This *English translation* is provided for the *information purpose only*.

Hokkaido University Graduate School of Medicine

Application Guidelines 2023

Master's Program in Medical Science
Medical Science Course
Special Selection for International Applicants

(For enrollment October 2023)

Hokkaido University Graduate School of Medicine

Outline of Master's Program in Medical Science
(Excerpted version)

1. Educational Philosophies, Educational Goals, Expectations of students, Basic Policy for Entrant Selection

Under the basic philosophies of Hokkaido University, "Frontier Spirit", "Global Perspectives", "All-round Education" and "Practical Learning" and the educational philosophies of the Graduate School of Medicine "to lead the world with cutting-edge research in medical science" and "to equip the next generation of medical researchers and medical professionals with a strong sense of ethics and a well-rounded character to contribute to the health and welfare of humanity", the Graduate School of Medicine sets its educational goal to nurture individuals who possess high ethical standards, highly specialized knowledge, and research and teaching capabilities regarding medicine, life science and social medicine (public health), as well as individuals who possess the deep insight to meet the diverse, wide range of health and safety requirements from local and international community. The Graduate School of Medicine expects "① students who are willing to be engaged in research tailored to clarify life phenomena, to overcome diseases, and to improve human health standards" and "② students who have intellectual curiosity, show the ability to analyze things logically, persevere as a team, and aspire to work as international leaders in each medical field." and "③ Students who have fundamental reading comprehension in foreign language (English) and writing skills before enrollment "

Admission shall be determined individually based on the comprehensive evaluation of Oral examination, and application documents submitted.

・The evaluation methods and the evaluation weight and the relationship between Expectations of Students and the evaluation methods

Entrance exam classification	Evaluation method	Evaluation weight	Matters related to ①	Matters related to ②	Matters related to ③
Special Selection for International Applicants	Oral examination	◎	✔	✔	✔
	Application Documents	○	✔	✔	

The mark ◎ indicates elements that are particularly important
The mark ○ indicates elements that are important
✔ is the Expectations of Students evaluated in the each evaluation methods

2. Expected Competencies, Diploma Policy

Based on the "Educational Goals" of the Graduate School of Medicine, in the Master's Program, we aim to nurture individuals who have basic knowledge and skills to play active roles in their own field as (i) researchers and educators in the fields of medicine, life science and public health, (ii) highly specialized professionals in the fields related to medical care and public health, or (iii) experts in health services and health policy management.
In order to develop such human resources, in Master's Program in Medicine, we grant the diploma under the following policies.
We grant Master of Medical Science to those who have attained the competencies to continuously contribute to the development of medical and life science research field by understanding the backgrounds of the medical and life science research, making plans for research theme of biologic importance or hypotheses to be validated, analyzing the obtained experimental or research results through verification of the validity and preparing another theme or hypotheses.

3. Course Introduction

In order to nurture individuals who attain "Expected Competencies", we offer interdisciplinary education beyond the boundaries of existing academic disciplines, aiming at the acquisition of basic knowledge and technology of mutually related fields. In addition, to nurture talented individuals responding to the diversified social needs, we introduce three types of coursework to study systematically through multiple subjects. Students choose the course that suits best to their purpose.
At Special Selection for International Applicants, only applications for the following course will be accepted.

【Medical Science Course】

This course aims to train highly specialized professionals who are capable of playing active roles with broad knowledge of medical and life science fields.

4. Course Guidance

The following 4 subjects are offered in the Master's Program in Medical Science.

- Required Core Subjects (Kyoutsu Koa Kamoku)
- Required Subjects I (Hisshu Kamoku I)
- Required Subjects II (Hisshu Kamoku II)
- Elective Subjects (Sentaku Kamoku)

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"Required Core Subjects" are offered to cultivate the basic quality in the education at the Graduate School of Medicine, and are compulsory in all courses. "Required Core Subjects" include "Introduction to Basic Medical Research" to provide basic and systematic knowledge of medical research, "Basic Experimental Methods and Research Designs" to master designing of research, basics of epidemiology and biostatics and so on. In line with "All-round Education", one of educational philosophies of Hokkaido University, students learn "Introduction to Medical Ethics" which cultivates bioethics for those engaged in medicine and "Introduction to Translational Research" which promotes the understanding of bridging research aimed at establishing medical technology or pharmaceutical products in the clinical practice utilizing the results gained by basic research.

"Required Subjects I" are the subjects dedicated to the specialty of each course and offered according to the educational goal of each course.

"Required Subjects II" provides the courses aimed at developing skills of statistical analysis, presentation and so on. Furthermore, a supervisor in the department is in charge of "Required Subjects II", which grants credits to the practice and exercise related to master's thesis or the establishment of the research result of specific assignment.

"Elective Subjects" are offered to secure flexibility in selecting credits, and enable students to acquire a broad view and expertise beyond the course and a framework of specialized field.

Course / Subjects	Medical Science Course	
	Subject	Credit
Required Core Subjects (Kyoutsu Koa Kamoku)	Introduction to Basic Medical Research	1
	Basic Experimental Methods and Research Designs	1
	Introduction to Medical Ethics	1
	Introduction to Translational Research	1
Required Subjects I (Hisshu Kamoku I)	Basic Research Methods in Medical Sciences I	1
	Basic Research Methods in Medical Sciences II	1
Required Subjects II (Hisshu Kamoku II)	Scientific Presentation and Communication	1
	Presentation Skills I	1
	Presentation Skills II	2
	Master's Thesis Research in Medical Sciences	10
Elective Subjects (Sentaku Kamoku)	Basic Principles of Medicine	[2]
	Introduction to Clinical Genomics	2
	Biomedical Informatics	1
	Clinical Epidemiology	2

	Clinical Pathology and Laboratory Medicine	1
	Introduction to Basic Medicine	1
	Introduction to Clinical Medicine	1
	Classes offered by Other Graduate Schools	
	Inter-Graduate School Classes	
	Required Subjects I and Required Subjects II of Public Health Course (EXCEPT Master's Thesis Research in Public Health)	
	Classes offered by Other Graduate Schools	
How to take subjects	Take 4 credits from Required Core Subjects, 2 credits from Required Subjects I, 14 credits from Required Subjects II, and 10 credits or more including Basic Principles of Medicine offered by belonging department from Elective Subjects.	

※ As for the subject which credit number is indicated as [number], students can take multiple choices as far as the chosen subjects belong to different subject titles.

Completion Requirements

Students are required to be enrolled in the Graduate School of Medicine for 2 years.
Students should acquire 30 credits or more in majored fields, and pass the qualifying review and examination of the Master's thesis or research achievements of specific assignment after receiving required research instruction from the supervisor.

Application Guidelines 2023 to Master's Program
Special Selection for International Applicants
(For enrollment October 2023)

1. Major and Number of Students Admitted

Major in Medical Science, Medical Science Course: a few students

2. Qualifications of Applicants

Those who cannot arrive in Japan during the date of examination designated by Hokkaido University Graduate School of Medicine and those who have obtained consent from the prospective supervisor prior to application.
Applicants must satisfy either of the following requirements:

(1) Those who have completed or are expected to complete 16 years of formal education overseas by 30 September, 2023.

(2) Those who have been awarded or are expected to be awarded by 30 September, 2023 a degree equivalent to Bachelor's degree from an overseas university or an overseas educational institution (limited to the one which overall situation such as educational and research activities has been evaluated by the said foreign country's government or the agency accredited by related organization or the one which is specifically designated as equivalent to above by the Minister of Education, Culture, Sports, Science and Technology) by completing three or more years of curriculum (including completing the said curriculum by an overseas educational institution by way of distance education while residing in Japan or completing the curriculum at an educational institution which is specifically designated by the Minister of Education, Culture, Sports, Science and Technology).

(3) Those who are not fallen under (2) and have completed 15 years of formal education overseas, and are deemed eligible to apply by Hokkaido University Graduate School of Medicine. (See Note)

(4) Those who are deemed by Hokkaido University Graduate School of Medicine under individual qualification review to have academic ability equal to or greater than university graduates, and will be 22 years of age or older by 30 September, 2023. (See Note)

Note: Those who apply under Qualifications of Applicants (3) or (4), must undergo qualification review. Refer to 3. (6) Qualification Review for further information.
Qualification review described in Qualifications of Applicants (4) is the process to examine research history and work experience of those who do not have university diploma.

3. Application Procedure

(1) How to Apply

Applicants have to access the web site designated by the prospective supervisor. The website will be notified to only applicants who have obtained consent from the prospective supervisor. Applicants have to send the original application documents listed in the following (3) Application Documents 1-8 to Student Affairs Office by EMS or other international express mail.

(2) Application Period

Online Registration:

From 9:00 (Japan Standard Time), Monday, 12 June, 2023 to 17:00 (Japan Standard Time), Tuesday, 13 June, 2023

Submission Deadline of Application Documents: 17:00 (Japan Standard Time), Tuesday, 20 June, 2023

Original application documents must arrive at Student Affairs Office by EMS or other international express mail.

(3) Application Documents

1	Application Form and Curriculum Vitae	Access the web site and fill in your information. Print them out on A4 size paper. (210mm x 297mm)
2	Photo ID Card	Access the web site, fill in your information, and print it out on A4 size paper. Paste your photograph (full-face, applicant's name printed on the back, 4cm x 3cm) taken within 3 months before (2) Submission Deadline of Application Documents in the space provided.
3	Academic Transcripts	Must be issued by a university/college president or Dean.
4	Statement of Purpose	Download from the web site. Explain the following 3 points in English (800 words.): 1. Past Research Activities, 2. The motive for the application and 3. Future Goals.
5	Certificate of (expected) Graduation or Completion	Must be issued by a university/college president or Dean. (For graduates, be sure that the certificate includes information on your degree). *Those who graduated or will graduate from a university in China (excluding Taiwan, Hong Kong and Macau) must submit the following documents in addition to a Certificate of (Expected) Graduation (Completion) . Graduates: a. Online Verification Report of Higher Education Qualification Certificate（教育部学历证书电子注册备案表） b. Certified copies of your Graduation Diploma（毕业证书）and Degree Diploma（学位证书）that has been authorized by a university/college Expected Graduates : a. Online Verification Report of Student Record（教育部学籍在线验证报告） Obtain documents "a" above by requesting it at "中国高等教育学历证书查询": http://www.chsi.com.cn/xlcx/bgys.jsp. Also be sure that there are 15 or more days left until the expiration date of the online verification at the time of its submission.
6	Copy of Passport	The page which your photo and passport number are shown on.
7	Proof of English Language Skills	If English is not your first language: Copies of the following test results as proof of English language proficiency taken within 2 years before the deadline of application. (e.g. TOEFL-ITP, TOEFL-iBT（Home Edition acceptable）, TOEIC, IELTS) For TOEIC Listening & Reading Test taken after April 2023, a printout of the PDF version of the official digital certificate is acceptable.
8	(If applicable) Consent to Transfer and Process Personal Data	Applicants from EEA must confirm the Handling of Personal Information on page 8-9 and submit their consent. The form will be sent by the prospective supervisor via e-mail.

Other documents may be designated by Hokkaido University Graduate School of Medicine and required to submit later as needed.

(4) Payment of Examination Fee

Follow the on-screen instructions after completing website registration, and pay the examination fee (JPY 30,000) by credit cards or Pay-easy. Please note that applicants have to pay transaction fee (JPY500) besides examination fee (JPY 30,000).

Payment of examination fee is not required for applicants who wish to enroll on a Japanese Government (Monbukagakusho: MEXT) Scholarship, a Chinese Government (China Scholarship Council: CSC) Scholarship, or a Hokkaido University President's Fellowship.

Those who apply under 2. Qualifications of Applicants (3) or (4), must pay the examination fee after qualification review.

Examination fee is non-refundable unless:

1) The application was not made.
2) Application documents were not accepted due to the documents being incomplete.

3) Double-payments were made.

Please acknowledge that it takes considerable time for processing refund.

Please keep the receipt, as it is required when claiming the refund to Student Affairs Office.

(5) Important Notice

1) Online registration, payment of examination fee, and submission of application documents by post must be completed by (2) Submission Deadline of Application Documents.

2) Printers and email address are required for online registration.

3) Application documents submitted will not be returned.

4) Application documents should be sent to Student Affairs Office by safe and reliable methods such as Express Mail Service (EMS). Late arrival due to postal accident will not be accepted.

5) To check your Internet connection, we will conduct a connection test on Tuesday, June 27, between 9:00 and 17:00 (Japan Standard Time). The detailed date and time will be notified to your e-mail address.

(6) Qualification Review

Those who apply under 2. Qualifications of Applicants (3) or (4), must undergo individual qualification review. Applicants have to contact the prospective supervisor by email. Applicants have to send the original 2) Application Documents for Qualification Review 1-7 to Student Affairs Office by post.

1) Application Period for Qualification Review

Submission Deadline of Application Documents for Qualification Review:

17:00 (Japan Standard Time), Wednesday, 31 May, 2023

Original application documents for qualification review must arrive at Student Affairs Office by post.

2) Application Documents for Qualification Review

1	Application Form for Qualification Review	Sent by the prospective supervisor by email. Fill in your information. Print them out on A4 size paper. Paste your photograph in the space provided. (Full-face, applicant's name printed on back, 4cm x 3cm, taken within 3 months before 1) Submission Deadline of Application Documents for Qualification Review.)
2	Academic Transcripts	Must be issued by a university/college president or Dean.
3	Certificate of (expected) Graduation or Completion	Must be issued by a university/college president or Dean. (For graduates, be sure that the certificate includes information on your degree). *Those who graduated or will graduate from a university in China (excluding Taiwan, Hong Kong and Macau) must submit the following documents in addition to a Certificate of (Expected) Graduation (Completion) . Graduates: a. Online Verification Report of Higher Education Qualification Certificate（教育部学历证书电子注册备案表） b. Certified copies of your Graduation Diploma（毕业证书）and Degree Diploma（学位证书）that has been authorized by a university/college Expected Graduates : a. Online Verification Report of Student Record（教育部学籍在线验证报告） Obtain documents "a" above by requesting it at "中国高等教育学历证书查询": http://www.chsi.com.cn/xlcx/bgys.jsp. Also be sure that there are 15 or more days left until the expiration date of the online verification at the time of its submission.
4	Copy of Passport	The page which your photo and passport number are shown on.
5	Proof of English Language Skills	If English is not your first language: Copies of the following test results as proof of English language proficiency taken within 2 years before the deadline of application. (e.g. TOEFL-ITP, TOEFL-iBT（Home Edition acceptable）, TOEIC, IELTS) For TOEIC Listening & Reading Test taken after April 2023, a printout of the PDF version of the official digital certificate is acceptable.
6	(If applicable) Consent to Transfer and Process Personal Data	Applicants from EEA must confirm the Handling of Personal Information on page 8-9 and submit their consent. The form will be sent by the prospective supervisor via e-mail.
7	Others	i) Certificate of research experience issued by the enrolled university or research institute. ii) Letter of Recommendation issued by supervisors or mentors of the enrolled university or research institute. (Free format.) iii) Certificates of academic ability equivalent to or greater than university graduates, or statement of academic achievements. (Such as scientific papers, books, and reports.) iv) Other documents may be designated by the prospective supervisor as needed.

3) Announcement of Results for Qualification Review

Results for qualification review will be notified to applicants by email by Friday, 9 June, 2023.

After qualification review, eligible applicants have to see (1) How to Apply, and do necessary procedures. Applicants have to send the original (3) 1) Application Form and Curriculum Vitae, 2) Photo ID Card, and 4) Statement of Purpose to Student Affairs Office by post.

(7) Application Documents should be submitted to:

Student Affairs Office
Hokkaido University Graduate School of Medicine
Kita 15 Nishi 7, Kita-Ku, Sapporo, 060-8638 JAPAN
Email: d-tanto@med.hokudai.ac.jp

4. Selection Procedure

Admission shall be determined individually based on the comprehensive evaluation of internet video interview (Zoom interview), and application documents submitted. Applicants must prepare equipment such as a web camera and the proper network environment for internet video interview **by 5. Examination Date and Time**.

5. Examination Date and Time

Designated date between Tuesday, July 4, 2023 or Wednesday, July 5, 2023. Detailed examination date and time will be notified to applicants by email.

6. Announcement of Acceptance

A Letter of Acceptance will be sent to each successful applicant by email at 10:00 (Japan Standard Time) on Friday, 14 July, 2023. And the original letter of acceptance will also be sent by post. Any inquiry by telephone or other source concerning examination result will not be accepted.

7. Enrollment Procedure

(1) Registration Period

From 9:00 (Japan Standard Time), Thursday, 7 September, 2023 to 17:00 (Japan Standard Time), Monday, 11 September, 2023, excluding Saturday and Sunday

(2) Enrollment and Tuition Fees

1) Enrollment Fee: JPY 282,000 (estimate)
Please note that it is not required for those who is granted a Japanese Government (Monbukagakusho: MEXT) Scholarship, a Chinese Government (China Scholarship Council: CSC) Scholarship, or a Hokkaido University President's Fellowship.

2) Tuition Fee: JPY 267,900 per half year (JPY 535,800 per year) (estimate)
Tuition of the first period should be paid using the bank remittance form sent from Hokkaido University Graduate School of Medicine in middle of November 2023.
If the fee is revised, the new one will be adapted accordingly.

3) Payments of admission and tuition fees could be exempted or postponed. Further information will be notified to successful applicants.

8. Important Notice

(1) Before filling in a column of the preferred field on the application for enrollment in 3. (3) 1) Application Form and Curriculum Vitae, refer to the following URL https://www.med.hokudai.ac.jp/en/faculty/ and consult your prospective supervisor about research contents and plan.
(2) Incomplete application documents and/or lack of documents will not be processed.
(3) Submitted documents are considered final and revision after submission will not be accepted.
(4) Enrollment may be cancelled at any time, should submitted documents be found to contain false information.
(5) Application documents must arrive at Student Affairs Office by post. Consider postal service situation and send early enough to be arrived. Late arrival after 3. (2) Submission Deadline of Application Documents will not be accepted.
(6) Any inquiry regarding examination and enrollment should be sent by email.

9. Use of Personal Information

(1) All personal information collected by Hokkaido University will be completely protected in compliance with the Act on the Protection of Personal Information Held by Independent Administrative Agencies, and the EU General Data Protection Regulation (GDPR) pursuant to the Hokkaido University Regulations on Personal Information Management.

(2) Your name, address, and other personal information you provide to the university through application and individual admissions screening processes will be used solely for ① enrollee selection (application processing and the screening process), ② the announcement of exam results, ③ admission procedures, ④ surveys and research on enrollee selection methods, and ⑤ other related processes.

(3) The personal information in section (2) above will also be used after enrollment, only for those who pass the exam, for processes related to ① academic affairs (registration, academic guidance), ② student support services (health management, scholarship applications, dorm admission selection, welfare services, etc.), ③ job search support services, ④ tuition, ⑤ use of the university library, ⑥ use of information education facilities, ⑦ confirming your safety and communication in a disaster or emergency situation, and ⑧ public relations (distributing newsletters, information on events, etc.).

(4) Personal information contained in exam results will be used to conduct surveys and research on enrollee selection methods.

(5) For recruiting purposes, when we receive a request for information from the Hokkaido University Frontier Foundation (Kita 8 Nishi 5, Kita-ku, Sapporo, Hokkaido; Tel: +81-(0)11-706-2017) or Hokkaido University Athletic Union (Kita 17, Nishi 7, Kita-ku, Sapporo, Hokkaido; Tel: +81-(0)11-716-4815), the only personal information listed in section (2) will be provided for use within the scope of that organization's activities.

(6) The personal information set forth in (2) will be retained for five years from the next academic year of our acquirement.

(7) The university shall use Article 6, Paragraph 1 (a) of the EU GDPR as the basis for handling personal information and obtaining consent to use it. Personal information will only be used for the purpose for which consent has been given, except when required by laws and regulations.

(8) The consent set forth in (7) may be revoked at any time. However, this does not affect the legal handling of personal information before consent was revoked.

(9) Individuals who provide personal information may make the following requests to the university based on the EU GDPR and related laws and regulations:

① Disclosure of personal information, ② Correction of personal information, ③ Erasure of personal information, ④ Limitation of the handling of personal information, ⑤ Objection to the handling of personal information, ⑥ Transfer of personal information to other service providers

(10) If you have provided personal information within the European Economic Area, you may file an objection to a supervisory authority in accordance with Article 51, Paragraph 1 of the EU GDPR if you are dissatisfied with the university's handling of your personal information, etc.

(11) Some of the processes in (2)－(5) mentioned above may be outsourced by the university to a contracted service provider (hereinafter referred to as "contractor"). All or some of the personal information provided by applicants may be provided to the contractor only as needed to perform the tasks for which it has been contracted.

(12) This university is subject to Japan's Law for the Protection of Personal Information Retained by Independent Administrative Institutions, but not subject to adequacy decisions by the European Commission.

May 2023

Student Affairs Office
Hokkaido University Graduate School of Medicine
Kita 15 Nishi 7, Kita-Ku, Sapporo, 060-8638, JAPAN
Phone: +81-(0)11-706-5018＊Japanese only

※Organization of the Graduate School of Medicine and main research contents

	Department	Academic advisor		Research contents
Biochemistry	Molecular Biology	Professor	HATAKEYAMA Shigetsugu	1. Cell integrity based on cellular metabolisms and nuclear geometry 2. Nano structures controlling organelle dynamics 3. Molecular bases of cancer therapeutic resistance
	Medical Chemistry	Professor	HATAKEYAMA Shigetsugu	1. Ubiquitin system in protein degradation 2. Intracellular signal in cancer and immune system 3. Functional analysis of proteins/lipids by mass spectrometry
Anatomy	Anatomy and Embryology	Professor	WATANABE Masahiko	1. Visualization of expression and localization of neural signaling molecules 2. Glial roles in neural development and function 3. Molecular mechanisms for synaptic circuit development
	Histology and Cytology	Professor	FUJIYAMA Fumino	1. Anatomy and function of central nervous system 2. Elucidation of Parkinson's disease 3. Sensing mechanism in the mechanical and chemical sensory appratuses
Physiology	Cell Physiology	Professor	OHBA Yusuke	1. Visualization of cell functions using fluorescence bioimaging 2. Spatiotemporal regulation of intra- and intercellular signal transduction 3. Regulation of membrane dynamics 4. Development and application of fluorescent biosensors
	Systems Neuroscience	Professor	TANAKA Masaki	1. Neural control of voluntary movements 2. Functional analysis of the frontal cortex 3. Functional analysis of the basal ganglia 4. Functional analysis of the cerebellum
Pharmacology	Neuropharmacology	Professor	YOSHIKAWA Takeo	1. Neuropharmacological studies of the histaminergic nervous system 2. Analysis of neuropeptides in wakefulness 3. Drug development targeting sleep disorders 4. Molecular biology of hyaluronic acid 5. Optical imaging of learning-induced neural circuit reorganization 6. Neural basis of autism spectrum disorder and social behavior 7. Cognitive mechanisms of virtual reality 8. Development of novel neural activity imaging techniques
	Cellular and Molecular Pharmacology	Professor Associate Professor	YOSHIKAWA Takeo NORIMOTO Hiroaki	1. Mechanism and function of REM and non-REM sleep 2. Cellular basis of memory 3. Alzheimer's disease 4. Molecular and cellular basis of hibernation
Pathology	Pathology	Professor	TANIGUCHI Koji	1. Research on inflammation and cancer 2. Research on inflammation and tissue regeneration 3. Mechanisms of autoimmune and inflammatory diseases 4. Research on tight junction 5. Development of new cancer-on-chip to elucidate the pathophysiology of intractable cancer 6. Human pathology and surgical pathology
	Cancer Pathology	Professor	TANAKA Shinya	1. Research on diagnostic and surgical pathology 2. Cancer progression, cancer stem cells, and therapeutics. 3. Profiling analysis of various diseases. 4. Bioimaging and rapid-immunohistochemistry. 5. Biomaterial for analysis of cellular reprogramming. 6. NGS-based research on brain tumor and sarcoma. 7. Student-oriented innovative research.
	Diagnostic Pathology	Professor Associate Professor	MATSUNO Yoshihiro TOMARU Utano	1. Diagnostic surgical pathology (including cytopathology) 2. Application of molecular studies in diagnostic pathology 3. Quality control and standardization in pathology laboratories 4. Clinicopathologic analysis of human malignancy
Microbiology and Immunology	Immunology	Professor	KOBAYASHI Koichi	1. Host protection mediated by TLR and NLR family proteins 2. Role of the innate immune system in the onset of infection and inflammatory diseases 3. Nod2-dependent intestinal mucosal homeostasis and pathogenesis of Crohn's disease 4. CITA/NLRC5: a key regulator of MHC class I genes 5. Mechanisms of immune evasion by cancers 6. Development of novel biomarkers and immunotherapies for cancer patients 7. Vaccine development against cancer and coronaviruses using a novel vaccine technology
	Microbiology and Infectious Diseases	Professor	FUKUHARA Takasuke	1. Studies on viral and host factors involved in the propagation of hepatitis virus (HBV, HCV) 2. Studies on the mechanism of pathogenicity of virus infection through molecular biological analysis and animal experimentation 3. Studies on the diagnosis and drug discovery of viral infection (Coronavirus, Flavivirus) 4. Epidemiological and molecular biological studies on zoonotic diseases (Hantavirus, Flavivirus)
Social Medicine	Hygiene	Professor	UEDA Kayo	1. Environmental epidemiological studies 2. Quasi-experimental assessment of population-level health interventions (interrupted time series, ins 3. Emergency preparedness for climate change, natural disasters, and infectious diseases in healthcare 4. Epidemiological study on behavioral and psychological symptoms of dementia 5. Assessment of health effects of climate change and global environment
	Public Health	Professor	TAMAKOSHI Akiko	1. Field study on diet and health 2. Studies on unhealthy status and its related factors of the elderly 3. Longitudinal study of age-related neuropsychiatric function among a community-based elderly 4. Studies on lifestyle factors and health in adults
	Forensic Medicine	Professor	MATOBA Kotaro	1. Studies on medico-legal diagnosis of cause of death, postmortem interval, wounds, asphyxia, identification and postmortem CT diagnosis. 2. Studies on the mechanisms of generation concerning exogeneous unusual findings.
	Biostatistics	Professor Associate Professor	HATAKEYAMA Shigetsugu YOKOTA Isao	1. Multivariate survival analysis 2. Development and evaluation methodology for diagnostic method and clinical prediction model 3. Development and application of clinical trial design 4. Joint model of longitudinal data with flexibility 5. Clinical epidemiology using big-data and public database
	Medical Education and General Medicine	Professor	TAKAHASHI Makoto	1. Development of innovative teaching methods and materials 2. Development of innovative evaluation methods 3. Studies on factors that affect learning behavior 4. Studies on factors that affect physicians' carrier selection
	Regulatory Science	Professor	ARATO Teruyo	1. Studies on data necessary for the development of advanced biological medicines 2. Studies on developmental strategy for orphan drugs 3. Studies on post marketing surveillance of pharmaceuticals and medical devices

	Department	Academic advisor		Research contents
	Translational Research Manegement	Professor	SATO Norihiro	1. Methodology for clinical research 2. Data manegement of clinical trial 3. Manegement of cell processing for cell therapy and regenerative medicine 4. Methodology for translational research support
	Patient Safety	Professor	NASUHARA Yasuyuki	1. Research on the methodology about system approach to patient safety 2. Research on the methodology for cultivating talented risk managers in hospitals 3. Research on the methodology about standardization of medical accident investigation
	Health Data Science	Professor	ITO Yoichi	1. Studies on the methodology of clinical trials 2. Studies on the methodology of drug safety data analysis 3. Studies on the multivariate data analysis
	Clinical Genetics and Medical Ethics	Professor	YAMADA Takahiro	1. research on disclosure of secondary findings in genomic medicine 2. Research on newborn screening and genetic counseling 3. Research on tele-medicine in genetic counseling 4. Research on genetic counseling in presymptomatic genetic testing 5. Research on providing systems for prenatal genetic testing and genetic counseling
Internal Medicine	Respiratory Medicine	Professor	KONNO Satoshi	1. Prospective cohort studies of asthma and/or COPD 2. Research on molecular mechanisms, diagnosis, and treatment of thoracic malignancies 3. Research on molecular mecahnisms of chronic airway disease and/or diffuse lung disease 4. Basic/clinical research on pulmonary hypertension and cardiac sarcoidosis 5. Basic / clinical research on respiratory infectious diseases
	Rheumatology, Endocrinology and Nephrology	Professor	ATSUMI Tatsuya	1. Basic and clinical research on autoimmune disorders 2. Research on the pathophysiology, diagnosis and therapy of diabetes, obesity and dyslipidemia 3. Research on the pathophysiology and therapy of endocrine diseases 4. Basic and clinical research on renal diseases
	Gastroenterology and Hepatology	Professor	SAKAMOTO Naoya	1. Research for pathophysiology, diagnosis and treatment of liver diseases 2. Research for pathophysiology, diagnosis and treatment of pancreatobiliary diseases 3. Research for pathophysiology, diagnosis and treatment of malignant tumor of digestive system 4. Research for pathophysiology and treatment of inflammatory bowel diseases 5. Research for pathophysiology, diagnosis and treatment of digestive diseases
	Cardiovascular Medicine	Professor	ANZAI Toshihisa	1. Reasearch on pathophysiology, diagnosis, and treatment for ischemic heart disease 2. Molecular biological and clinical reasearch on pathophysiology and treatment for heart failure 3. Reasearch on etiology, diagnosis, and treatment for cardiomyopathy 4. Reasearch on molecular and genetic basis, diagnosis, and treatment for lifestyle disorder 5. Reasearch on etiology, diagnosis, and treatment for arrhythmia 6. Development of non-invasive technique for diagnosis of heart disease
	Medical Oncology	Professor	KONNO Satoshi	1. Research on diagnosis and treatment of malignant tumors 2. Research on molecular pathophysiology, diagnosis and treatment of lung cancers and 3. Research on molecular pathophysiology, diagnosis and treatment of tumors of the digestive 4. Research on cancer drug therapy 5. Research on molecular targeting therapy of cancer 6. Research on genome analysis, companion diagnostics and precision medicine of cancer
	Hematology	Professor	TESHIMA Takanori	1. Research on molecular pathogenesis, diagnosis, treatment of hematological malignancies 2. Basic and clinical research to improve outcome of hematopoietic stem cell transplantation and immune cell therapy 3. Basic research to understand cellular & molecular biology of hematopoiesis 4. Basic and clinical research on cell therapies against viral infections and malignant diseases 5. Pathogenesis, diagnosis, and treatment of immunodeficiencies, including AIDS 6. Reserch to improve safety and efficacy of blood transfusion 7. Research on platelet function, blood coagulation and fibrinolysis
	Health Care Medicine	Professor	ASAKURA Satoshi	1. Research for impaired health caused by stresses 2. Research for evidence based medicine in health examination 3. Research for occupational mental health 4. Research for adolescent mental health 5. Research for therapeutic interventions of mental disorders
	Clinical Cancer Genomics	Professor	KINOSHITA Ichiro	1. Research for cancer genomics 2. Research for genomic abnormality of cancer 3. Research for epigenetic alteration of cancer 4. Development of novel biomarker on cancer 5. Research for molecular targeted therapy on cancer
Radiology	Radiation Oncology	Professor	AOYAMA Hidefumi	1. Research for external irradiation 2. Research for high precision X ray therapy 3. Research for Particle therapy and Proton therapy 4. Research for medical physics 5. Research for radiobiology for radiotherapy
	Diagnostic Imaging	Professor	KUDO Kohsuke	1. Diagnostic radiology using CT, MRI, ultrasound, and nuclear medicine 2. Vasicular imaging and interventional radiology 3. Radioisotope treatment 4. Imaging analysis of tracer kinetics and artificial intelligence 5. Synthesis of contrast media and radiopharmaceuticals 6. Molecular imaging using stable isotopes and radio isotopes

	Department	Academic advisor		Research contents
Surgery	Gastroenterological Surgery I	Professor	TAKETOMI Akinobu	1．Basic research and treatment on the surgical GI tract and HPB diseases. 2．Development of endoscopic and/or robotic surgery for the GI tract and HPB diseases. 3．Study for the pathogenesis and management of transplant immunology 4．Research for the improvement of organ preservation 5．Clarification of pathogenesis and development of new strategy of cell transplantation 6．Artificial Intelligence (AI) applied research in the field of gastroenterological surgery 7．Study of the surgical education and surgical training 8．Basic research and treatment on pediatric surgical oncology and pediatric hepato-biliary 9．Basic and clinical research on the function of pediatric digestive system
	Gastroenterological Surgery II	Professor Associate Professor	HIRANO Satoshi SHICHINOHE Toshiaki	1. Clarification of pathophysiology and development of surgical treatments of the malignancy of the digestive system 2. Development of endoscopic surgery and its devices 3. Clinical researvh for perioperative management of highly invasive digestive surgeries 4. Study for multidisciplinary treatment of pancreato-biliary cancer 5. Molecular research on biomarkers associated with oncological malignancy 6. Exploring translational research on immunotherapy 7. Analysis of immune responses in tumor microenvironments 8. Study of gene therapy for intractable cancers 9. Study for surgical education 10. Study for bariatric and metabolic surgery
	Renal and Genitourinary Surgery	Professor	SHINOHARA Nobuo	1. The mechanism of development of detrusor overactivity associated with lower urinary tract 2. Neural transmitted pathway at the bladder stimulation 3. The development of chronic rejection in transplanted kidney 4. The analysis of immunology in renal transplantation and development of the treatment of immunological regulation 5. The mechanism of carcinogenesis and progression in kidney cancer 6. The mechanism of metastasis and progression of urothelial cancer 7. QOL study on the treatment of prostate cancer 8. The development of minimal invasive surgery
	Cardiovascular Surgery	Professor	WAKASA Satoru	1. Research on surgery for severe heart failure 2. Research on surgery for functional mitral regurgitation 3. Research on myocardial protection 4. Research on cold preservation and autophagy in the heart 5. Metabolic disturbances in atrial fibrillation 6. Endovascular stent graft therapy for aortic diseases
	Breast Surgery	Professor	TAKAHASHI Masato	1. Research on biological characteristics in breast cancer 2. Research on endocrine therapy in breast cancer 3. Research on mechanisms of breast cancer development and prevention 4. Research on the development of new breast cancer screening methods 5. Research on the development of breast cancer surgical methods 6. Research on the perioperative drug therapy for breast cancer 7. Research on drug therapy for metastatic breast cancer 8. Research on hereditary breast cancer
	Thoracic Surgery	Professor	KATO Tatsuya	1. Development of minimally invasive thoracic surgery 2. Surgery in multimodality thearapy for lung cancer 3. Lung transplantation 4. Photodynamic therapy using nanoparticle for thoracic malignant tumors 5. Development of early diagnosis and molecular targeted therapy using next generation sequence for lung cancer 6. Photoimmunotherapy for lung cancer 7. Therapy for malignant mesothelioma and dissemination of cancer
Anesthesiology and Critical Care Medicine	Anesthesia and Perioperative Medicine	Professor	MORIMOTO Yuji	1. Cerebral protection and resuscitation 2. Care and Cure for the whole body against invasive biological stress 3. Neurotoxicity by anesthetics 4. Mechanism of postoperative cognitive dysfunction 5. Mechanism and treatment of pain 6. Mechanism of respiratory cycle and effect of drugs 7. Hyperbaric oxygen therapy 8. Patient management system in the operating room and the medical economics
	Acute and Critical Care Medicine	Professor	MORIMOTO Yuji	1. Body responses to various insults –pathophysiology and their control- 2. Multiple organ dysfunction syndrome –pathophysiology and treatment- 3. Critical care medicine 4. Cardiopulmonary cerebral resuscitation 5. Toxicology 6. Disaster medicine 7. Medical, transportation, and information system for acute medicine 8. Traumatology
Reconstructive Surgery and Rehabilitation Medicine	Orthopedic Surgery	Professor	IWASAKI Norimasa	1. Elucidation of pathology and development of therapeutic strategy for arthritis 2. Identification of role of glycans in bone and cartilage metabolism 3. Study of pathology and development of therapeutic strategy for osteoporosis 4. Clarification of pathology and development of therapeutic strategy for intervertebral disc degener 5. Biomechanical study for pathology and treatment options of musculoskeletal diseases 6. Research about pathology and treatment strategy for spinal cord and peripheral nerve diseases 7. Development of novel analytic tools for musculoskeletal diseases using AI 8. Research about genetic and epidemiologic aspects of musculoskeletal diseases
	Plastic and Reconstructive Surgery	Professor	YAMAMOTO Yuhei	1. Translational research in wound healing 2. Translational research in treatment of keloid 3. Development of surgical technique in free tissue transfer 4. Basic research in surgical oncology 5. Translational research of angiogenesis of vascular and lymphatic vessel 6. Regenerative medicine based on tissue engineering method 7. Development of therapeutic technique in cranio-maxillo-facial surgery
	Rehabilitation Medicine	Professor	MUKAINO Masahiko	1. Research on motion analysis of movement disorders 2. Research on activity monitoring 3. Research on functioning statistics for daily life 4. Research on telerehabilitation 5. Research on assessment methods for cognitive impairment
	Sports Medicine	Professor	KONDO Eiji	1. Motion analysis of athletes for performance improvement 2. Development of reconstruction surgery for osteoarthritis 3. Tissue regeneration of joints 4. Elucidation of remodeling mechanism of soft tissue 5. Medical application of synthetic polymer gel 6. Development of advanced treatment technology for musculoskeletal disorder

	Department	Academic advisor		Research contents
Reproductive and Developmental Medicine	Pediatrics	Professor	MANABE Atsushi	1. Establishing methods for early diagnosis of primary immunodeficiency diseases. 2. Molecular epidemiological studies on macrolide-resistant mycoplasma pneumoniae 3. Clinical and molecular study for diagnosis and management in pediatric hematology and 4. Clinical and molecular study in pediatric stem cell transplantation and cell therapy. 5. Molecular analysis of pediatric endocrine disease. 6. Pathological analysis and therapeutic development using neurological disease model animals. 7. Histopathological analysis on the role of activated glomerular parietal epithelial cell in childhood kidney disease. 8. Development of a Mitochondrial Drug Delivery System for Myocardial Regeneration Therapy. 9. Study to improve outcome of neonatal chronic lung disease. 10. Basic and Clinical study in inborn errors of metabolism.
	Obstetrics and Gynecology	Professor	WATARI Hidemichi	1. Basic studies on the physiology of fetus and amnion 2. Clinical studies on the antenatal diagnosis and fetal therapy 3. Studies on the development of new strategy for the management of complicated pregnancies 4. Clinical studies on the treatment of infertility 5. Intrafollicular physiology 6. Molecular mechanism of genesis and metastasis of uterine cancer 7. Chemoresistance of female reproductive cancer 8. Molecular mechanism of placental growth and differentiation 9. Development of novel molecular-targeting therapy for ovarian cancer 10. Establishment of new effective screening method for cervical cancer
Sensory Organ Medicine	Dermatology	Professor	UJIIE Hideyuki	1. Molecular biological research of epidermis 2. Research on pathophysiology, diagnosis and treatment of genetic skin disorders 3. Research on pathophysiology, diagnosis and treatment of autoimmune blistering skin diseases 4. Research on pathophysiology, diagnosis and treatment of malignant skin tumors 5. Research on pathophysiology, diagnosis and treatment of atopic dermatitis 6. Research on tissue engineering and wound healing 7. Research on novel therapeutic modalities for genetic skin disorders
	Otolaryngology−Head and Neck Surgery	Professor Associate Professor	HOMMA Akihiro NAKAMARU Yuji	1. Basic research and clinical analysis for pathogenesis of sensorineural hearing loss 2. Basic research and clinical analysis of sensorineural hearing loss by viral infection 3. Basic research and clinical analysis of nasal allergy 4. Basic research and clinical analysis of Eosinophilic chronic rhinosinusitis 5. Immunological approach for head and neck cancer 6. Basic research and clinical analysis of chemotherapy for head and neck cancer 7. Molecular biologic studies on head and neck cancer
	Ophthalmology	Professor	ISHIDA Susumu	1. Retinal cell biology 2. Ocular Immunology and inflammation 3. Ocular neuroprotection 4. Ocular oncology and pathology 5. Pathophysiology and treatment of ocular surface disease 6. Ocular circulation and metabolism
Neurological Disordor	Psychiatry	Professor	KUSUMI Ichiro	1. Psychopathology of psychiatric diseases 2. Development of new psychotherapy techniques 3. Development of new diagnostic techniques and new treatment of epilepsy 4. Molecular genetic study of psychiatric diseases 5. Development of animal models of psychiatric diseases and neuroscience 6. Development of new psychotropic drugs and psychopharmacology 7. Neuroimaging in psychiatric diseases 8. Neurophysiological and neuropsychological study of psychiatric diseases
	Neurosurgery	Professor	FUJIMURA Miki	1. Basic and clinical research on malignant glioma 2. Basic and clinical research on cerebrovascular disorders 3. Basic and clinical research on spinal cord disorders 4. Translational research on CNS regeneration 5. Surgical anatomy of skull base surgery 6. Genomic research on cerebrovascular disorders 7. Cerebral hemodynamics and metabolism 8. Clinical research on pediatric neurosurgery

	Department	Academic advisor		Research contents
	Neurology	Professor	YABE Ichiro	1. Molecular biology and genetics for neurological disorders 2. Immunohistochemistry of muscles and peripheral nerves 3. Basic studies for the disease mechanism and therapeutic approach in neuro-immunological 4. Biomarkers in neurological disorders 5. Clinical neuroelectrophysiology 6. Cogitive brain function 7. Neuroepidemiology
Medical Biology	Neurobiology	Professor	KAMIYA Haruyuki	1. Neurobiology of axon 2. Neurobiology of synapse
Immunology	Immunobiology	Professor	SEINO Kenichiro	1. Tumor Immmunology 2. Transplant Immunology 3. Development of a novel immune cell therapy using cell reprogramming technique
	Psychoimmunology	Professor	MURAKAMI Masaaki	1. Molecular mechanism for T cell-specific autoimmune disease development by the gateway 2. Bioelectronic medicine by the gateway reflexes and the VNS 3. Molecular mechanisms underlying inflammation development via the IL-6 amplifier activation 4. Research for functional roles of SNPs asscoiated with chronic inflammatory diseases (the IL-6 5. Development of novel drugs and biomarkers for diseases associated with chronic inflammation (the IL-6 amplifier)
	Molecular Mechanisms	Professor	NODA Nobuo	1. Molecular mechanism of autophagy 2. Molecular mechanism of life phenomena regulated by liquid-liquid phase separation 3. Elucidating the molecular functions of biomolecules based on their structure
Pathological Oncology	Stem Cell Biology	Professor	KONDO Toru	1. Molecular mechanism involved in the maintenance and differentiation of neural stem/precursor 2. Molecular mechanism of neural stem/precursor aging 3. Characterization of cancer stem cells and analysis of their therapeutic targets 4. Relationship between neural stem cells and age-related disorders.
	Biomedical Oncology	Professor	SONOSHITA Masahiro	1. Studying how cancers develop 2. Elucidating the mechanisms of how drug resistance occurs in cancer 3. Generating novel anti-cancer therapeutics