim to develop the basic platform for creating the novel strategies of prevention and treatment of various infectious and immunological diseases by the fusion science with mucosal immunology, agriculture science, engineering and plant biology.



Fig.I. Mouse pancreas generated in rat by interspecies blastocyst co Shown below is a mouse (iPS cell donor) and its pancreas



Fig.2. The immune (in red) - neural (in green) network

# IMSUT Hospital

#### Director Arinobu Tojo, M.D., D.M.Sc. Deputy Director Hiroshi Yotsuyanagi, M.D., D.M.Sc. Department of Hematology/Oncology Arinobu Tojo, M.D., D.M.Sc. Professor Associate Professor Satoshi Takahashi, M.D., D.M.Sc. Associate Professor Yoichi Imai, M.D., Ph.D. Associate Professor Tokiko Nagamura-Inoue, M.D., D.M.Sc. Project Associate Professor Hiroshi Yasui, M.D., D.M.Sc. Department of Infectious Diseases and Applied Immunology Professor Hiroshi Yotsuvanagi, M.D., D.M.Sc. Department of Rheumatology and Allergy Professor Hirotoshi Tanaka, M.D., D.M.Sc. Project Associate Professor Motohisa Yamamoto, M.D., D.M.Sc. Senior Assistant Professor Noritada Yoshikawa, M.D., D.M.Sc. Department of General Medicine Hiroshi Yotsuvanagi, M.D., D.M.Sc. Professor Takayuki Morisaki, M.D., Ph.D. Project Professor Project Professor Kenzaburo Tani, M.D., Ph.D. Visiting Professor Hideaki Kagami, D.D.S., Ph.D. Associate Professor Yoshihiro Hirata, M.D., Ph.D. Senior Assistant Professor Yasuo Matsubara, M.D., Ph.D. Department of Applied Genomics Professor Yoichi Furukawa, M.D., Ph.D. Department of Radiology Akira Kunimatsu, M.D., Ph.D. Associate Professor Senior Assistant Professor Hiroyuki Akai, M.D., Ph.D. Department of Palliative Medicine Professor Arinobu Tojo, M.D., D.M.Sc. Visiting Professor Mieko Chinzei, M.D., D.M.Sc. Department of Diagnostic Pathology Yasunori Ota, M.D., Ph.D. Project Associate Professor

Department of Surgery Professor Project Professor Associate Professor Senior Assistant Professor Clinical Senior Assistant Profe Department of Anesthesia Associate Professor Department of Joint Surger Senior Assistant Professor Department of Surgical Neu Professor Project Associate Professor Department of Medical Info Associate Professo Senior Assistant Professor Department of Radiologica Associate Professor Department of Cell Process Associate Professor Tokil Surgical Center Professor

Project Associate Professo Department of Medical Supplement Professor

Project Associate Professor Department of Laboratory | Professor

Department of Pathology Project Associate Professo Department of Clinical Gen

Professor Department of Clinical Nutr Senior Assistant Professor

After the incorporation of all Japanese national universities in April 2004, almost all university hospitals became under direct control of university corporations or were attached to a faculty of medicine. The Hospital of the Institute of Medical Science, the University of Tokyo (IMSUT Hospital) remains the only hospital affiliated with a research institution for a national university in Japan. The 8-storied hospital building has 122 beds including a ward reorganized for translational research and early clinical trials such as a F-I-M study, an outpatient clinic, and operating rooms. Currently, IMSUT Hospital mainly targets diseases such as hematological malignancies, solid tumors, infectious diseases, and autoimmune disorders. Based on advanced medical treatment, IMSUT Hospital, together with the Advanced Clinical Research Center, is conducting research on pathogenesis and promoting translational research (TR), such as gene and cell therapy of blood cancers, viral therapy of brain tumors, and vaccine treatment of solid tumors. The operational structure of IMSUT Hospital is divided into 4 units; (I) Medical Care Unit, (2) Care Support Unit, (3) Clinical Safety and Infection Control Unit, and (4) Clinical Research Support Unit. These units are further supported by the Department of Nursing, Pharmacy and Administration Office.

IMSUT Hospital aims to operate as a core facility for the clinical application of outstanding international and domestic research results, including those of IMSUT's 3 major research centers: Human Genome Center, Center for Experimental Medicine and Systems Biology, and Center for Stem Cell and Regenerative Medicine of IMSUT. Since the activities and mission of IMSUT Hospital cannot be covered by its fixed operational expenses, IMSUT Hospital has been supported by external funds such as i) Funding for Cancer Translational Research, ii) Coordination, Support and Training Program for Translational Research, and iii) Translational Research Network Program among other external funding sources. IMSUT Hospital is still expanding its organization. In 2011, the Department of Surgical Neuro-Oncology was established to conduct clinical research of oncolytic virotherapy for brain tumors. In 2012, the Center for Antibody and Vaccine Therapy began operation, and the Department of Palliative Medicine was established. Further, CGCT (Center for Gene & Cell Therapy) was established in 2014 to serve and promote TR.

ArinobuTojo, M.D., D.M.Sc.	Associate
Hideaki Tahara, M.D., Ph.D.	Regional M
Masaru Shinozaki, M.D., Ph.D.	Professor
Giichiro Tsurita, M.D., Ph.D.	Center for Professor
ssor Kentaro Yazawa, M.D., Ph.D.	(Departme
	Associate
nyu UIII, MI.D., PII.D.	Associate
y Hideyuki Takedani, M.D., D.M.Sc.	(Departmer
ıro-Oncology	Protessor
Tomoki Todo, M.D., Ph.D.	Professor
Minoru Tanaka, M.D., Ph.D.	Associate
rmatics	Proiect As
Akira Kunimatsu, M.D., Ph.D.	Center for
Hiroyuki Akai, M.D., Ph.D.	Professor
Technology	Professor
Akira Kunimatsu, M.D., Ph.D.	Project Pro
and Transfusion	Project Ass
10 Nayalliula-illoue, M.D., D.M.Sc.	Project Ass
Tomoki Todo M.D. Ph.D.	Senior Assis
Minoru Tanaka M D. Ph D.	Project Seni
nly Center	Therapeut
Tomoki Todo. M.D., Ph.D.	Professor
Minoru Tanaka, M.D., Ph.D.	IMSUT COI     Accopiate
Vedicine	
Arinobu Tojo, M.D., D.M.Sc.	Director
	Departmer
Yasunori Ota, M.D., Ph.D.	Director
omics	Departmer
Yoichi Furukawa, M.D., Ph.D.	Invited Pro
ition	Visiting As
Yasuo Matsubara, M.D., Ph.D.	

Radiation Control Office	
Associate Professor Akira Kunimatsu, M.D., Ph.D.	
Regional Medical Liaison Office	
Professor Hiroshi Yotsuyanagi, M.D., D.M.Sc.	
Center for Clinical Safety and Infection Control	
Professor Hiroshi Yotsuyanagi, M.D., D.M.Sc.	
(Department of Clinical Trial Safety Management)	
Associate Professor Yoichi Imai, M.D., Ph.D.	
Associate Professor Ayako Kamisato, Ph.D.	
(Department of Infection Prevention and Control)	
Professor Hiroshi Yotsuyanagi, M.D., D.M.Sc.	
Center for Translational Research	
Professor Fumitaka Nagamura, M.D., D.M.Sc.	
Associate Professor Masanori Nojima, M.D., Ph.D.	
Project Associate Professor Hiroshi Yasui, M.D., D.M.Sc.	
Center for Antibody and Vaccine Therapy	
Professor Hirotoshi Tanaka, M.D., D.M.Sc.	
Professor Kouhei Tsumoto, Ph.D.	
Project Professor Yataro Daigo, M.D., D.M.Sc.	
Project Associate Professor Satoru Nagatoishi, Ph.D.	
Project Associate Professor Motohisa Yamamoto, M.D., D.M.Sc.	
Senior Assistant Professor Noritada Yoshikawa, M.D., D.M.Sc.	
Project Senior Assistant Professor Atsushi Takano, M.D., Ph.D.	
Therapeutic Vector Development Center	
Professor Tomoki Todo, M.D., Ph.D.	
IMSUT CORD	
Associate Professor Tokiko Nagamura-Inoue, M.D., D.M.Sc.	
Department of Nursing	
Director Eiko Yoshii	
Department of Pharmacy	
Director Selichiro Kuroda	
Department of AIDS Vaccine Development	
Invited Professor Ietsuro Matano, M.D., D.M.Sc.	

sociate Professor

Ai Tachikawa, D.M.Sc



## Corporate Sponsored Research Programs/Social Cooperation Research Programs

Project Division of Molecular and	Developmental Biology	Projec
Project Professor	Sumiko Watanabe, Ph.D.	Projec
Project Senior Assistant Professor	Hideto Koso, M.D., Ph.D.	Projec
Project Division of RNA Medical S	cience	Projec
Project Associate Professor	Masaki Takahashi, Ph.D.	Projec
Project Division of Systems Immu	Projec	
Project Professor Sa	itoshi Uematsu, M.D., Ph.D.	Projec
Project Division of International A	Projec	
Project Associate Professor	Koichiro Yuji, M.D., Ph.D.	Profes
Project Division of ALA Advanced	Medical Research	
Project Professor Project Senior Assistant Professor	Kenzaburo Tani, M.D., Ph.D. Yasushi Soda, M.D., Ph.D.	

Project D	ivision of Fundamental Study o	n Cutting Edge of Genome Medicine			
Project A	ssociate Professor	Hiroshi Yasui, M.D., D.M.Sc.			
Project D	ivision of Advanced Biopharma	ceutical Science			
Project A	ssociate Professor	Satoru Nagatoishi, Ph.D.			
Project D	Project Division of Cancer Biomolecular Therapy				
Project P	rofessor	Hideaki Tahara, M.D., Ph.D.			
Project A	ssociate Professor	Hiroaki Uchida, M.D., Ph.D.			
Project D	ivision of Genomic Medicine an	d Disease Prevention			
Professo	r Yo	shinori Murakami, M.D., Ph.D.			

In addition to the three core departments and affiliated centers, IMSUT has set up corporate sponsored research programs, of which the costs are paid by donations from supporting companies to extend educational and research activities. Social cooperation research programs have also been set up, aimed at collaborative research initiatives with private organizations through their funding of shared interest that can contribute to social benefit. The corporate sponsored research programs and social cooperation research programs are led by IMSUT project professors and contribute to evolving the educational and research activities of IMSUT, and to the expansion of the institute's diverse research.

## **Common Research Facilities**

#### Animal Center

- Professor Tomoii Mashimo
- Culture Media Section Head Jun-ichiro Inoue
- Library
- Makoto Nakanishi Head Badioisotone Center
- Kensuke Mivake Head
- IT Service Room Head Makoto Nakanishi
- Photographic Laboratory
- Head Makoto Nakanishi Genetically Modified Microorganism Support Office
- Head Yasushi Kawaguchi

Fumitaka Nagamura

Toichi Takenaka

Makoto Nakanishi

Jun-ichiro Inoue

Makoto Nakanishi

Office of Support for Platforms for Advanced Technologies and Research Resources

Office of Research Ethics

**Technical Office** 

Dean's Office

Dean's Advisor Office Visiting Professor

Project Coordination Office

International Affairs Office

Head

Head

Head

Head

Head Kaori Muto Associate Professor Avako Kamisato

### Office of Health and Safety

- Shin-Ichiroh Saitoh Head Office of Intellectual Property
- Jun-ichiro Inoue Head
- Advisorv Room for Conflict of Interest Head Yoichi Furukawa
- Pathology Core Laboratory
- Laboratory I Head Yoshinori Murakami Laboratory II Head Yasunori Ota
- Gene Manipulated Mouse Section
- Professor Yasuhiro Yamada Imaging Core Laboratory
- Mutsuhiro Takekawa Head IMSUT Clinical Flow Cytometry Laboratory
- Head Arinobu Tojo





aging Core Laboratory



### Education Activities

The Institute of Medical Science, The University of Tokyo (IMSUT), is prominent as an institution for graduate education. It provides an ideal environment for young people interested in pursuing a career in scientific research. Drawing upon a wide range of graduate schools such as medicine, science, agricultural and life sciences, pharmaceutical sciences, engineering, information science and technology, frontier sciences and interdisciplinary information studies, the faculties of the various divisions teach a wide range of courses to a similarly diverse array of elite graduate students. In order to pursue transdisciplinary approaches within the Graduate School of Frontier Sciences, the University of Tokyo has now established the new Department of Computational Biology and Medical Science. Through IMSUT's strenuous efforts, this department was established in fiscal year 2015, with the Shirokanedai campus housing many participating laboratories as well as some courses that make up the department's core curriculum. Thus, through strong links to IMSUT, cross-disciplinary education and research are expanding. The distinguishing features of our educational program are that it targets mainly graduate students aiming to become researchers, and that the professors and staff members can concentrate on guiding students in their laboratory research. The departments and divisions frequently collaborate and interact closely with each other, making interdisciplinary research yet one more of our distinguishing features.

The programs provided by the institute include a graduate seminar series and clinical courses for non-physician graduate students at

### Medical Science Museum

The Medical Science Museum preserves and introduces to the public Medical Science with its focus reset to cutting-edge research into the valuable historical materials of the Institute of Medical Science medical science in 1967. And today, with the aim of clarifying the (IMS), the University of Tokyo. Founded by Dr. Shibasaburo Kitasato principles of infectious diseases, cancer and other specified diseases, in 1892 as the Institute of Infectious Diseases (IID), for more than and establishing practical treatments based on such insights, the half a century following its inception the institute served as a key institute carries out research and development in the most advanced player in infectious disease research in Japan. The IID at the time not areas of medicine such as genomic medicine and gene and cell only acted as the largest manufacturer of bacteriological products therapies Surrounded by greenery, the museum beckons with its contrasting such as vaccines and antiserums, but also became involved in all aspects of research and medical care related to infectious disease: facets: a brick-style wing evoking a stable from the era of the IID and educating doctors and public sanitation officials on matters related a glass-paneled wing heralding the future. Please contemplate the to infectious disease, evaluating/approving bacteriological products, past and future of medical science during your visit. and so on. With the ongoing development of antibiotics and improvements in public sanitation, the importance of infectious disease research receded, and the IID was reborn as the Institute of



Dr. Shibasaburo Kitasato Founding Dean of the Institute for Infectious Diseases September, 1910 (Meiji period) Preserved in the Medical Science Museum of the Institute of Medical Science, The University of Tokyo



IMSUT Hospital. The graduate seminar series consists of weekly seminars, provided by first-class researchers from around Japan, on a theme freshly chosen each year. Those courses are deemed to be credits for the graduate school of medicine. Our Institute's affiliated hospital provides clinical courses for non-physician graduate students, which include in-depth consideration of ethical issues and translational research

IMSUT also has a rich educational environment for information science. At the Human Genome Center, there are faculty members with deep computing expertise, and workshops are frequently held there. Lectures offered by the Department of Computational Biology and Medical Science, Graduate School of Frontier Sciences, are open to IMSUT students outside this research area. Further, many other seminars are given by researchers from inside and outside Japan, providing a window onto the latest research progress.

Our library is available 24 hours a day including weekends and holidays.

IMSUT encourages students to conduct research enthusiastically, and works to motivate them. We honor exceptional graduate students every year with our Outstanding Student Publication Awards

Budget



# Members

### Staff

	Institute	Hospital	Total
Professor	27	1	28
Associate Professor	21	5	26
Senior Assistant Professor	2	5	7
Assistant Professor	36	13	49
Research Associate	1	0	1
Official	40	12	52
Technical Official	34	111	145
	lospital	= 3	808

### Fixed-term Project Staff

	Institute	Hospital	Total
Project Professor	7	0	7
Project Associate Professor	12	0	12
Project Senior Assistant Professor	7	1	8
Project Assistant Professor	14	0	14
Project Reseacher	35	1	36
Project Academic Support Specialist	38	9	47
Project Academic Support Staff	32	5	37
Project Specialist	1	2	3
Project Medical Staff	0	12	12
Project Nursing Staff	0	14	14
Institute	Hospital	= 1	90
146	44		

#### Graduate School Students

Graduate School	Master's	Doctoral	Total
Graduate School of Medicine	1	56	57
Graduate School of Science	10	8	18
Graduate School of Pharmaceutical Sciences	1	0	1
Graduate School of Information Science and Technology	6	3	9
Graduate School of Frontier Sciences	69	47	116
Graduate School of Interdisciplinary Information Studies	2	1	3
Graduate School of Engineering	10	10	20
Master's Doctor 99 + 125	al	= 22	24

	Institute	Hospital	Total
Project Professor	5	1	6
Project Associate Professor	2	2	4
Project Senior Assistant Professor	0	0	0
Project Assistant Professor	2	1	3
Project Reseacher	14	1	15
Project Academic Support Specialist	19	2	21
Project Academic Support Staff	37	5	42
Project Senior Specialist	0	2	2
Project Specialist	4	0	4
Assistant Clerk	14	9	23
Technical Assistant	22	2	24
Part-time Academic Affairs Staff	1	0	1
Skilled Assistant	3	10	13
Member of the Medical Staff	0	8	8
Special Medical Intern	0	3	3
Assistant Medical Technician	0	3	3
Assistant Nurse	0	1	1

#### Fixed-term Part-time (Project) Staff



241

#### JSPS Research Fellow

**4**30

	Total
JSPS Research Fellow(SPD)	1
JSPS Research Fellow(PD)	2
JSPS Research Fellow(DC)	14
JSPS Foreign Research Fellow	1



6/

### Research Students

	Total
Graduate Research Student	12
Graduate International Research Student	1
IMSUT Research Student	4





# Campus Map

# Access Map



IMSUT Hospital	University Facilities		
Hospital Reception for Outpatients	1 Bldg. 1	7 General Research Bldg.	13 Crest Hall
A Hospital Bldg. A	2 Bldg. 2	8 Clinical Research Bldg. A	14 Human Genome Center
B Hospital Bldg. B	3 Bldg. 3	9 Core Facility for Therapeutic Vectors	15 Medical Science Museum
C Hospital Bldg. C	4 Bldg. 4	10 Research Bldg. Annex	16 Shirokane Hall
	5 Animal Center	<b>11</b> Open Laboratory Bldg.	17 BioBank
	6 Amgen Hall	12 Human Genome Center Annex	18 Tennis Courts

International Lodge	
a Shirokanedai Lodge A	Hospital Information Station
b Shirokanedai Lodge B	👧 Rest Area 🛛 📟 Bus Stop
Chirahana dai Ladas C	Restaurant P Parking
C Shirokanedal Lodge C	Shop Barking for Patients

G	rounds/				(Unit:m)
Buildings		Land Space	Build	ings Total Space	
		Institute		11,548	54,126
Shirokanedai	okanedai	Hospital		3,305	23,259
		Subtotal	68,907	14,853	77,385
Amami			8,834	805	805
Total		77,741	15,658	78,190	
IMSU Locations: Ama Injur		GUT ami Laboratory o irious Animals	4-6-1 Shi f 8 0	rokanedai, Minato 02 Tean-sude, Set shima-gun, Kagos	o-ku, Tokyo touchi-cho, shima



SHIROKANEDAI	SHIROKANEDAI-STATION on the Metro NAMBOKU or MITA LINE (EXIT 2)	
By WALK FROM STATION	15 min. walk from JR-MEGURO-STATION EAST EXIT	
By BUS FROM STATION	From JR-MEGURO-STATION EAST EXIT (MEGRO-EKI-MAE bus stop) * take (品93) metropolitan bus bound for OHI-KEIBAJO >> get off at SHIROKANEDAI-EKI-MAE * take (黒77) metropolitan bus bound for SENDAGAYA-EKI-MAE (or take (橋86) metropolitan bus bound for SHINBASHI-EKI-MAE or TOKYO TOWER) >> get off at TODAI-IKAKENBYOIN-NISHIMON	JR-YA JR-CHUC
SHINAGAWA	From JR-SHINAGAWA-STATION (SHINAGAWA-EKI-MAE bus stop) * take (品93) metropolitan bus bound for MEGRO-EKI-MAE >> get off at SHIROKANEDAI-EKI-MAE From HIROO-STATION on the Metro HIBIYA LINE (HIROO-BASHI bus stop) * take (黑77) or (橋86) metropolitan bus bound for MEGRO-EKI-MAE >> get off at TODAI-IKAKENBYOIN-NISHIMON	

http://www.ims.u-tokyo.ac.jp/imsut/en/access/access/

http://www.ims.u-tokyo.ac.jp/imsut/en/

4-6-1, Shirokanedai, Minato-ku, Tokyo, 108-8639, Japan TEL/(+81)-3-3443-8111



