

The Institute of Medical Science The University of Tokyo 2017



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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 are celebrating the 125th anniversary of its foundation and 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	Hiroto 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	Yoshinori Murakami
International Research Center for Infectious Diseases	Director	Professor	Yoshihiro Kawaoka
International Research and Development Center for Mucosal Vaccine	Director	Professor	Hiroshi Kiyono
Health Intelligence Center	Director	Professor	Seiya Imoto
Center for Gene and Cell Therapy	Director	Professor	Keiya Ozawa
Laboratory Animal Research Center	Director	Professor	Chieko Kai
Amami Laboratory of Injurious Animals	Director	Professor	Chieko Kai
Medical Proteomics Laboratory	Director	Professor	Jun-ichiro Inoue
Research Center for Asian Infectious Diseases	Director	Professor	Yasushi Kawaguchi
Laboratory of Molecular Genetics	Director	Professor	Yoshinori Murakami
IMSUT Hospital	Director	Professor	Keiya Ozawa
	Deputy Director	Professor	Arinobu Tojo
	General Manager		Kiyomi Ueda
Administration Office	Manager		Toshihide Asakawa
	Manager		Isao Uehara
	Manager		Makoto Hidai

List of 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				

List of 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	Yukio	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	1965	Establishment of the Animal Research Center
1899	Reorganization as a national institute, the Institute for Infectious Diseases, under the control of the Ministry of Internal Affairs	1966	Establishment of the Amami Laboratory of Injurious Animals
1906	Relocation of the institute to Shirokanedai, Minato-ku	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
1914	Reorganization under the Ministry of Education	1980	Establishment of the Laboratory of Molecular Genetics
1916	Incorporation into Tokyo Imperial University	1991	Establishment of the Human Genome Center
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	1992	100th Founding Anniversary
1947	Name changed from Tokyo Imperial University to the University of Tokyo	1998	Establishment of the Center for Experimental Medicine
		1999	Renovation of the auditorium Construction of Shirokane Hall



2000	Reorganization into 3 departments; Microbiology and Immunology, Cancer Biology and Basic Medical Sciences Establishment of the Advanced Clinical Research Center	2008	Establishment of the Center for Stem Cell and Regenerative Medicine Todai Shirokanedai Himawari Day Nursery opens
2001	Reorganization of the hospital Opening of the Medical Science Museum	2009	Reorganization of the Center for Experimental Medicine into the Center for Experimental Medicine and Systems Biology
2003	Completion of new research facilities, the General Research Building and Hospital Building	2010	Approved as a national center for joint usage/research center
2004	Reorganization of the University of Tokyo as a national university corporation, according to the law (Heisei 15 law No.112)	2011	Establishment of the International Research and Development Center for Mucosal Vaccine
2005	Establishment of the International Research Center for Infectious Diseases	2014	Establishment of the Center for Gene & Cell Therapy
2006	Foundation of the Research Center for Asian Infectious Diseases in Beijing Establishment of the Medical Proteomics Laboratory	2015	Establishment of the Health Intelligence Center
		2017	125th Founding Anniversary and 50th Reorganization Anniversary



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
- ㉑ Tissue Bank Facility

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: m²)

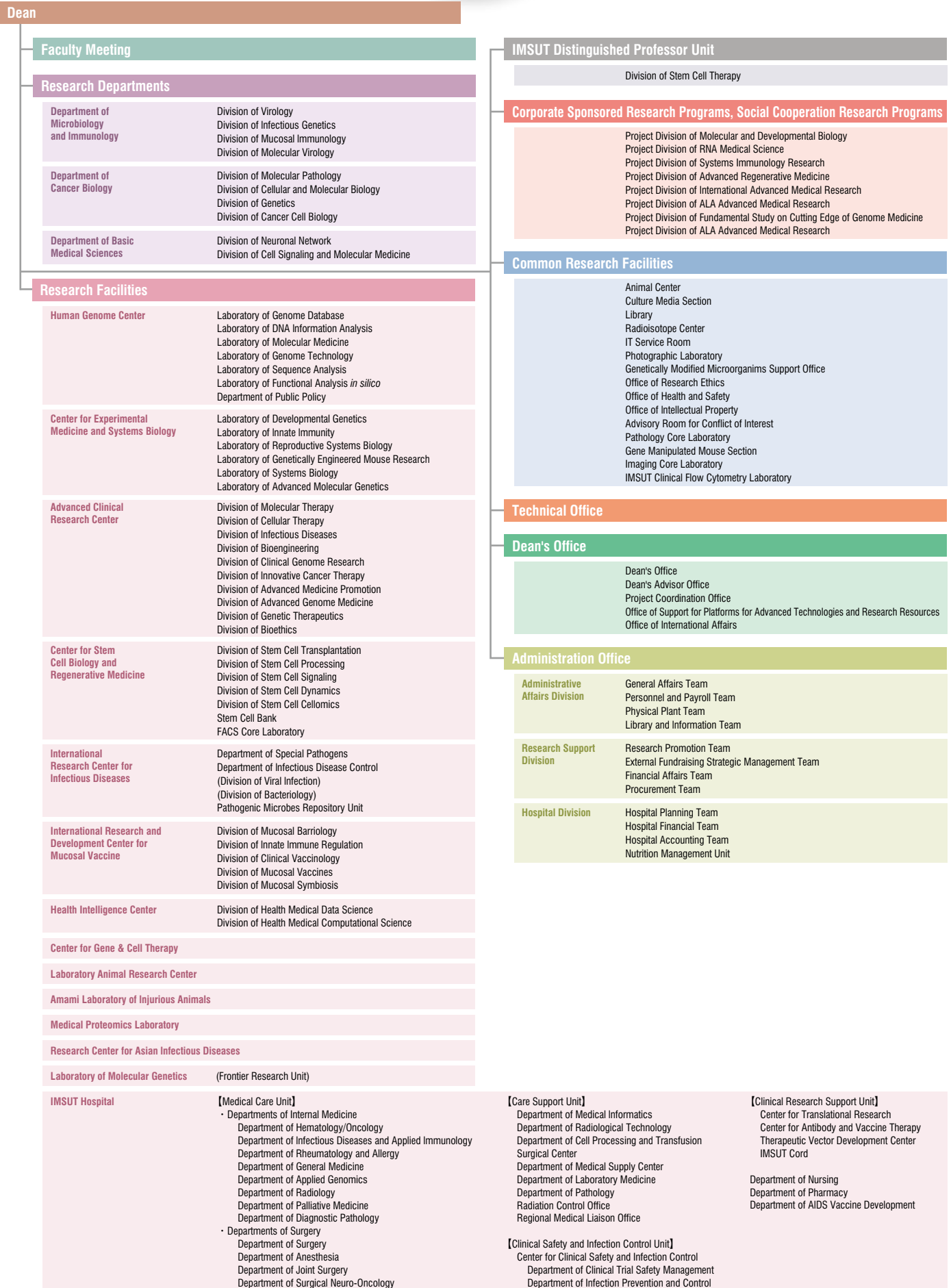
		Land Space	Buildings	
			Floor Space	Total Space
Shirokanedai	Institute		11,548	54,050
	Hospital		3,305	23,259
	Subtotal	68,907	14,853	77,309
Amami		8,834	805	805
Total		77,741	15,658	78,114

Locations:

IMSUT
Amami Laboratory of Injurious Animals

4-6-1 Shirokanedai, Minato-ku, Tokyo
802 Tean-sude, Setouchi-cho, Oshima-gun, Kagoshima

Organization



Accounts

Management Expenses Grants

(Unit: 1,000yen)

		2012	2013	2014	2015	2016
Institute	Budget for Salaries	1,694,318	1,703,765	1,781,556	1,794,094	1,832,625
	Budget for Materials	2,752,612	2,978,600	2,692,581	2,246,165	2,089,792
	Subtotal	4,446,930	4,682,365	4,474,137	4,040,259	3,922,417
Hospital	Budget for Salaries	1,403,275	1,513,699	1,630,624	1,584,108	1,599,507
	Budget for Materials	3,173,561	2,978,247	3,200,214	3,500,999	3,378,159
	Subtotal	4,576,836	4,491,946	4,830,838	5,085,107	4,977,666
Total		9,023,766	9,174,311	9,304,975	9,125,366	8,900,083

Income from External Sources

(Unit: 1,000yen)

	2012	2013	2014	2015	2016
Research Grants (Personal)	2,310,455	1,794,680	1,376,243	625,717	747,235
Research Grants (IMSUT)	871,675	512,793	1,146,106	859,890	593,191
Contract	1,674,799	3,921,298	4,182,688	3,393,817	3,273,557
Collaborative	376,031	544,202	440,063	418,097	433,281
Donations	171,635	243,276	213,002	219,366	357,075
Total	5,404,595	7,016,249	7,358,102	5,516,887	5,404,339

Research and Education Projects by External Funds

Ongoing in 2017

Project Name	Project Head in IMSUT
Translational Research Network Program "Strategic Promotion and Expansion of a Translational Research to Establish a Global Base for Knowledge Collaboration"	IMSUT Hospital Director/Professor Keiichi 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

		2012	2013	2014	2015	2016
Internal	Outpatient	24,994	25,273	23,448	24,176	21,921
	Inpatient	19,049	20,035	19,514	16,874	15,031
Surgery	Outpatient	4,375	4,529	5,953	6,248	6,224
	Inpatient	7,258	9,215	9,723	8,551	7,765
Radiology	Outpatient	187	282	275	230	202
Total		55,863	59,334	58,913	56,079	51,143

Income from IMSUT Hospital

(Unit: 1,000yen)

	2012	2013	2014	2015	2016
Outpatient	1,651,796	1,631,877	1,735,990	1,922,984	1,956,832
Inpatient	1,893,437	1,735,177	2,059,800	1,965,946	1,828,066
Total	3,545,233	3,367,054	3,795,790	3,888,930	3,784,898

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	Arabian Gulf University, College of Medicine & Medical Sciences	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	Vietnam National University-Ho Chi Minh City, School of Medicine	Departmental	2015/3/23
Thailand	Khon Kaen University, School of Medicine	Departmental	2016/12/20

Staff and Students

Staff

(Data 2017.07.01)

	Institute	Hospital	Total
Professor	25	1	26
Associate Professor	22	5	27
Senior Assistant Professor	5	6	11
Assistant Professor	36	15	51
Research Associate	1	0	1
Official	36	12	48
Technical Official	34	111	145
Subtotal	159	150	309

Fixed-term Project Staff

	Institute	Hospital	Total
Project Professor	5	0	5
Project Associate Professor	13	1	14
Project Senior Assistant Professor	7	3	10
Project Assistant Professor	14	0	14
Project Researcher	50	0	50
Project Academic Support Specialist	47	12	59
Project Academic Support Staff	19	7	26
Project Specialist	0	0	0
Project Medical Staff	0	12	12
Project Nursing Staff	0	10	10
Subtotal	155	45	200

Fixed-term Part-time (Project) Staff

	Institute	Hospital	Total
Project Professor	5	1	6
Project Associate Professor	2	1	3
Project Senior Assistant Professor	0	0	0
Project Assistant Professor	3	1	4
Project Researcher	12	0	12
Project Academic Support Specialist	23	4	27
Project Academic Support Staff	29	2	31
Project Senior Specialist	0	2	2
Assistant Clerk	18	9	27
Technical Assistant	27	2	29
Part-time Academic Affairs Staff	1	0	1
Skilled Assistant	3	8	11
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	124	51	175

Total	438	246	684
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University of Tokyo Research Fellows

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

Graduate School Students

Graduate School	Master's	Doctoral	Total
Graduate School of Medicine	3	64	67
Graduate School of Science	13	8	21
Graduate School of Agricultural and Life Sciences	0	0	0
Graduate School of Pharmaceutical Sciences	0	0	0
Graduate School of Information Science and Technology	4	2	6
Graduate School of Frontier Sciences	67	46	113
Graduate School of Interdisciplinary Information Studies	3	2	5
Graduate School of Engineering	15	15	30
Total	105	137	242

Research Students

	Total
Graduate Research Student	3
Graduate International Research Student	8
IMSUT Research Student	5
Total	16

● 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, M.D., 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.
 Associate Professor: Shin-Ichiroh Saitoh, Ph.D.

● Division of Mucosal Immunology

Professor: Hiroshi Kiyono, D.D.S., Ph.D.
 Project Associate Professor: Yosuke Kurashima, 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.

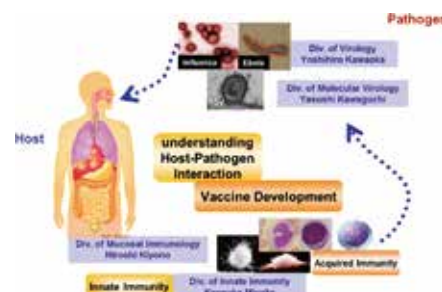


Figure shows four divisions in Department of Microbiology and Immunology. Two divisions focus on pathogens, whereas the other two division focus on the immune system. These division work together to understand the molecular bases underlying host-pathogen interaction and to develop novel vaccines or novel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

Department of Cancer Biology

● Division of Molecular Pathology

Professor: Yoshinori Murakami, M.D., Ph.D.
 Visiting Professor: 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.

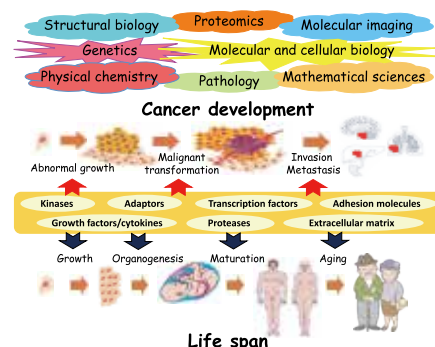
● Division of Genetics

Professor: Yuji Yamanashi, Ph.D.

● Division of Cancer Cell Biology

Professor: Makoto Nakanishi, M.D., Ph.D.
 Senior Assistant Professor: Atsuya Nishiyama, 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 multidisciplinary 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- κ B 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 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* anti-cancer mechanisms and development of innovative cancer therapies. 2) Molecular basis underlying DNA methylation abnormalities in early stages of carcinogenesis.



● 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.

- 1) 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 psychiatric 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).



Fig.1 A hippocampal slice prepared from the mouse brain

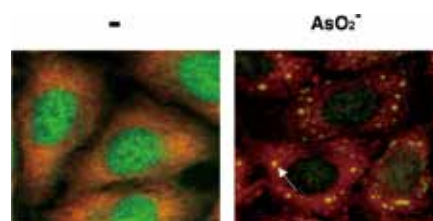


Fig.2 Arsenite induces formation of cytoplasmic stress granules



(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

● **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 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 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

Director: Nobuaki Yoshida

● **Laboratory of Developmental Genetics**

Professor: Nobuaki Yoshida, M.D., Ph.D.

Associate Professor: Hirotake Ichise, D.V.M., Ph.D.

● **Laboratory of Innate Immunity**

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

● **Laboratory of Reproductive Systems Biology**

Project Professor: Masato Ikawa, Ph.D.

Associate Professor: Manabu Ozawa, Ph.D.

● **Laboratory of Genetically Engineered Mouse Research**

Invited Professor: Kimi Araki, Ph.D.

● **Laboratory of Systems Biology**

Associate Professor: Susumu Nakae, 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.

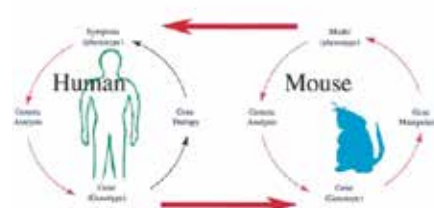
There are many genes being isolated, including the ones whose functions are not clearly understood, through the recent development of molecular biology. Gene targeting technology has revealed many aspects of gene functions in vivo. Knock out mice offer the opportunities of not only analyzing the complex 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.



Humanized Mouse Models



● 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.
Associate Professor: Takeya Tsutsumi, 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.
Associate Professor: Masahiro Nojima, M.D., Ph.D., M.P.H.

● 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.

● Division of Bioethics

Associate Professor: Ayako Kamisato, 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 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, viral hepatitis 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, Division of Advanced Genome Medicine involved in training biomedical graduate students, Division of Gene Therapy Development that will promote clinical gene therapy, and Division of Bioethics which handles ethical issues in life science. All are the group of physician scientists.



Position of ACRC in IMSUT

Center for Stem Cell Biology and Regenerative Medicine

Director: Yoshinori Murakami

● 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 Signaling

Professor: Toshio Kitamura, M.D., D.M.Sc.

● 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.

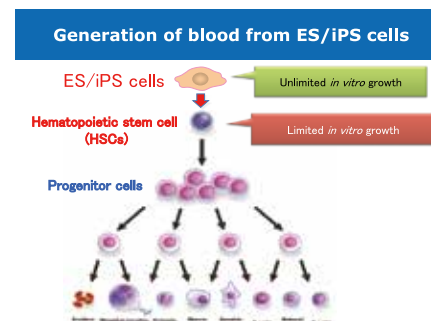
● Stem Cell Bank

Associate Professor: Makoto Otsu, M.D., Ph.D.

● FACS Core Laboratory

Associate Professor: Makoto Otsu, M.D., 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 5 divisions, Division of Stem Cell Transplantation, Division of Stem Cell Processing, Division of Stem Cell Signaling, 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 Microbes 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).

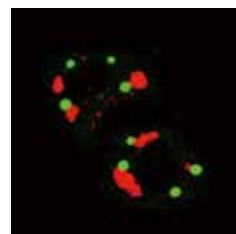


Fig 1. Severe fever with thrombocytopenia syndrome (SFTS) virus NSs-induced cytoplasmic structures (green) and p62 (red), a marker of selective autophagy.

International Research and Development Center for Mucosal Vaccine

Director: Hiroshi Kiyono

● Division of Mucosal Barriology

Professor: Hiroshi Kiyono, D.D.S., Ph.D.
Visiting Professor: Koji Hase, Ph.D.
Visiting Associate Professor: Shintaro Sato, Ph.D.

● Division of Innate Immune Regulation

Project Professor: Satoshi Uematsu, M.D., Ph.D.

● Division of Clinical Vaccinology

Professor: Hiroshi Kiyono, D.D.S., Ph.D.

Project Associate Professor: Yosuke Kurashima, Ph.D.

● Division of Mucosal Vaccines

Professor: Hiroshi Kiyono, D.D.S., Ph.D.
Visiting Professor: Jun Kunisawa, Ph.D.
Visiting Associate Professor: Tomonori Nochi, Ph.D.

● Division of Mucosal Symbiosis

Project Associate Professor: Yoshiyuki Goto, Ph.D.
Invited Professor: Tetsuro Matano, M.D., D.M.Sc.

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 comprehensively by using bioinformatics. We aim for clarification of the whole picture of intestinal ecosystem which consists of epithelial-stromal barrier, immune system and gut microbiota.



Health Intelligence Center

Director: Seiya Imoto

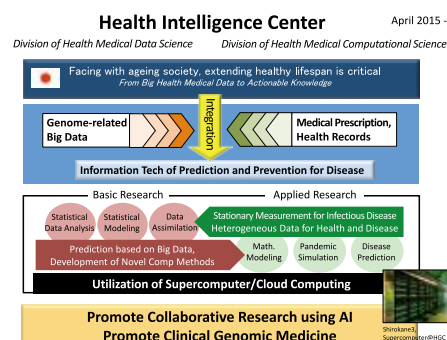
● Division of Health Medical Data Science

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.



Center for Gene & Cell Therapy (CGCT)

Director: Keiyo Ozawa

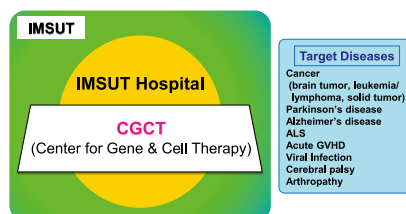
Professor: Keiyo Ozawa, M.D., D.M.Sc.
 Professor: Tomoki Todo, M.D., Ph.D.
 Professor: Arinobu Tojo, M.D., D.M.Sc.
 Professor: Toshio Kitamura, M.D., D.M.Sc.
 Professor: Hideaki Tahara, M.D., Ph.D.
 Professor: Fumitaka Nagamura, M.D., D.M.Sc.
 Invited Professor: Koji Tamada, M.D., Ph.D.

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.

CGCT (Center for Gene & Cell Therapy)

Clinical Development of Gene Therapy & Cell Therapy
 for Intractable Cancer and Chronic Diseases



Promote Science-Based Medicine → Conquer Intractable Diseases

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.

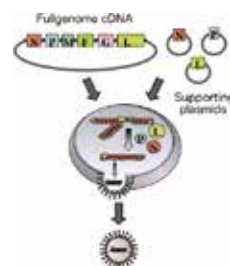


Fig.1 Reverse genetics for generation of recombinant virus

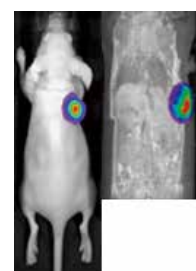


Fig.2 *In vivo* oncolytic activity of recombinant measles virus

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.

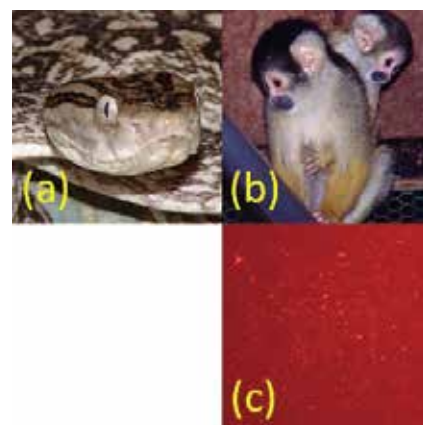


Fig.1 (a) Habu, (b) Squirrel monkey, (c) DFAT cells

Medical Proteomics Laboratory

Director: Jun-ichiro Inoue

Professor: Jun-ichiro Inoue, Ph.D.
Professor: Kouhei Tsumoto, Ph.D.

Project Professor: Koichi Tanaka
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.

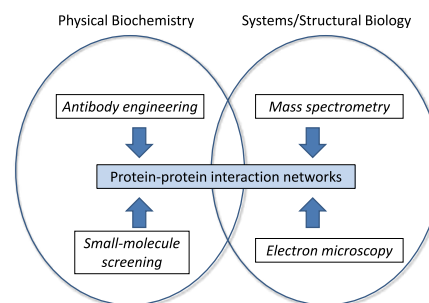


Fig 1. Protein interaction network analysis in medical proteomics research

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.

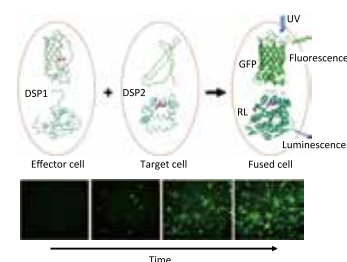


Fig. Detection of membrane fusion with split reporter proteins, DSPs.

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

Laboratory of Molecular Genetics

Director: Yoshinori Murakami

(Frontier Research Unit)

Associate Professor: Kazuo Tatebayashi, Ph.D.

The faculty members belonging to the Frontier Research Unit promote the advanced medical science research individually.

- **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 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.
Project Associate Professor: Hiroshi Yasui, M.D., D.M.Sc.
- **Department of Infectious Diseases and Applied Immunology**
Professor: Hiroshi Yotsuyanagi, M.D., D.M.Sc.
Senior Assistant Professor: Tomohiko Koibuchi, M.D., D.M.Sc.
- **Department of Rheumatology and Allergy**
Professor: Hirotohi Tanaka, M.D., D.M.Sc.
Senior Assistant Professor: Noritada Yoshikawa, M.D., D.M.Sc.
- **Department of General Medicine**
Professor: Hiroshi Yotsuyanagi, M.D., D.M.Sc.
Visiting Professor: Hideaki Kagami, D.D.S., 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**
Associate Professor: Akira Kunimatsu, M.D., Ph.D.
Senior Assistant Professor: Hiroyuki Akai, M.D., Ph.D.
- **Department of Palliative Medicine**
Professor: Arinobu Tojo, M.D., D.M.Sc.
Project Senior Assistant Professor: Satoru Iwase, M.D., Ph.D.
- **Department of Diagnostic Pathology**
Project Associate Professor: Yasunori Ota, M.D., Ph.D.
- **Department of Surgery**
Professor: Keiya Ozazwa, M.D., D.M.Sc.
Professor: Hideaki Tahara, M.D., D.M.Sc.
Associate Professor: Masaru Shinozaki, M.D., Ph.D.
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 Medical Informatics**
Associate Professor: Akira Kunimatsu, M.D., Ph.D.
Senior Assistant Professor: Hiroyuki Akai, M.D., Ph.D.
- **Department of Radiological Technology**
Associate Professor: Akira Kunimatsu, M.D., Ph.D.
- **Department of Cell Processing and Transfusion**
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**
Professor: Arinobu Tojo, M.D., D.M.Sc.
- **Department of Pathology**
Professor: Keiya Ozazwa, M.D., D.M.Sc.
Project Associate Professor: Yasunori Ota, M.D., Ph.D.
- **Radiation Control Office**
Associate Professor: Akira Kunimatsu, M.D., Ph.D.
- **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: Yoichi Imai, M.D., Ph.D.
- **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.
Associate Professor: Masanori Nojima, M.D., Ph.D.
- **Center for Antibody and Vaccine Therapy**
Professor: Hirotohi Tanaka, M.D., D.M.Sc.
Project Professor: Yataro Daigo, M.D., D.M.Sc.
Project Associate Professor: Hiroaki Taniguchi, M.D., Ph.D.
Project Senior Assistant Professor: Atsushi Takano, M.D., Ph.D.
Project Senior Assistant Professor: Noriaki Shimizu, Ph.D.
- **Therapeutic Vector Development Center**
Professor: Tomoki Todo, M.D., Ph.D.
Associate Professor: Yasushi Ino, M.D., Ph.D.
- **IMSUT Cord**
Associate Professor: Tokiko Nagamura-Inoue, M.D., D.M.Sc.
- **Department of Nursing**
Director: Koji Kobayashi, R.N., P.H.N., Ph.D.
- **Department of Pharmacy**
Director: Seiichiro Kuroda
- **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.

IMSUT Distinguished Professor Unit

● Division of Stem Cell Therapy

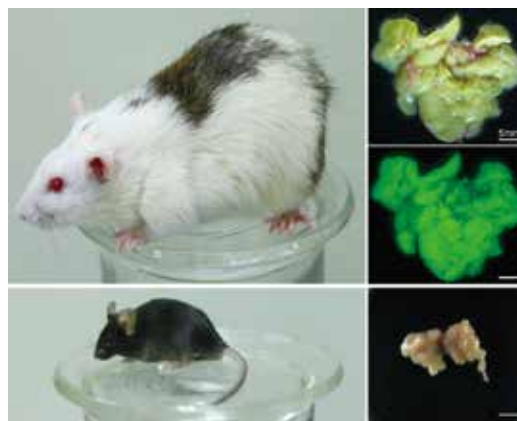
IMSUT Distinguished Professor: Hiromitsu Nakauchi, M.D., Ph.D.
Project Associate Professor: Tomoyuki Yamaguchi, Ph.D.

Our challenge: Translation of our discoveries in basic research into practical medical applications

Connecting the knowledge and methodology of basic science including immunology, molecular biology, cell biology, and developmental engineering with clinical medicine, we are working on uncovering new diseases, elucidating the causes of disease, and developing therapeutic modalities.

Our ultimate goal is to contribute to establishing new frontiers of stem cell therapy and to make clinical applications of stem cells a reality!

With respect to education, we aim to establish an environment where individuals can make the utmost use of their interests, personalities and abilities in order to foster potential researchers, as a human resource, with a succession of creative studies in the field of bioscience.



Mouse pancreas generated in rat by interspecies blastocyst complementation

Corporate Sponsored Research Programs/Social Cooperation Research Programs

● Project Division of Molecular and Developmental Biology

Project Professor: Sumiko Watanabe, Ph.D.
Project Senior Assistant Professor: Hideto Koso, M.D., Ph.D.

● Project Division of International Advanced Medical Research

Project Associate Professor: Koichiro Yuji, M.D., 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 ALA Advanced Medical Research

Project Professor: Kenzaburo Tani, M.D., Ph.D.
Project Senior Assistant Professor: Hiroshi Kohara, Ph.D.

● Project Division of Systems Immunology Research

Project Associate Professor: Takeshi Sato, Ph.D.

● Project Division of Fundamental Study on Cutting Edge of Genome Medicine

Project Associate Professor: Hiroshi Yasui, M.D., D.M.Sc.

● Project Division of Advanced Regenerative Medicine

Project Associate Professor: Satoshi Yamazaki, Ph.D.

● Project Division of Advanced Biopharmaceutical Science

Project Associate Professor: Satoru Nagatoishi, 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

● Genetically Modified Microorganism Support Office

Head: Yasushi Kawaguchi

● Pathology Core Laboratory

Laboratory I Head: Yoshinori Murakami
Laboratory II Head: Yasunori Ota

● Culture Media Section

Head: Jun-ichiro Inoue

● Office of Research Ethics

Head: Kaori Muto
Associate Professor: Ayako Kamisato

● Gene Manipulated Mouse Section

Professor: Nobuaki Yoshida
Professor: Chieko Kai

● Library

Head: Yasushi Kawaguchi

● Office of Health and Safety

Associate Professor: Makoto Nakanishi

● Imaging Core Laboratory

Head: Mutsuhiro Takekawa

● Radioisotope Center

Head: Kensuke Miyake

● Office of Intellectual Property

Head: Jun-ichiro Inoue

● IMSUT Clinical Flow Cytometry Laboratory

Head: Arinobu Tojo

● IT Service Room

Head: Mutsuhiro Takekawa

● Advisory Room for Conflict of Interest

Head: Hirotoshi Tanaka

● Photographic Laboratory

Head: Mutsuhiro Takekawa

Technical Office

Head: Kensuke Miyake

Dean's Office

● Dean's Advisor Office

Visiting Professor: Toichi Takenaka, D.V.M., Ph.D.

● Office of Support for Platforms for Advanced Technologies and Research Resources

Head/Visiting Professor: Kohzoh Imai, M.D., Ph.D.

● Project Coordination Office

Professor: Mutsuhiro Takekawa, M.D., Ph.D.

● International Affairs Office

Professor: Mutsuhiro Takekawa, 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 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.

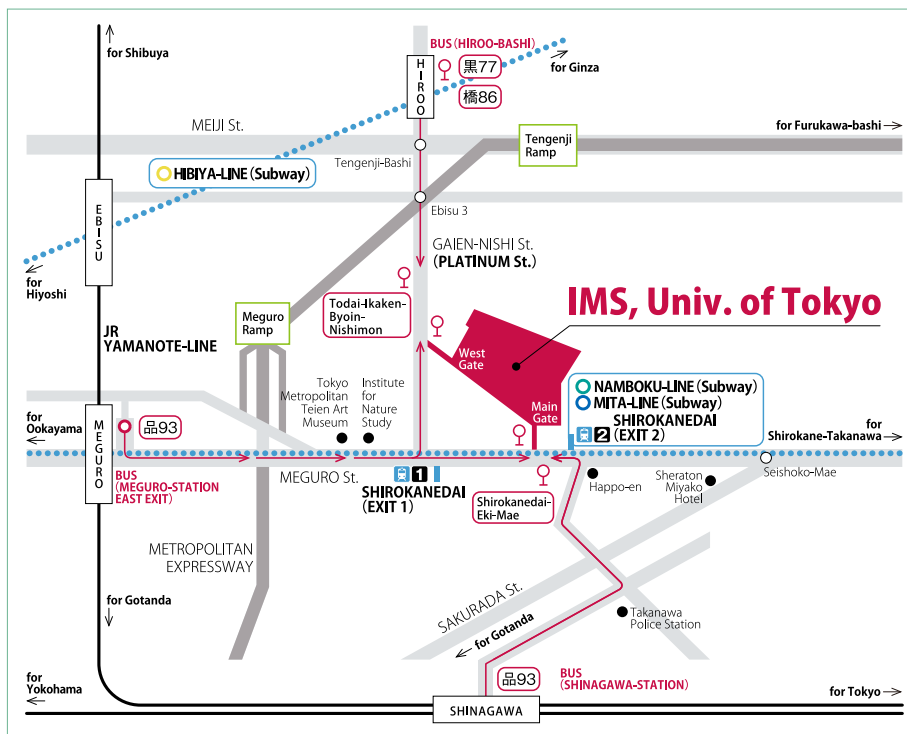
Medical Science Museum

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 NAMBUKU 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 (MEGURO-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)

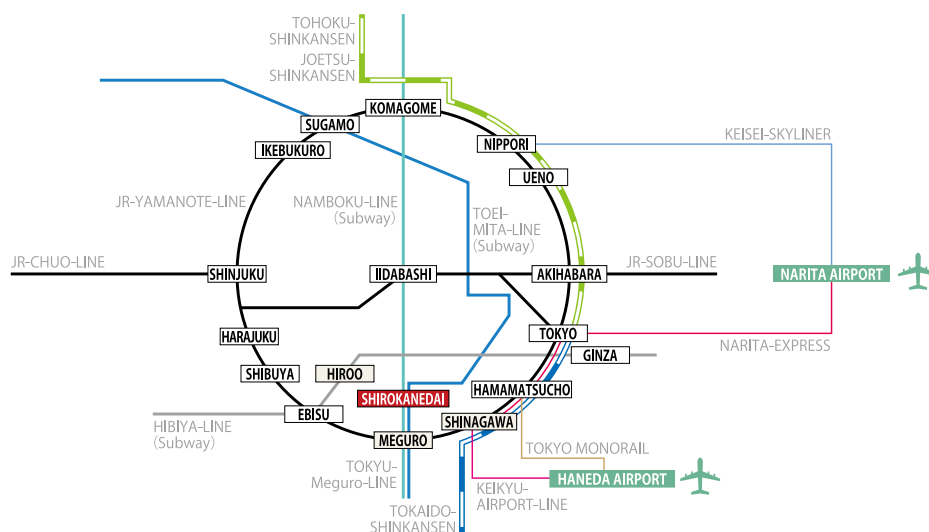
* take (品93) metropolitan bus bound for MEGURO-EKI-MAE

>> 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 MEGURO-EKI-MAE

>> get off at TODAI-IKAKENBYOIN-NISHIMON



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

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