The Institute of Medical Science
The University of Tokyo
2016

Contents

The Institute of Medical Science, the University of Tokyo (IMSUT) was established by Prof. Dr. Shibasaburo Kitasato in 1892 as the Institute of Infectious Diseases (IID). It was then reorganized and underwent a name change from IID to IMSUT in 1967.

At IMSUT, we search for the truth of biological phenomena and the principles of diseases, reconstitute the disease model and unveil the molecular and cellular mechanisms of illnesses. It is our mission to aim at innovative prevention and therapies on the basis of basic research sparked and driven by the investigators' intellectual curiosity. We also conduct project-oriented research to respond to society's needs by focusing on several timely topics of biomedical science. Moreover, we work to push back the frontiers of medical and biological science, and put our discoveries into practice as revolutionary therapies in our affiliated research hospital. Further, the Institute continues to contribute to the national and global research community in biomedical science as a collaborative hub for research with shared activities and facilities, including our high-level basic research and large-scale research facilities such as our supercomputer and affiliated hospital.

We are currently conducting basic research on cancer, infectious diseases, immune disorders, and other intractable and rare diseases. At the same time, we are expanding programs in genomic medicine, regenerative medicine and genetically engineered animal models to develop novel prevention, diagnostics and therapeutics. These pioneering research initiatives have earned international respect for their achievements. IMSUT also provides a practical model of a translational research center, serving as a bridge from bench to bedside for cutting-edge medical treatment, drug and vaccine development.

In 2017, IMSUT will celebrate the 125th anniversary of its foundation and also celebrate the 50th anniversary of the institute's reorganization. Building on its proud tradition and history, we aim to contribute to the global society of the 21st century. We are involved in the "IMSUT 125-50/IMSUT One to GoGo" project that aims to place us at the forefront of cutting-edge medical and life science research institutes.

Yoshinori Murakami, M.D., Ph.D.
Dean

Department and Research Facility Heads

Dean		Professor	Yoshinori Murakami
Vice Dean		Professor	Mutsuhiro Takekawa
Vice Dean		Professor	Yasushi Kawaguchi
Vice Dean		Professor	Hirotoshi Tanaka
Department of Microbiology and Immunology	Chair	Professor	Kensuke Miyake
Department of Cancer Biology	Chair	Professor	Yuji Yamanashi
Department of Basic Medical Sciences	Chair	Professor	Toshiya Manabe
Human Genome Center	Director	Professor	Satoru Miyano
Center for Experimental Medicine and Systems Biology	Director	Professor	Nobuaki Yoshida
Advanced Clinical Research Center	Director	Professor	Arinobu Tojo
Center for Stem Cell Biology and Regenerative Medicine	Director	Professor	Hiromitsu Nakauchi
International Research Center for Infectious Diseases	Director	Professor	Yoshihiro Kawaoka
Laboratory Animal Research Center	Director	Professor	Chieko Kai
Amami Laboratory of Injurious Animals	Director	Professor	Chieko Kai
Laboratory of Molecular Genetics	Director	Professor	Izumu Saito
Medical Proteomics Laboratory	Director	Professor	Jun-ichiro Inoue
IMSUT Hospital	Director	Professor	Keiya Ozawa
	Deputy Director	Professor	Arinobu Tojo
	General Manager		Kiyomi Ueda
	Manager		Toshihide Asakawa
Administration Office	Manager		Isao Uehara
	Manager		Makoto Hidai
	Manager		Takaharu Mikami

Former Deans

1st	Shibasaburo	Kitasato	1892-1914	14th	Manabu	Sasa	1972-1973
Acting Dean	Ryojiro	Fukuhara	1914-1915	15th	Tadashi	Yamamoto	1973-1977
2nd	Tanemichi	Aoyama	1915-1916	16th	Hiroto	Shimojo	1977-1979
3rd	Haruo	Hayashi	1916-1919	17th	Toru	Tsumita	1979-1983
4th	Mataro	Nagayo	1919-1934	18th	Takeshi	Odaka	1983-1987
5th	Yoneji	Miyagawa	1934-1940	19th	Kumao	Toyoshima	1987-1990
6th	Tokushiro	Mitamura	1940-1944	20th	Akira	Kobata	1990-1992
7th	Takeo	Tamiya	1944-1949	21st	Kazushige	Hirosawa	1992-1996
8th	Shuji	Hasegawa	1949-1956	22nd	Mitsuaki	Yoshida	1996-1998
9th	Yoshiharu	Takeda	1956-1956	23rd	Ken-ichi	Arai	1998-2003
10th	Yasuichi	Nagano	1956-1958	24th	Tadashi	Yamamoto	2003-2007
11th	Masashiro	Kudo	1958-1965	25th	Motoharu	Seiki	2007-2011
12th	Ayao	Yamamoto	1965-1968	26th	Hiroshi	Kiyono	2011-2015
13th	Manabu	Sasa	1968-1971	27th	Yoshinori	Murakami	2015-
Acting Dean	Yukinori	Tsunematsu	1971-1971				

Former Directors of the Hospital

1st	Tomoe	Takagi	1895-1896	11th	Sugishi	Ootani	1977-1981
2nd	Gozou	Moriya	1899-1901	12th	Genshitiro	Fujii	1981-1985
3rd	Gorosaku	Shibayama	1901-1914	13th	Shiro	Miwa	1985-1987
4th	Kenzo	Futaki	1914-1920	14th	Nobuo	Akiyama	1987-1991
5th	Yoneji	Miyagawa	1920-1945	15th	Kaoru	Shimada	1991-1994
Acting Director	Takeo	Tamiya	1945-1946	16th	Shigetaka	Asano	1994-2003
6th	Yoshio	Mikamo	1946-1951	17th	Aikichi	Iwamoto	2003-2006
7th	Osamu	Kitamoto	1951-1969	18th	Naohide	Yamashita	2006-2010
8th	Yikio	Ishibashi	1969-1971	19th	Kohzoh	Imai	2010-2014
9th	Tsunamasa	Inou	1971-1974	20th	Keiya	Ozawa	2014-
10th	Keimei	Mashimo	1974-1977				

History

1892 Foundation of the Institute for Infectious Diseases, as a private institute by Dr. Shibasaburo Kitasato

1899 Reorganization as a national institute, the Institute for Infectious Diseases, under the control of the Ministry of Internal Affairs

1906 Relocation of the institute to Shirokanedai, Minato-ku

1914 Reorganization under the Ministry of Education

1916 Incorporation into Tokyo Imperial University

1947 Transfer of about half of its personnel to the newly founded "National Institute of Health", under control of the Ministry of Public Health and Welfare

1947 Name changed from Tokyo Imperial University to the University of Tokyo

1965 Establishment of the Animal Research Center

1966 Establishment of the Amami Laboratory of Injurious Diseases

1967 Reorganization of the Institute of Infectious Diseases into the Institute of Medical Science, with 18 research departments and 3 facilities, including the hospital with 2 clinical departments Aims for basic and applied research of infectious diseases, cancer and other special diseases

1980 Establishment of the Laboratory of Molecular Genetics

1991 Establishment of the Human Genome Center

1992 100th Anniversary

1998 Establishment of the Center for Experimental Medicine

1999 Renovation of the auditorium
Construction of Shirokane Hall

2000 Reorganization into 3 departments; Microbiology-Immunology, Cancer Biology and Basic Medical Sciences
Establishment of the Advanced Clinical Research Center

2001 Reorganization of the hospital
Opening of the Medical Science Museum

2003 Completion of new research facilities, the General Research Building and Hospital Building

2004 Reorganization of the University of Tokyo as a national university corporation, according to the law (Heisei 15 law No.112)

2005 Establishment of the International Research Center for Infectious Diseases

2006 Foundation of the Research Center for Asian Infectious Diseases in Beijing
Establishment of the Medical Proteomics Laboratory

2007 Launch of the Frontier Research Initiative (for 5 years)

2008 Establishment of the Center for Stem Cell and Regenerative Medicine
Todai Shirokanedai Himawari Day Nursery opens

2009 Reorganization of the Center for Experimental Medicine into the Center for Experimental Medicine and Systems Biology

2010 Approved as a national center for joint usage/research center

2011 Establishment of the International Research and Development Center for Mucosal Vaccine

2014 Establishment of the Center for Gene & Cell Therapy

2015 Establishment of the Health Intelligence Center

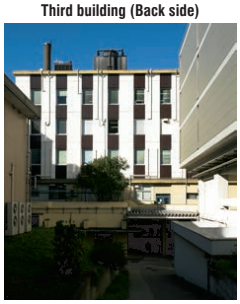
Map of IMSUT

① First Building
② Second Building
③ Third Building
④ Fourth Building
⑤ Hospital Building A
⑥ General Research Building
⑦ Human Genome Center
⑧ Open Laboratory Building
⑨ Animal Center
⑩ Amgen Hall
⑪ Human Genome Center (annex)
⑫ Clinical Research Building A
⑬ Hospital Building B
⑭ Hospital Building C
⑮ Research Building (annex)
⑯ Core Facility for Therapeutic Vectors
⑰ Crest Hall
⑱ Shirokane Hall
⑲ Shirokane Himawari Day Nursery
⑳ Medical Science Museum

First building

Second building

Third building (Back side)



Fourth building (Back side)

Hospital Building A

General Research Building

Human Genome Center

Open Laboratory Building

Animal Center

Medical Science Museum

Grounds/Buildings

(Unit: m^2)

		Land Space	Buildings	
			Floor Space	Total Space
Shirokanedai	Institute		11,811	54,213
	Hospital		3,366	23,257
	Subtotal	68,907	15,177	77,470
Amami		8,834	805	805
Total		77,741	15,982	78,275

Locations:
IMSUT — 4-6-1 Shirokanedai, Minato-ku, Tokyo
Amami Laboratory of Injurious Animals — 802 Teansude, Setouchi-cho, Oshima-gun, Kagoshima

Organization

Dean

Faculty Meeting

Research Departments

Department of Microbiology and Immunology	Division of Virology Division of Infectious Genetics Division of Mucosal Immunology Division of Molecular Virology
Department of Cancer Biology	Division of Molecular Pathology Division of Cellular and Molecular Biology Division of Genetics Division of Cancer Cell Biology
Department of Basic Medical Sciences	Division of Molecular Cell Signaling Division of Neuronal Network Division of Cell Signaling and Molecular Medicine

Research Facilities

Human Genome Center	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	Laboratory of Developmental Genetics Laboratory of Systems Biology Laboratory of Innate Immunity Laboratory of Genetically Engineered Mouse Research Laboratory of Reproductive Systems Biology Laboratory of Advanced Molecular Genetics
Advanced Clinical Research Center	Division of Molecular Therapy Division of Cellular Therapy Division of Infectious Diseases Division of Bioengineering Division of Clinical Genome Research Division of Innovative Cancer Therapy Division of Advanced Medicine Promotion Division of Advanced Genome Medicine Division of Genetic Therapeutics
Center for Stem Cell Biology and Regenerative Medicine	Division of Stem Cell Transplantation Division of Stem Cell Processing Division of Stem Cell Therapy (Stem Cell Bank) (FACS Core Laboratory) Division of Stem Cell Signaling Division of Stem Cell Dynamics Division of Stem Cell Cellomics
International Research Center for Infectious Diseases	Department of Special Pathogens Department of Infectious Disease Control (Division of Viral Infection) (Division of Bacteriology) Pathogenic Microbes Repository Unit
International Research and Development Center for Mucosal Vaccine	Division of Mucosal Barriology Division of Innate Immune Regulation
Laboratory Animal Research Center	
Amami Laboratory of Injurious Animals	
Laboratory of Molecular Genetics	
Medical Proteomics Laboratory	
Center for Gene & Cell Therapy	
Health Intelligence Center	Division of Health Medical Data Science Division of Health Medical Computational Science
Research Center for Asian Infectious Diseases	

Corporate Sponsored Research Programs, Social Cooperation Research Programs

Project Division of Molecular and Developmental Biology
Project Division of RNA Medical Science
Project Division of Systems Immunology Research
Project Division of Advanced Regenerative Medicine
Project Division of International Advanced Medical Research
Project Division of ALA Advanced Medical Research
Project Division of Fundamental Study on Cutting Edge of Genome Medicine

Common Research Facilities

Animal Center
Culture Media Section
Library
Radioisotope Center
IT Service Room
Photographic Laboratory
Genetically Modified Microorganism Support Office
Office of Research Ethics
Office of Health and Safety
Office of Intellectual Property
Advisory Room for Conflict of Interest
Pathology Core Laboratory
Gene Manipulated Mouse Section
Imaging Core Laboratory
IMSUT Clinical Flow Cytometry Laboratory

Technical Office

Dean's Office

Dean's Office
Dean's Advisor Office
Project Coordination Office
Office of Support for Platforms for Advanced Technologies and Research Resources

Administration Office

Administrative Affairs Division	General Affairs Team Personnel and Payroll Team Financial Affairs Team Procurement Team Physical Plant Team
Research Support Division	Research Promotion Team External Fundraising Strategic Management Team Library and Information Team
Hospital Division	Hospital Planning Team Hospital Financial Team Hospital Accounting Team Nutrition Management Unit

IMSUT Hospital

Medical Care Unit
【Departments of Internal Medicine】
Department of Advanced Medical Science
Department of Infectious Diseases and Applied Immunology
Department of Rheumatology and Allergy
Department of Hematology/Oncology
Department of Applied Genomics
Department of Radiology
Department of Diagnostic Pathology
【Departments of Surgery】
Department of Surgery
Department of Anesthesia
Department of Joint Surgery
Department of Surgical Neuro-Oncology
Department of Palliative Medicine

Care Support Unit
Department of Medical Informatics
Department of Radiological Technology
Department of Cell Processing and Transfusion
Surgical Center
Department of Medical Supply Center
Department of Laboratory Medicine
Department of Pathology
Radiation Control Office
Regional Medical Liaison Office
Clinical Safety and Infection Control Unit
Center for Clinical Safety and Infection Control
Department of Clinical Trial Safety Management
Department of Infection Prevention and Control
Clinical Research Support Unit
Center for Translational Research
Center for Antibody and Vaccine Therapy
Therapeutic Vector Development Center
Department of Nursing
Department of Pharmacy
Department of AIDS Vaccine Development

Accounts

Management Expenses Grants (Unit: 1,000yen)

		2011	2012	2013	2014	2015
Institute	Budget for Salaries	2,050,159	1,694,318	1,703,765	1,781,556	1,794,094
	Budget for Materials	2,417,325	2,752,612	2,978,600	2,692,581	2,246,165
	Subtotal	4,467,484	4,446,930	4,682,365	4,474,137	4,040,259
Hospital	Budget for Salaries	1,349,772	1,403,275	1,513,699	1,630,624	1,584,108
	Budget for Materials	3,365,363	3,173,561	2,978,247	3,200,214	3,500,999
	Subtotal	4,715,135	4,576,836	4,491,946	4,830,838	5,085,107
Total		9,182,619	9,023,766	9,174,311	9,304,975	9,125,366

Income from External Sources (Unit: 1,000yen)

	2011	2012	2013	2014	2015
Research Grants (Personal)	1,793,186	2,310,455	1,794,680	1,376,243	625,717
Research Grants (IMSUT)	760,537	871,675	512,793	1,146,106	859,890
Contract	1,456,343	1,674,799	3,921,298	4,182,688	3,393,817
Collaborative	436,106	376,031	544,202	440,063	418,097
Donations	229,659	171,635	243,276	213,002	219,366
Total	4,675,831	5,404,595	7,016,249	7,358,102	5,516,887

Research and Education Projects by External Funds

Ongoing in 2016

Project Name	Project Head in IMSUT
Translational Research Network Program "Advanced Center for the Establishment and Coordination of Biomedical Innovation Development Assistance"	IMSUT Hospital Director/Professor Keiya Ozawa
Japan Initiative for Global Research Network on Infectious Diseases (J-GRID) "China-Japan Research Collaboration on Defense against Emerging and Reemerging Infections"	Professor Yasushi Kawaguchi
Tailor-made Medical Treatment Program (BioBank Japan: BBJ) "Construction of the Biobank and a Clinical Information Database"	Professor Yoshinori Murakami

Research and Education Projects by Management Expenses Grants

Project Name	Project Term
Cultivation of Human Resources for Global Leaders and Coordinators Conducting Clinical Trials of Innovative Antibody and Vaccine Therapy at First in Man (FIM)	FY 2013-2017
Organization of International Genomic Medicine Research Initiative for Innovative Therapies and Prevention	FY 2015-2019
Global Promotion of Strategic Research and Development for Mucosal Vaccines	FY 2016-2020
Joint Research Project on Promotion of Basic and Applied Medical Sciences	FY 2016-2021
Establishment of a Collaborative Platform for Research and Human Resources for the Control of Infectious Diseases	FY 2016-2021

Hospital

Number of Beds : 135

Number of Patients

		2011	2012	2013	2014	2015
Internal	Outpatient	23,860	24,994	25,273	23,448	24,176
	Inpatient	19,931	19,049	20,035	19,514	16,874
Surgery	Outpatient	4,782	4,375	4,529	5,953	6,248
	Inpatient	8,172	7,258	9,215	9,723	8,551
Radiology	Outpatient	291	187	282	275	230
Total		57,036	55,863	59,334	58,913	56,079

Income from IMSUT Hospital (Unit: 1,000yen)

	2011	2012	2013	2014	2015
Outpatient	1,567,227	1,651,796	1,631,877	1,735,990	1,922,984
Inpatient	2,095,493	1,893,437	1,735,177	2,059,800	1,965,946
Total	3,662,720	3,545,233	3,367,054	3,795,790	3,888,930

International Academic Exchange Agreements

Countries and Regions	Partner Universities / Institutes	Types of Agreements	Date of First Signing
China	Chinese Academy of Sciences	University Wide	2005/4/29
France	Institut Pasteur	Departmental	2006/4/18
China	Sun Yat-sen University	University Wide	2011/11/15
Kingdom of Bahrain	College of Medicine and Medical Sciences, Arabian Gulf University	Departmental	2013/7/14
Korea	Soonchunhyang University	Departmental	2013/9/26
The United States of America	The University of Chicago Medicine	Departmental	2014/6/4
Vietnam	School of Medicine, Vietnam National University-Ho Chi Minh City	Departmental	2015/3/23

Staff and Students

Staff

(Data 2016.07.01)

	Institute	Hospital	Total
Professor	27	2	29
Associate Professor	18	6	24
Senior Assistant Professor	5	6	11
Assistant Professor	44	15	59
Research Associate	1	0	1
Official	50	*0 (12)	50
Technical Official	38	*111 (3)	149
Subtotal	183	*140 (15)	323

Fixed-term Project Staff

	Institute	Hospital	Total
Project Professor	5	0	5
Project Associate Professor	12	1	13
Project Senior Assistant Professor	6	4	10
Project Assistant Professor	11	1	12
Project Reseacher	49	4	53
Project Academic Support Specialist	44	11	55
Project Academic Support Staff	14	6	20
Project Specialist	0	0	0
Project Medical Staff	0	8	8
Project Nursing Staff	0	9	9
Subtotal	141	44	185

Fixed-term Part-time (Project) Staff

	Institute	Hospital	Total
Project Professor	3	1	4
Project Associate Professor	1	0	1
Project Senior Assistant Professor	0	0	0
Project Assistant Professor	1	1	2
Project Reseacher	14	0	14
Project Academic Support Specialist	21	5	26
Project Academic Support Staff	23	5	28
Project Senior Specialist	0	2	2
Assistant Clerk	23	*11 (2)	34
Technical Assistant	30	5	35
Part-time Academic Affairs Staff	2	0	2
Skilled Assistant	6	9	15
Member of the Medical Staff	0	9	9
Special Medical Intern	0	5	5
Assistant Medical Technician	1	4	5
Assistant Nurse	0	3	3
Subtotal	125	*60 (2)	185

Total	449	* 244 (17)	693

* ( ) is the number of Hospital Division Staff, included in the number of staff from "Institute"

University of Tokyo Research Fellows

	Institute	Hospital	Total
JSPS Research Fellow (PD, RPD)	3	1	4
JSPS Foreign Research Fellow	0	0	0
Total	3	1	4

Graduate School Students

Graduate School	Master's	Doctoral	Total
Graduate School of Medicine	1	56	57
Graduate School of Science	3	7	10
Graduate School of Pharmaceutical Sciences	0	1	1
Graduate School of Information Science and Technology	4	1	5
Graduate School of Frontier Sciences	61	64	125
Graduate School of Interdisciplinary Information Studies	3	2	5
Graduate School of Engineering	14	13	27
Total	86	144	230

Research Students

	Master's	Doctoral	Total
Graduate Research Student	-	-	11
Graduate International Research Student	-	-	1
IMSUT Research Student	0	4	4
Total			16

Department of Microbiology and Immunology

Chair: Kensuke Miyake

● **Division of Virology**
Professor: Yoshihiro Kawaoka, D.V.M., Ph.D.
Project Professor: Makoto Yamashita, Ph.D.
Visiting Professor: Takeshi Noda, D.V.M.,Ph.D.
Associate Professor: Masaki Imai, D.V.M., Ph.D.
Project Associate Professor: Satoshi Fukuyama, Ph.D.
Project Associate Professor: Tokiko Watanabe, D.V.M., Ph.D.
Project Associate Professor: Seiya Yamayoshi, D.V.M., Ph.D.

● **Division of Infectious Genetics**
Professor: Kensuke Miyake, M.D., Ph.D.

● **Division of Mucosal Immunology**
Professor: Hiroshi Kiyono, D.D.S., Ph.D.

● **Division of Molecular Virology**
Professor: Yasushi Kawaguchi, D.V.M., Ph.D.

The research scope of our department includes the elucidation of the molecular interactions between pathogens such as influenza virus and Herpes Simplex Virus and the host, molecular recognition of microbial products by the immune system, and the molecular mechanisms controlling host defense systems. Understanding the molecular bases for such processes will be applied to the development on novel vaccines or approaches to prevent or control infectious diseases and related immune disorders. The department is composed of four divisions: “Division of Virology”, “Division of Innate Immunity”, “Division of Mucosal Immunology”, “Division of Molecular Virology”. Although each research group has particular interests in either the pathogen or the host, their research is not limited to one or the other side of infectious diseases. Rather, their research covers a wide range of dynamic interactions between microbes and the host in the development of infectious diseases and related immune disorders. Our department has been successfully promoting basic research in the area of infection and immunity in collaboration with many other groups in Japan and other countries. In addition, we have actively engaged in promoting collaborative projects with IMSUT Research Hospital as well as various groups in pharmaceutical companies for the development of drugs, vaccines and immunobiomaterials. The growing concern in emerging and re-emerging infectious diseases demands further progresses of the basic research projects in our department. Our department, as one of the pioneer groups in our country, strongly endeavors to promote and expand the research projects on infection and immunity through collaborations with other groups, and the professional development of young independent investigators through studies in the department.

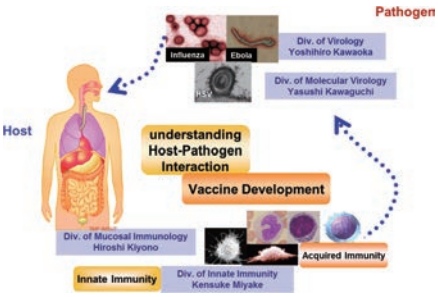


Figure shows four divisions in Department of Microbiology and Immunology. Two divisions focus on pathogens, whereas the other two division focus on the immune system. These division work together to understand the molecular bases underlying host-pathogen interaction and to develop novel vaccines or novel therapy for infectious diseases.

Department of Cancer Biology

Chair: Yuji Yamanashi

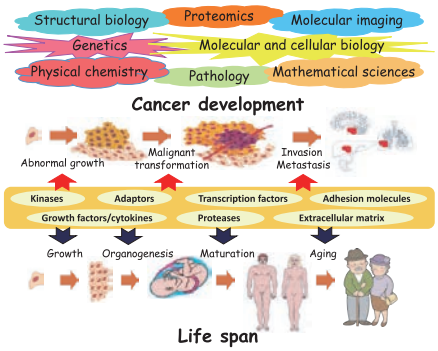
● **Division of Molecular Pathology**
Professor: Yoshinori Murakami, M.D., Ph.D.
Visiting Professer: Naohiko Koshikawa, Ph.D.
Visiting Associate Professor: Daisuke Matsubara, M.D., Ph.D.

● **Division of Cellular and Molecular Biology**
Professor: Jun-ichiro Inoue, Ph.D.
Associate Professor: Taishin Akiyama, Ph.D.

● **Division of Genetics**
Professor: Yuji Yamanashi, Ph.D.

● **Division of Cancer Cell Biology**
Professor: Makoto Nakanishi, M.D., Ph.D.

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, tumor invasion, metastasis, and angiogenesis, mechanisms of malignant transformation by tumor viruses, and pathogenic mechanisms in human cancer. Needless to say, 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: Elucidation of the molecular mechanisms of transcription factor NF-kB activation and its roles in cancer development and pathogenesis of various diseases. Division of Genetics: 1) Studies on molecular signals that regulate a variety of cellular activities, aiming to address how deregulated cellular signals cause neoplastic, immune, neural, metabolic, or developmental disorders. 2) Pathophysiological analyses of animal models for the above-mentioned diseases. Division of Cancer Cell Biology: 1) Elucidation of in vivo anti-cancer mechanisms and development of innovative cancer therapies. 2) Molecular basis underlying DNA methylation abnormalities in early stages of carcinogenesis.



Department of Basic Medical Sciences

Chair: Toshiya Manabe

● **Division of Molecular Cell Signaling**
Associate Professor: Kazuo Tatebayashi, Ph.D.

● **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 three groups: the Division of Molecular Cell Signaling, the Division of Neuronal Network, and the Division of Cell Signaling and Molecular Medicine. A brief summary of each division is as follows.

1) Division of Molecular Cell Signaling studies the cellular signal transduction to extracellular stress stimuli, such as hyper osmolarity, radiation and oxidative stress, using both mammalian cells and yeast. This group also develops fluorescent sensors to study the single cell dynamics of MAP kinase signaling.
2) 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.
3) 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).

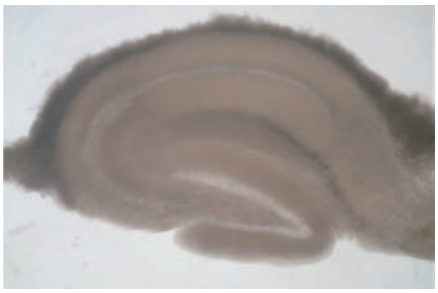


Fig.1 A hippocampal slice prepared from the mouse brain

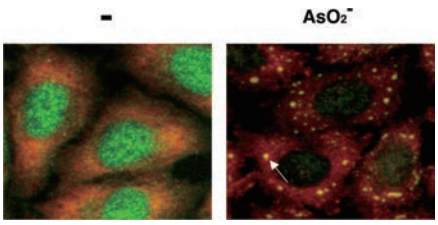


Fig.2 Arsenite induces formation of cytoplasmic stress granules

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

(Right)
"The Water of Life" - stained glass installed in the ceiling at the entrance hall, former IMSUT Hospital

Human Genome Center

Director: Satoru Miyano

- **Laboratory of Genome Database**
  Professor: Satoru Miyano, Ph.D.
- **Laboratory of DNA Information Analysis**
  Professor: Satoru Miyano, Ph.D.
  Associate Professor: Rui Yamaguchi, Ph.D.
  Project Senior Assistant Professor: Yoshinori Tamada, Ph.D.
- **Laboratory of Molecular Medicine**
  Professor: Tatsuhiro Shibata, M.D., Ph.D.
- **Laboratory of Genome Technology**
  Professor: Satoru Miyano, Ph.D.
  Professor: Yoshinori Murakami, M.D., Ph.D.
- **Laboratory of Sequence Analysis**
  Professor: Satoru Miyano, Ph.D.
  Associate Professor: Tetsuo Shibuya, Ph.D.
- **Laboratory of Functional Analysis in Silico**
  Professor: Kenta Nakai, Ph.D.
  Senior Assistant Professor: Ashwini Ajay Patil, Ph.D.
  Project Senior Assistant Professor: Sung-Joon Park, Ph.D.
- **Department of Public Policy**
  Professor: Kaori Muto, Ph.D.
  Associate Professor: Yusuke Inoue, Ph.D.

The era of personal genome has come. 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 supercomputer system 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 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.

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 supercomputer, we employ the technology infrastructure in place to suit large-scale human genome-related databases, drug side effects 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.

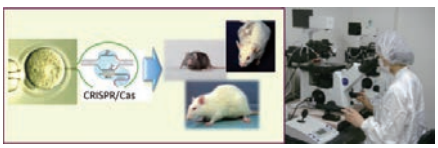
Center for Experimental Medicine and Systems Biology

Director: Nobuaki Yoshida

- **Laboratory of Developmental Genetics**
  Professor: Nobuaki Yoshida, M.D., Ph.D.
  Senior Assistant Professor: Hirotake Ichise, D.V.M., Ph.D.
- **Laboratory of Systems Biology**
  Associate Professor: Susumu Nakae, Ph.D.
- **Laboratory of Innate Immunity**
  Professor: Kensuke Miyake, M.D., Ph.D.
- **Laboratory of Genetically Engineered Mouse Research**
  Invited Professor: Kimi Araki, Ph.D.
- **Laboratory of Reproductive Systems Biology**
  Invited Professor: Masato Ikawa, Ph.D.
- **Laboratory of Advanced Molecular Genetics**
  Visiting Professor: Kosuke Yusa, 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. It consists of five laboratories, Laboratory of Developmental Genetics, Laboratory of Innate Immunity, Laboratory of Genetically Engineered Mouse Research, Laboratory of Germline Stem Cells, and Laboratory of Systems Biology.

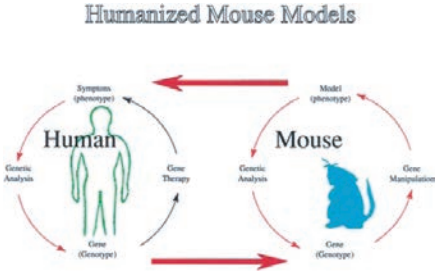
The purposes of the center are to develop animal models for human diseases and regeneration medicine to analyze those models. For accomplishing these purposes, we try to devise the animal experimental systems by developing the embryo engineering technologies as well as recombinant DNA technologies that link the genome science and genome medicine. Our center has a mission to help scientists at IMSUT and other academic field conduct research that requires the production of transgenic and knock-out animal models of human diseases.



There are many genes being isolated, including the ones whose functions are not clearly understood, through the recent development of molecular biology. Gene targeting technology has revealed many aspects of gene functions in vivo. Knock out mice offer 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. We are also using CRISPR/Cas systems, which are very effective and rapid method for genome editing.

Functional elements in the human genome, including elements that act at the protein and RNA levels, and regulatory elements that control cells and circumstances in which a gene is active, have been revealed through the ENCODE project. Our center has a mission clarifying the association with the disease of this non-coding region.

There are many overlapping research fields, stem cell biology, regenerating medicine, reproductive medicine etc. with developmental bioengineering. Our center also try to develop new technologies contributing to these research fields.



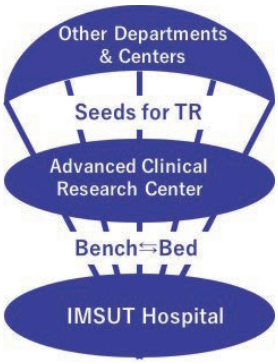
Advanced Clinical Research Center

Director: Arinobu Tojo

- **Division of Molecular Therapy**
  Professor: Arinobu Tojo, M.D., D.M.Sc.
  Associate Professor: Satoshi Takahashi, M.D., D.M.Sc.
- **Division of Cellular Therapy**
  Professor: Toshio Kitamura, M.D., D.M.Sc.
  Associate Professor: Susumu Goyama, M.D., Ph.D.
- **Division of Infectious Diseases**
  Professor: Hiroshi Yotsuyanagi, M.D., D.M.Sc.
- **Division of Bioengineering**
  Professor: Hideaki Tahara, M.D., Ph.D.
  Senior Assistant Professor: Hiroaki Uchida, M.D., Ph.D.
- **Division of Clinical Genome Research**
  Professor: Yoichi Furukawa, M.D., Ph.D.
  Associate Professor: Tsuneo Ikenoue, M.D., Ph.D.
  Project Senior Assistant Professor: Kiyoshi Yamaguchi, Ph.D.
- **Division of Innovative Cancer Therapy**
  Professor: Tomoki Todo, M.D., Ph.D.
  Associate Professor: Yasushi Ino, M.D., Ph.D.
  Project Associate Professor: Minoru Tanaka, M.D., Ph.D.
  Senior Assistant Professor: Hiroyuki Momota, M.D., Ph.D.
- **Division of Advanced Medicine Promotion**
  Professor: Fumitaka Nagamura, M.D., D.M.Sc.
- **Division of Advanced Genome Medicine**
  Associate Professor: Naoya Kato, M.D., Ph.D.
  Senior Assistant Professor: Yasuo Matsubara, M.D., Ph.D.
- **Division of Genetic Therapeutics**
  Professor: Keiya Ozazwa, M.D., D.M.Sc.
  Senior Assistant Professor: Sumimasa Nagai, M.D., Ph.D.

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

ACRC is now consisted of 9 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 and other infectious disorders are working, Division of Bioengineering and 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, and Unit of Disease Control Genome Medicine in which genome-based research of viral hepatitis is conducted, and Division of Gene Therapy Development that will promote clinical gene therapy. All are the group of physician scientists.



Position of ACRC in IMSUT

Center for Stem Cell Biology and Regenerative Medicine

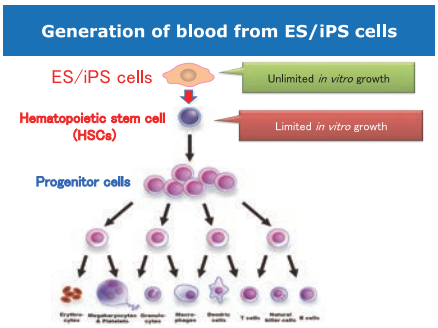
Director: Hiromitsu Nakauchi

- **Division of Stem Cell Transplantation**
  Professor: Arinobu Tojo, M.D., Ph.D.
  Associate Professor: Satoshi Takahashi, M.D., Ph.D.
- **Division of Stem Cell Processing**
  Associate Professor: Makoto Otsu, M.D., Ph.D.
- **Division of Stem Cell Therapy**
  Professor: Hiromitsu Nakauchi, M.D., Ph.D.
  Project Associate Professor: Tomoyuki Yamaguchi, Ph.D.
  Visiting Associate Professor: Koichi Hattori, M.D., Ph.D.

(Stem Cell Bank)
(FACS Core Laboratory)
Associate Professor: Makoto Otsu, M.D., Ph.D.

- **Division of Stem Cell Signaling**
  Professor: Toshio Kitamura, M.D., Ph.D.
- **Division of Stem Cell Dynamics**
  Associate Professor: Beate Heissig, M.D., Ph.D.
- **Division of Stem Cell Cellomics**
  Project Associate Professor: Hiroshi Watarai, Ph.D.

Stem cell research has been a focus of attention as medicine of the 21st century replacing artificial organs and organ transplantation therapy. Center for Stem Cell and Regenerative Medicine was launched as a core research center for stem cell based medicine. The center has 6 divisions, Division of Stem Cell Therapy, Division of Stem Cell Signaling, Division of Stem Cell Processing, Division of Stem Cell Transplantation, Division of Stem Cell Dynamics, and Division of Stem Cell Cellomics. The Center aims to translate research outcomes of stem cell biology into pre-clinical and clinical studies. It also serves to clarify various clinical problems using cutting-edge research tools. To support our research, we have FACS and Stem Cell Banks.



International Research Center for Infectious Diseases

Director: Yoshihiro Kawaoka

● **Department of Special Pathogens**
Professor: Chieko Kai, D.V.M., Ph.D.
Professor: Yoshihiro Kawaoka, D.V.M., Ph.D.
● **Department of Infectious Disease Control**
Professor: Yasushi Kawaguchi, D.V.M., Ph.D.
(Division of Viral Infection)
Associate Professor: Takeshi Ichinohe, Ph.D.
(Division of Bacteriology)
Associate Professor: Hitomi Mimuro, Ph.D.
● **Pathogenic Microdes Repository Unit**
Associate Professor: Hitomi Mimuro, Ph.D.

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).

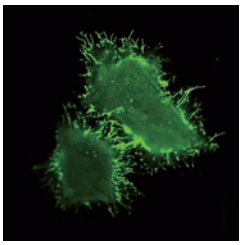


Fig 1. Morphological changers in HeLa cells expressing Ebola virus VP40. HeLa cells were transfected with an expression plasmid encoding EGFP-tagged Ebola virus VP40. Twenty-four hours later, cells were analyzed by confocal microscopy.

International Research and Development Center for Mucosal Vaccine

Director: Hiroshi Kiyono

Professor: Hiroshi Kiyono, D.D.S., Ph.D.
Project Professor: Satoshi Uematsu, M.D., Ph.D.
Visiting Professor: Koji Hase, Ph.D.
Visiting Professor: Jun Kunisawa, Ph.D.
Project Associate Professor: Yoshiyuki Goto, Ph.D.
Visiting Associate Professor: Shintaro Sato, Ph.D.
Visiting Associate Professor: Tomonori Nochi, Ph.D.

Our center was established to develop next-generation "Mucosal Vaccines" which can contribute to the control of emerging/reemerging infectious diseases including influenza, AIDS, herpes, diarrheal diseases, foot-and-mouth disease and other infectious diseases as well as allergic diseases such as pollen allergy and food allergy. We are currently conducting basic research for molecular and cellular understanding of the mucosal immune system for the development of Mucosal Vaccine which leads to the creation of "Mucosal Vaccinology" integrating front-line knowledge of mucosal immunology and vaccine design technology. We further analyze intestinal microorganisms comprehends by using bioinformatics. We aim for clarification of the whole picture of intestinal ecosystem which consists of epithetial-stromal barrier, immune system and gut microbiota.

Medical Proteomics Laboratory

Director: Jun-ichiro Inoue

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

Proteins play important roles in 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, ligand screening, mass spectrometry and electron microscopy to perform an integrative analysis of disease-related protein-protein interactions from a physicochemical, structural and systems biology point of view. We are also involved in many collaborative researches to facilitate the utilization of these medical proteomics technologies inside and outside the institute.

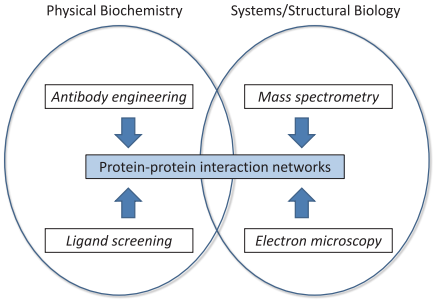


Fig 1. Protein interaction network analysis in medical proteomics research

Laboratory Animal Research Center

Director: Chieko Kai

Professor: Chieko Kai, D.V.M., Ph.D.

Associate Professor: Misako Yoneda, D.V.M., Ph.D.

Our major research interests are to elucidate molecular mechanisms of pathogenicity and species specificity of minus and single strand RNA viruses (Mononegavirales) and to control viral diseases. We are also developing new virus vaccines using genetic engineering and medicine effective in the virus infectious diseases. Taking advantage of the oncolytic feature of morbilliviruses, we produced novel oncolytic virus vectors for cancer therapies and are now improving them.

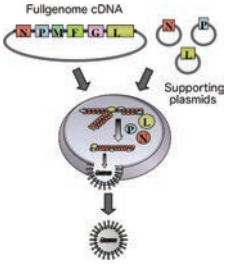


Fig.1 Reverse genetics for generation of recombinant virus

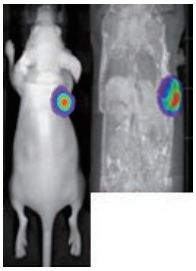


Fig.2 *In vivo* oncolytic activity of recombinant measles virus

Amami Laboratory of Injurious Animals

Director: Chieko Kai

Professor: Chieko Kai, D.V.M., Ph.D.

This laboratory was established in 1965 at Amami-oshima Island for studies on endemic diseases. This laboratory has four major themes in research: (1) The analysis of pathogenicity of viruses and the development of vaccines for infectious diseases using non-human primate models, (2) The application of dedifferentiated fat (DFAT) cells for wound healing in non-human primate, (3) The study of assisted reproductive technology in non-human primate, (4) The chronobiological analysis in non-human primate and (5) The development of new therapies for Habu venom using molecular biological and immunological techniques.

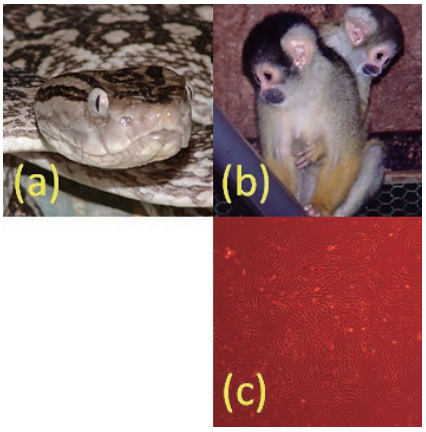


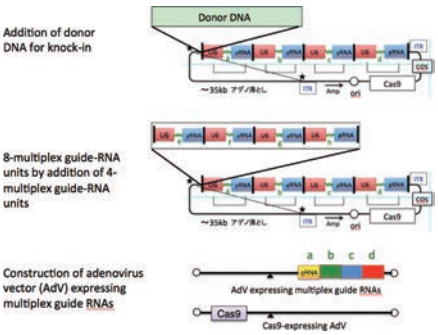
Fig.1 (a) Habu, (b) Squirrel monkey, (c) DFAT cells

Laboratory of Molecular Genetics

Director: Izumu Saito

Professor: Izumu Saito, M.D., Ph.D.

We have developed for construction of stable plasmids containing expression units of multiplex guide-RNAs in CRISPR/Cas9 system (patent pending). Moreover, adenovirus vectors expressing multiplex guide RNAs were constructed using this method, aiming development for in vitro and in vivo knock-out/ knock-in. These vectors could be useful for gene therapies of genetic diseases and virus-caused diseases, especially for elimination by disruption of hepatitis B virus genomes through multiple and simultaneous cleavage.



Application of the construction method for multiplex guide-RNA expressing units

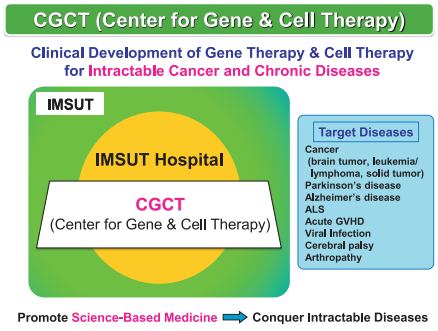
Center for Gene & Cell Therapy (CGCT)

Director: Keiya Ozawa

Professor: Keiya Ozazwa, M.D., D.M.Sc.
Professor: Tomoki Todo, M.D., Ph.D.
Professor: Arinobu Tojo, M.D., D.M.Sc.
Professor: Toshio Kitamura, M.D., D.M.Sc.
Professor: Hideaki Tahara, M.D., Ph.D.
Professor: Fumitaka Nagamura, M.D., D.M.Sc.
Professor: Izumu Saito, M.D., Ph.D.

Project Professor: Shin-ichi Muramatsu, M.D., Ph.D.
Project Professor: Kenzaburo Tani, M.D., Ph.D.
Associate Professor: Satoshi Takahashi, M.D., D.M.Sc.
Associate Professor: Makoto Otsu, M.D., Ph.D.
Associate Professor: Tokiko Nagamura-Inoue, M.D., D.M.Sc.
Senior Assistant Professor: Sumimasa Nagai, M.D., Ph.D.

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 neurological disorders using AAV vectors, T cell therapy for post-transplant viral infections, and cell therapy using mesenchymal stem/stromal cells.

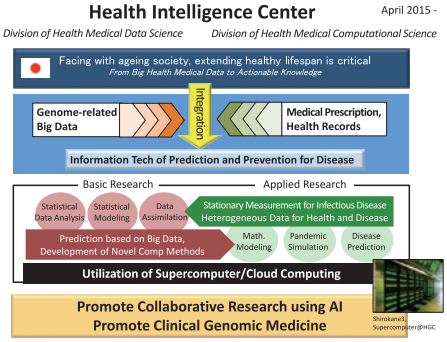


Health Intelligence Center

● **Division of Health Medical Data Science**
Professor: Seiya 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 about 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.



Research Center for Asian Infectious Diseases

Director: Yasushi Kawaguchi

Professor: Yasushi Kawaguchi, D.V.M., Ph.D.
Professor: Yoshihiro Kawaoka, D.V.M., Ph.D.
Professor: Jun-ichiro Inoue, Ph.D.
Project Professor: Zene Matsuda, M.D., Ph.D., D.Sc.
Project Professor: Mitsue Hayashi, Ph.D.

Visiting Professor: Kunito Yoshiike, D.Sc.
Project Associate Professor: Takaomi Ishida, Ph.D.
Project Associate Professor: Seiya Yamayoshi, D.V.M., Ph.D.
Project Senior Assistant Professor: 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.

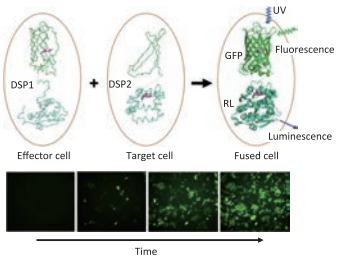


Fig. Detection of membrane fusion with split reporter proteins, DSPs.
The membrane fusion can be quantitatively measured by the dual split proteins (DSPs) containing split *Renilla* luciferase (RL) and split GFP domains.

IMSUT Hospital

● Director
Professor: Keiya Ozazwa, M.D., D.M.Sc.
(Director's Office)
Visiting Professor: Mieko Chinzei, M.D., D.M.Sc.
Visiting Associate Professor: Ai Tachikawa, D.M.Sc.

● Deputy Director
Professor: Arinobu Tojo, M.D., D.M.Sc.

● Department of Advanced Medical Science
Professor: Naohide Yamashita, M.D., Ph.D.
Project Professor: Kenzaburo Tani, M.D., Ph.D.
Visiting Professor: Hideaki Kagami, D.D.S., Ph.D.
Associate Professor: Naoya Kato, M.D., Ph.D.
Senior Assistant Professor: Yasuo Matsubara, M.D., Ph.D.
Clinical Senior Assistant Professor: Naoyuki Isoo, M.D., Ph.D.

● Department of Infectious Diseases and Applied Immunology
Professor: Hiroshi Yotsuyanagi, M.D., D.M.Sc.
Senior Associate Professor: Tomohiko Koibuchi, M.D., D.M.Sc.

● Department of Rheumatology and Allergy
Professor: Hirotoshi Tanaka, M.D., D.M.Sc.
Associate Professor: Osamu Hosono, M.D., D.M.Sc.
Project Senior Assistant Professor: Noriaki Shimizu, Ph.D.
Clinical Senior Assistant Professor: Noritada Yoshikawa, M.D., D.M.Sc.

● Department of Hematology/Oncology
Professor: Arinobu Tojo, M.D., D.M.Sc.
Associate Professor: Satoshi Takahashi, M.D., D.M.Sc.
Associate Professor: Yoichi Imai, M.D., Ph.D.
Clinical Senior Assistant Professor: Nobuhiro Ohno, M.D.

● Department of Applied Genomics
Professor: Yoichi Furukawa, M.D., Ph.D.

● Department of Radiology
Associate Professor: Shigeru Kiryu, M.D., D.M.Sc
Senior Assistant Professor: Hiroyuki Akai, M.D., Ph.D.

● Department of Diagnostic Pathology
Senior Assistant Professor: Yasunori Ota, M.D., Ph.D.

● Department of Surgery
Associate Professor: Masaru Shinozaki, M.D., Ph.D.
Professor: Hideaki Tahara, M.D., D.M.Sc.
Senior Assistant Professor: Giichiro Tsurita, M.D., Ph.D.

● Department of Anesthesia
Associate Professor: Ryo Orii, M.D., Ph.D.

● Department of Joint Surgery
Senior Assistant Professor: Hideyuki Takedani, M.D., D.M.Sc.

● Department of Surgical Neuro-Oncology
Professor: Tomoki Todo, M.D., Ph.D.
Associate Professor: Yasushi Ino, M.D., Ph.D.
Project Associate Professor: Minoru Tanaka, M.D., Ph.D.
Senior Assistant Professor: Hiroyuki Momota, M.D., Ph.D.

● Department of Paliative Medicine
Professor: Arinobu Tojo, M.D., D.M.Sc.
Project Senior Assistant Professor: Satoru Iwase, M.D., Ph.D.

● Department of Medical Informatics
Associate Professor: Shigeru Kiryu, M.D., D.M.Sc.
Senior Assistant Professor: Hiroyuki Akai, M.D., Ph.D.

● Department of Radiological Technology
Associate Professor: Shigeru Kiryu, M.D., D.M.Sc.

● Department of Cell Processing and Transfusion
Professor: Arinobu Tojo, M.D., D.M.Sc.
Associate Professor: Tokiko Nagamura-Inoue, M.D., D.M.Sc.

● Surgical Center
Professor: Tomoki Todo, M.D., Ph.D.
Project Associate Professor: Minoru Tanaka, M.D., Ph.D.

● Department of Medical Supply Center
Professor: Tomoki Todo, M.D., Ph.D.
Project Associate Professor: Minoru Tanaka, M.D., Ph.D.

● Department of Laboratory Medicine
Clinical Senior Assistant Professor: Naoyuki Isoo, M.D., Ph.D.

● Department of Pathology
Senior Assistant Professor: Yasunori Ota, M.D., Ph.D.

● Radiation Control Office
Associate Professor: Shigeru Kiryu, M.D., D.M.Sc.

● Regional Medical Liaison Office
Professor: Arinobu Tojo, M.D., D.M.Sc.

● Center for Clinical Safety and Infection Control
Professor: Arinobu Tojo, M.D., D.M.Sc.

Department of Clinical Trial Safety Management
Associate Professor: Osamu Hosono, M.D., D.M.Sc.

Department of Infection Prevention and Control
Senior Assistant Professor: Tomohiko Koibuchi, M.D., D.M.Sc.

● Center for Translational Research
Professor: Fumitaka Nagamura, M.D., D.M.Sc.
Project Associate Professor: Hiroshi Yasui, M.D., Ph.D.
Senior Assistant Professor: Sumimasa Nagai, M.D., Ph.D.
Project Senior Assistant Professor: Masanori Nojima, M.D., Ph.D.

● Center for Antibody and Vaccine Therapy
Professor: Hirotoshi Tanaka, M.D., D.M.Sc.
Project Professor: Yataro Daigo, M.D., D.M.Sc.
Associate Professor: Osamu Hosono, M.D., D.M.Sc.
Project Associate Professor: Hiroaki Taniguchi, M.D., Ph.D.
Project Associate Professor: Hiroshi Yasui, M.D., Ph.D.
Project Senior Assistant Professor: Atsushi Takano, M.D., Ph.D.
Project Senior Assistant Professor: Noriaki Shimizu, Ph.D.
Clinical Senior Assistant Professor: Noritada Yoshikawa, M.D., D.M.Sc.

● Therapeutic Vector Development Center
Professor: Tomoki Todo, M.D., Ph.D.
Associate Professor: Yasushi Ino, M.D., Ph.D.

● Department of Nursing
Director: Koji Kobayashi, Ph.D.

● Department of Pharmacy
Director: Yosuke Kurokawa

● Department of AIDS Vaccine Development
Invited Professor: Tetsuro Matano, M.D., D.M.Sc.

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–story hospital building has 135 beds including 6 patient sterile rooms, an outpatient clinic, and advanced diagnostic and therapeutic machines. 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 hematopoietic stem cell transplantation (mainly umbilical cord blood transplantation) and translational research (TR), such as vaccine treatment of solid tumors. The operational structure of IMSUT Hospital is divided into 4 units; (1) 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.

Corporate Sponsored Research Programs/Social Cooperation Research Programs

- **Project Division of Molecular and Developmental Biology**
  Project Professor: Sumiko Watanabe, Ph.D.
- **Project Division of RNA Medical Science**
  Project Associate Professor: Masaki Takahashi, Ph.D.
  Project Senior Assistant Professor: Masahiko Imashimizu, Ph.D.
- **Project Division of Systems Immunology Research**
  Project Associate Professor: Takeshi Sato, Ph.D.
- **Project Division of Advanced Regenerative Medicine**
- **Project Division of International Advanced Medical Research**
  Project Associate Professor: Koichiro Yuji, M.D., Ph.D.
- **Project Division of ALA Advanced Medical Research**
  Project Professor: Kenzaburo Tani, M.D., Ph.D.
  Project Senior Assistant Professor: Hiroshi Kohara, Ph.D.
- **Project Division of Fundamental Study on Cutting Edge of Genome Medicine**
  Project Associate Professor: Hiroshi Yasui, M.D., Ph.D.

In addition to the 3 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: Chieko Kai, D.V.M., Ph.D.
- **Culture Media Section**
  Head: Jun-ichiro Inoue, Ph.D.
- **Library**
  Head: Yasushi Kawaguchi, D.V.M., Ph.D.
- **Radioisotope Center**
  Head: Kensuke Miyake, M.D., Ph.D.
- **IT Service Room**
  Head: Mutsuhiro Takekawa, M.D., Ph.D.
- **Photographic Laboratory**
  Head: Mutsuhiro Takekawa, M.D., Ph.D.
- **Genetically Modified Microorganism Support Office**
  Head: Yasushi Kawaguchi, D.V.M., Ph.D.
- **Office of Research Ethics**
  Head: Kaori Muto, Ph.D.
  Project Associate Professor: Ayako Kamisato, Ph.D.
- **Office of Health and Safety**
  Associate Professor: Hitomi Mimuro, Ph.D.
- **Office of Intellectual Property**
  Head: Jun-ichiro Inoue, Ph.D.
- **Advisory Room for Conflict of Interest**
  Head: Hirotoshi Tanaka, M.D., D.M.Sc.
- **Pathology Core Laboratory**
  Laboratory I Head: Yoshinori Murakami, M.D., Ph.D.
  Laboratory II Head: Yasunori Ota, M.D., Ph.D.
- **Gene Manipulated Mouse Section**
  Professor: Nobuaki Yoshida, M.D., Ph.D.
  Professor: Chieko Kai, D.V.M., Ph.D.
- **Imaging Core Laboratory**
  Head: Mutsuhiro Takekawa, M.D., Ph.D.
- **IMSUT Clinical Flow Cytometry Laboratory**
  Head: Arinobu Tojo, M.D., D.M.Sc.

Technical Office

Head: Kensuke Miyake

Dean's Office

- **Dean's Advisor Office**
  Visiting Professor: Toichi Takenaka, D.V.M., Ph.D.
- **Project Coordination Office**
  Professor: Mutsuhiro Takekawa, M.D., Ph.D.
- **Office of Support for Platforms for Advanced Technologies and Research Resources**
  Head/Visiting Professor: Kohzoh Imai, M.D., Ph.D.

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 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 open from 9 am to 11 pm on weekdays, from 10 am to 11 pm on weekends.

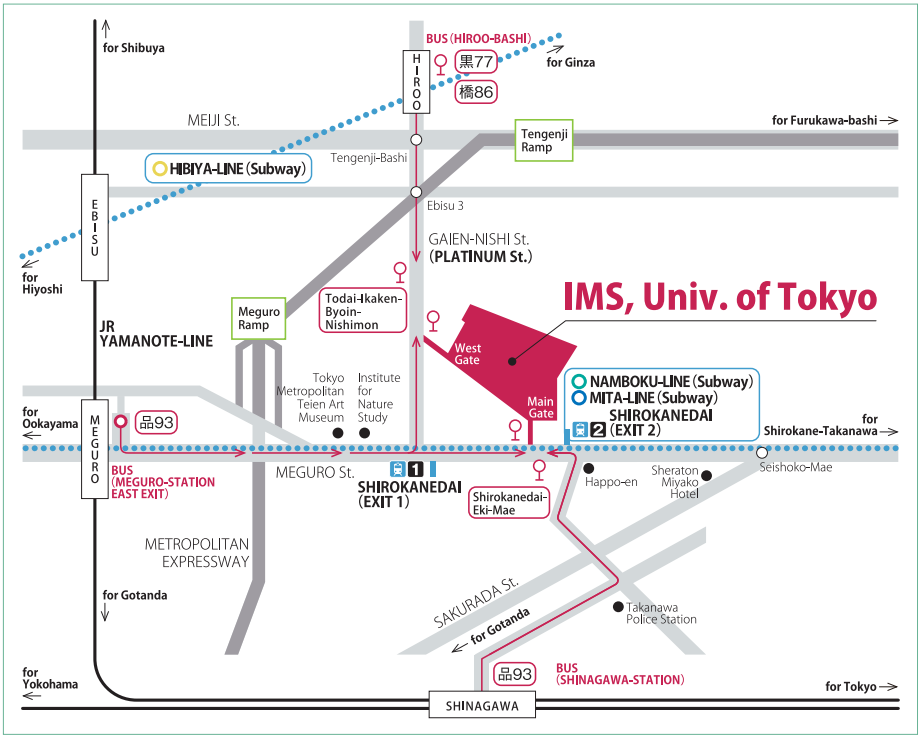
IMSUT encourages students to conduct research enthusiastically, and works to motivate them. We honor exceptional graduate students every year with our Outstanding Student Publication Awards.

Medical Science Museum

The Medical Science Museum preserves and introduces to the public the valuable historical materials of the Institute of Medical Science (IMS), the University of Tokyo. Founded by Dr. Shibasaburo Kitasato in 1892 as the Institute of Infectious Diseases (IID), for more than half a century following its inception the institute served as a key player in infectious disease research in Japan. The IID at the time not only acted as the largest manufacturer of bacteriological products such as vaccines and antiserums, but also became involved in all aspects of research and medical care related to infectious disease: educating doctors and public sanitation officials on matters related to infectious disease, evaluating/approving bacteriological products, 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 Medical Science with its focus reset to cutting-edge research into medical science in 1967. And today, with the aim of clarifying the principles of infectious diseases, cancer and other specified diseases, and establishing practical treatments based on such insights, the institute carries out research and development in the most advanced areas of medicine such as genomic medicine and gene and cell therapies.

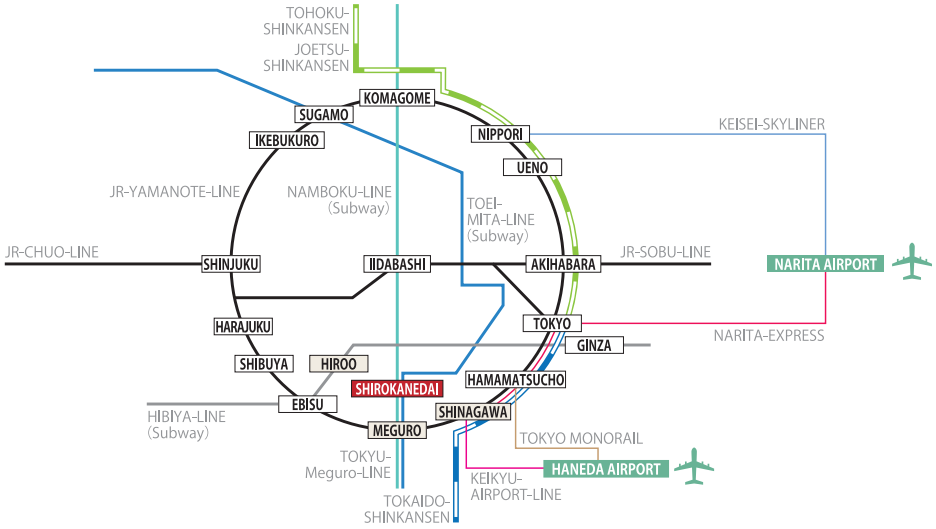
Surrounded by greenery, the museum beckons with its contrasting facets: a brick-style wing evoking a stable from the era of the IID and a glass-paneled wing heralding the future. Please contemplate the past and future of medical science during your visit.

Access Map



[By WALK FROM STATION]
SHIROKANEDAI● SHIROKANEDAI-STATION on the Metro NAMBOKU or MITA LINE (EXIT 2)
MEGURO● 15 min. walk from JR-MEGURO-STATION EAST EXIT

[By BUS FROM STATION]
MEGURO● 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 SHIMBASHI-EKI-MAE or TOKYO TOWER)
>> get off at TODAI-IKAKENBYOIN-NISHIMON
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
HIROO● From HIROO-STATION on the Metro HIBIYA LINE (HIROO-BASHI bus stop)
＊take (黒77) or (橋86) metropolitan bus bound for MEGRO-EKI-MAE
>> get off at TODAI-IKAKEN-BYOIN-NISHIMON



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