This *English translation* is provided for *information purposes only*.

Hokkaido University Graduate School of Medicine

Application Guidelines for Additional Recruitment, 2023 for Doctoral (PhD) Program in Medicine

(For enrollment April 2023)

Application Period：Wednesday, 1 February 2023 to Friday, 3 February 2023

Hokkaido University Graduate School of Medicine

Outline of Doctoral (PhD) Program in Medicine

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"

Selection shall be determined based on the comprehensive evaluation of entrance examinations, academic transcripts, and other relevant 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
general examination	Specialized subject	◎	✔	✔	
	English	◎			✔
	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 Doctoral Program, we aim to nurture highly qualified individuals who play active roles as (i) international researchers in domestic and international universities or research institutions, (ii) clinicians and medical scientists in medical institutions who excel in both clinical techniques and research competence, or (iii) highly specialized professionals engaged in health services administration and public health in administrative organizations, companies and so on.

In order to develop such human resources, we grant Doctor of Philosophy to those who have attained the competencies to continuously contribute to the development of basic medicine, clinical medicine, or social medicine research through properly understanding the backgrounds or circumstances of medical research, making plans for research theme which are academically and internationally significant or hypotheses which should be validated, analyzing the obtained 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.

【Basic Medicine Course】

This course aims to train researchers and educators in medical and life science field. Students acquire broad expertise required to become independent researchers, learn various research approaches including techniques for designing experiments, and develop their research capabilities. They are also expected to acquire the competence and skills to apply and utilize their expertise to medical and life science fields with interdisciplinary approach.

【Clinical Medicine Course】

This course aims to train clinicians who excel in clinical techniques and research competence. Rather than relying solely on the traditional research methods of basic medicine using model animals or cells, students gain the competence they need for research in clinical medicine by applying methods targeting human.
A system of Clinical Collaborative Departments is implemented for the students taking Clinical Medicine Course. Under this system, students can collect clinical data which may not be available at the university hospital, and can receive medical research instructions from institutions where advanced and specialized diagnoses, examinations and treatments are conducted which may not be feasible at the university hospital. This system combines theory with practice in education provided by multiple instructors including dedicated instructors and collaborative leading clinicians.

【Social Medicine Course】

This course aims to train professionals who undertake the task of improvement of health and safety at the regional and international levels. Students start by learning research methods in social sciences including research ethics, basic and applied statistics, medical informatics and EBM (evidence-based medicine). This course emphasizes social medicine and preventive medicine, rather than biology and life science. Students aim at mastering the research approaches and skills that are necessary for research in public health and preventive medicine.

※ Students should state their preference course when applying and after the admission students will be allocated to courses based on their preference. It is possible to change the course after the admission. (Details will be informed after the admission.)

4. Course Guidance

The following 3 subjects are offered in the Doctoral (PhD) Program in Medicine.

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

“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 Medical Research” to provide basic and systematic knowledge of medical research, and “Experimental Methods and Research Designs” to master designing of research, basics of epidemiology and biostatics. In line with “All-round Education”, one of educational philosophies of Hokkaido University, students learn “Medical Ethics” which cultivates bioethics for those engaged in medicine, “Presentation Skills I & II” which develops presentation skills and academic paper writing skills in English, 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” are offered according to the educational goal of each course, to acquire not only in-depth knowledge of specialized research field but also the knowledge of outside extensive fields. In addition, research work for doctoral thesis will be certified as credits. Furthermore, a supervisor in the laboratory will be in charge of the subject and carry out exercises for gaining the necessary ability to complete the dissertation.

"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.

Subjects		Subject	Credit	Details
Required Core Subjects		Introduction to Medical Research	1	
		Experimental Methods and Research Designs	1	
		Medical Ethics	1	
		Scientific Presentation and Communication	1	
		Presentation Skills I	1	
		Presentation Skills II	2	
		Introduction to Translational Research	1	
Required Subjects	Basic Medicine Course	Research Methods in Medical Sciences I	1	Take one of these 3 courses and enroll all the subjects offered by that course.
		Research Methods in Medical Sciences II	1	
		Dissertation Research in Medical Sciences	10	
	Clinical Medicine Course	Research Methods in Clinical Medicine I	1	
		Research Methods in Clinical Medicine II	1	
		Dissertation Research in Clinical Medicine	10	
	Social Medicine Course	Research Methods in Social Medicine I	1	
		Research Methods in Social Medicine II	1	
		Dissertation Research in Social Medicine	10	
Elective Subjects		Principles of Medicine	[2]	Take 10 credits or more including 2 credits of Principles of Medicine offered by belonging laboratory.
		Required Subjects from Other Courses		

※ 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 4 years or more to complete Doctoral Program. (Students who achieved superior performance can complete the Doctoral Program as much as 1 year before the end of the course term.)

Students should acquire 30 or more credits in majored fields, and pass the qualifying review and examination of the Degree thesis (Dissertation) after receiving required research instruction from the supervisor.

How to take subjects

Students should take 8 credits from Required Core Subjects, 12 credits from Required Subjects they enroll, 10 credits or more including Principles of Medicine offered by belonging laboratory from Elective Subjects.

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*Even though announced this way, there is a possibility that the graduate school must subsequently revise the examination procedure or postpone/cancel the examination(s) as a measure against COVID-19.

1. Number of Students Admitted

Medicine: A few students (including working students).

Before applying, please contact Student Affairs Office, Graduate School of Medicine at first, because the office needs to refer the prospective supervisor for the possibility to accept the applicant. Please be noted that only those who have been given prior approval from prospective supervisor can apply. For the information of laboratories, please check "Organization of the Graduate School of Medicine and main research contents".

Working students mean individuals who are working at public offices, institutes, hospitals or others and continue their service at their work place after enrollment.

2. Qualifications of Applicants

(1) Those who have graduated or are expected to graduate from a six-year program in Medicine, Dentistry, Veterinary Medicine or Pharmaceutical Sciences by 31 March 2023.

(2) Those who have completed or are expected to complete 18 years of formal education overseas (with a final program in Medicine, Dentistry, Veterinary Medicine or Pharmaceutical Sciences) by 31 March 2023.

(3) Those who have completed or are expected to complete 18 years of formal education provided by overseas educational institution by way of distance education (with a final program in Medicine, Dentistry, Veterinary Medicine or Pharmaceutical Sciences) while residing in Japan by 31 March 2023.

(4) Those who have completed or are expected to complete an undergraduate course of a foreign institution at an educational institution in Japan (limited to those who have completed 18 years of the said foreign country's curricular education with a final program in Medicine, Dentistry, Veterinary Medicine or Pharmaceutical Science) which is designated in the said foreign country's education system and specifically designated in Japan by the Minister of Education, Culture, Sports, Science and Technology by 31 March 2023.

(5) Those who have been awarded or are expected to be awarded by 31 March 2023 a degree equivalent to Bachelor's degree from overseas university or overseas educational institution by completing five or more years of curriculum in Medicine, Dentistry, Veterinary Medicine or Pharmaceutical Science (including completing the said curriculum by overseas school by way of distance education while residing in Japan or completing the curriculum at an educational institution which is designated in the said foreign country's education system as well as falls into the specification of above (4)).

(6) Those designated by the Minister of Education, Culture, Sports, Science and Technology (see Notes 1&2)

(7) Those have been or are expected to be fallen under one of the followings by 31 March 2023 are qualified for application if deemed by Hokkaido University Graduate School of Medicine of to have academic ability equal to or greater than university graduates in Medicine, Dentistry, Veterinary Medicine or Pharmaceutical Sciences. (see Note 2)

ⅰ) Those who have been enrolled for four years or more in 6-year program in Medicine, Dentistry, Veterinary Medicine or Pharmaceutical Sciences Medicine.

ⅱ) Those who have completed 16 years of school education overseas (with a final program in Medicine, Dentistry, Veterinary Medicine or Pharmaceutical Sciences).

ⅲ) Those who have completed 16 years of formal education provided by overseas educational institution by way of distance education (with a final program in Medicine, Dentistry, Veterinary Medicine or Pharmaceutical Sciences) while residing in Japan.

ⅳ） Those who have completed an undergraduate course of a foreign institution at an educational institution in Japan (limited to those who have completed 16 years of the said foreign country's curricular education with a program in Medicine, Dentistry, Veterinary Medicine or Pharmaceutical Science) which is designated in the said foreign country's education system and specifically designated in Japan by the Minister of Education, Culture, Sports, Science and Technology.

(8) 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 24 years of age or older before 31 March 2023. (see Note 2).

Note 1: Those designated by the Minister of Education, Culture, Sports, Science and Technology.

(A) Those who have graduated from a medical or dental faculty of a university under the former University Ordinance（Imperial Ordinance No. 388 of 1918） after completing a program in medicine or dentistry in the said faculty.

(B) Those who have graduated or are expected to graduate from the National Defense Medical College under the Act for Establishment of the Ministry of Defense (Act No.164 of 1954) by 31 March 2023.

(C) Those who have completed a master's course or a course of professional graduate school under the School Education Act (Act No. 26 of 1947) Article 99, paragraph 2 or those who are eligible to be awarded a master's degree. (including those who are expected to complete the said course by 31 March 2023), as well as those who have been enrolled for more than two years in a doctoral course that is not divided into two terms (first two-year term and second three-year term), have acquired 30 or more credits, have received necessary research instruction (including those who meet the requirement of the Rules for Degrees [Education Ministry Ordinance No.9 of 1953, Article 6, item 1] before it was partly revised by Education Ministry Ordinance No.29 of 1974), and have been deemed by Hokkaido University Graduate School to have academic ability equal to or greater than university graduates in 6-year program in Medicine, Dentistry, Veterinary Medicine or Pharmaceutical Sciences.

（D） Those who have graduated from or completed one of the programs listed below, and have conducted research for at least two years at a university or research institute, and are deemed by Hokkaido University Graduate School to have academic ability equal to or greater than university graduates in Medicine, Dentistry, Veterinary Medicine or Pharmaceutical Sciences.

a) Those who have graduated from a university (other than 6-year programs in Medicine, Dentistry, Veterinary Medicine or Pharmaceutical Sciences).
b) Those who have completed 16 years of formal education outside Japan.

Note 2: Those who apply under Qualifications of Applicants (6), Note 1 (D), or Qualifications of Applicants (7) or (8), must undergo Qualification Review. Refer to 3. (4) Qualification Review for further information.

3. Application Procedure

(1) Application Period

Wednesday, 1 February 2023 to Friday, 3 February 2023

Office Hours: 09:00 to 17:00 (JST), excluding Saturday and Sunday * Send the application documents to Students Affairs Office by post using express registered mail. Application documents must arrive within the application period.

Those who apply under 2. Qualifications of Applicants (6) Note 1 (D), (7), or (8) must undergo Qualification Review.

Apply for Qualification Review within the application period with all necessary documents described in 3. (4) Qualification Review. Application deadline for Qualification Review is Thursday, 19 January 2023.

(2) Application Documents and Examination Fee

Application Form	Prescribed form included in the original booklet. Please request the original booklet from Student Affairs Office. Fill in your information and paste your photograph taken within the last 3 months (full-face, 4 x 3cm, applicant's name printed on back) in the space provided.
Academic Transcripts	Must be issued by a university/college president or Dean. Those who have entered a graduate school must also submit the transcript issued by the Graduate School as well. Those who have graduated or are expected to graduate from Hokkaido University School of Medicine or completed or are expected to complete the Master's Program of Hokkaido University Graduate School of Medicine do not need to submit this documentation. If your family name has been changed afterward, please attach the document such as abstract of your family register, to prove that you have changed your family name.
Certificate of (expected) Graduation or Completion	Must be issued by a university/college president or Dean. Those who have entered a graduate school must also submit the certificate issued by the Graduate School as well. Those who have graduated or are expected to graduate from Hokkaido University School of Medicine, or completed or are expected to complete the Master's Program of Hokkaido University Graduate School of Medicine do not need to submit this documentation. If your family name has been changed afterward, please attach the document such as abstract of your family register, to prove that you have changed your family name. *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. A certified copy of 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.
Examination Card / Photo ID Card	Fill in your information and paste your photograph taken within the last 3 months (full-face, 4 x 3cm, applicant's name printed on back) in the space provided. Included in the original booklet.
Self-addressed Envelope	Self-addressed prescribed envelope (23.5×12cm) with 344 yen stamp affixed to receive your Examination Card.
Address Card	Prescribed form to receive the acceptance letter and documents for admission. Included in the original booklet.
Examination Fee	JPY30,000. Pay by the attached remittance form at Japan Post Bank or other banks in Japan, which is attached to the original booklet. ATM payment not

	accepted. Government-financed international students (persons receiving MEXT Scholarship grants) are exempted from this fee but must include a statement to this effect when submitting the application.
Form to Paste the Payment Certificate	Prescribed form. Included in the original booklet. On this form paste the payment certificate of examination fee (certificate E) which is included in the original booklet and to be returned from the bank after payment.
(If applicable) Photocopy of Residence Card	Applicants from abroad must submit photocopy of passport.
Applicants for Working Student Admission must submit following additional documents. Please contact Student Affairs Office for further information. - Statement of Purpose (A4- paper free format, explaining your preferred laboratory, research plan and future goals) - Details of activities (conference presentation, publication, business content).	

(3) Applicants with Physical Disability

Physically disabled applicants who require special attention during tests and classes should contact Student Affairs Office of the Graduate School of Medicine by Monday, 16 January 2023.

(4) Qualification Review

Those who apply under 2. Qualifications of Applicants (6), Note 1 (D), or Qualifications of Applicants (7) or (8), must undergo Qualification Review. Apply within the application period with all necessary documents described as follows.

ⅰ) Application Period for Qualification Review

Wednesday, 18 January 2023 to Thursday, 19 January 2023

Office Hours: 09:00 to 17:00 (JST), excluding Saturday and Sunday * Send the application documents to Students Affairs Office by post using express registered mail. On the face of the envelope, be sure to write "Enclosing Application Documents for Qualification Review". Application documents must arrive within the application period.

ⅱ) Application Documents for Qualification Review

In addition to the documents described in (2) above, submit the documents described below. After receiving the result of Qualification Review, pay examination fee using the attached remittance form by payment due date. Paste the payment certificate (Certificate E) on the form included in the original booklet, and mail to the address described in (5) below within (1) Application Period.

Application for Qualification Review	Prescribed form. Included in the original booklet.	
Self-addressed Envelope	Self-addressed envelope (23.5×12cm) with 344 yen stamp affixed to receive the results of Qualification Review.	
Submission required depending on the qualification	Qualifications of Applicants	Documents to Submit
Certificate of Research period	(6) Note 1 (D)	Certificate of research period issued by the university or the research organization where you engaged in research.
Research Plan	(7) i)	A4 paper (around 800words).
	(8)	

Letter of Recommendation	(7) i)	From chancellor or dean of the enrolled university. (Free format)
	(8)	From the head of research or business institutions, regarding research or business abilities. (Free format)
Materials to prove your academic ability to be equal to or greater than university graduates in Medicine, Dentistry, Veterinary Medicine or six-year program of Pharmaceutical Sciences.	(8)	Certificate of educational background. Reprints of research papers or other publications.

Other Materials may be requested if necessary.

ⅲ) Procedure of Qualification Review

Qualification review is conducted by screening submitted documents.

ⅳ) Announcement of Results

Results of Qualification Review will be notified to applicants by postal mail.

(5) Application Documents for both Entrance Examination and Qualification Review should be submitted to:

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

4. Selection of Entrants

Selection shall be determined based on the comprehensive evaluation of entrance examinations, academic transcripts, and other relevant documents submitted.

5. Date, Time, and Place of Entrance Examination

Date	Time	Subject	Place
Wednesday, 15 February 2023	10:20-10:30	Introduction	Information of place and examination card will be sent by post beforehand.
	10:30-12:30	English	
	13:30-	Specialized subject	Will be informed at the day of the examination.

6. Notice for Entrance Examination

(1) Information regarding place and time of the examination will be notified by postal email with Examination card. Applicants must be at the designated place by the time .

(2) Use of dictionaries is prohibited in the English language exam.

(3) Applicants who have the second preference in the preferred laboratory shall take examinations of specialized subjects in two fields.

7. Announcement of Successful Applicants.

10:00AM Friday, 3 March 2023 (JST)

A letter of acceptance will be mailed to each successful applicant. Also. examinee numbers of successful applicants will be posted on the website of Hokkaido University Graduate School of Medicine around 10:00AM. No telephone inquiries about the results of the examination will be accepted.

8. Admission Procedure

(1) Registration Period

Friday, 3 March 2023 to Friday, 10 March 2023 (excluding Saturday and Sunday)

(2) Admission and Tuition fees

ⅰ) Admission Fee: JPY 282,000 (estimate)

Those who are expected to complete the Master's Program of Hokkaido University Graduate School of Medicine and apply for Doctoral Program continuously, or government-financed international students (persons receiving MEXT Scholarship grants) are exempted from this fee but must include a statement to this effect when submitting the application.

ⅱ) Tuition Fee: : Half Year: JPY 267,900 (JPY 535,800/Year) (estimate)

*Tuition of the first half-year should be paid, using the payment form which will be sent from the Graduate School of Medicine in the middle of the following month of the enrollment.

*If the fee is revised, the new one will be adapted accordingly.

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

9. Important Notice

(1) Before filling in a column of the preferred laboratory on the application for admission, refer to "Organization of the Graduate School of Medicine and main research contents" and consult your future supervisor about research contents and plan.

(2) Incomplete application documents will not be accepted nor considered.

(3) Submitted documents cannot be revised.

(4) Examination fee is non-refundable unless 1) the application was not made, 2) application documents were not accepted due to the documents being incomplete, or 3) double-payments were made. It takes considerable time for refund. "Payment Certificate E" or "Receipt of Remittance D" included in the original booklet and to be returned from the bank after payment is required to claim the refund to Student Affairs Office.

(5) Admission may be cancelled if the application documents contain false information.

(6) Application documents should be enclosed in the envelope bound-in this booklet and submitted by express registered mail.

(7) Any inquiry regarding admission and examination should be sent by post enclosing a self-addressed return envelope with a postage stamp affixed.

10. Past Entrance Exam Questions

Past entrance exam questions of English for the last three years are available. Please request in writing to Student Affairs office enclosing a self-addressed return envelope (kaku-2 size, 24x33.2cm) with 250 yen stamp affixed.

11. Long-Term Study Program

Please read the following page for further information.

12. 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.

January 2023

Student Affairs Office of Hokkaido University Graduate School of Medicine
Kita 15 Nishi 7, Kita-Ku, Sapporo, Hokkaido, 060-8638, JAPAN
Phone: +81-(0)11-706-5018
d-tanto@med.hokudai.ac.jp

Long-Term Study Program

1. Purpose

The standard term is four years. Long-Term Study Program (longer than four years) is offered for those who wish to study and acquire a degree through a long-term enrollment due to time limitations. Applicants are individually screened for eligibility.

2. Eligibility

Those who have difficulties in completing the program within the standard term due to personal reasons such as (1) full time jobs, (2) part time jobs (3) child-raising or a long-term nursing care, or (4) visual disabilities, auditory disabilities, physical disabilities or other disabilities are eligible to apply for this program.

3. Period of Enrollment

Students in Doctoral program may extend their term of study up to six years, and extension of study term can be applied by the year as a unit.
Students in a Long-Term Study Program are allowed to have four years leave as well as regular students.

4. Application Procedure

(1) Application Period
Please request at the time of application for admission. Application form is available at Student Affairs Office of the Graduate School of Medicine.

(2) Application Documents
Please submit the following documents to Student Affairs Office of the Graduate School of Medicine.

ⅰ) Application for the Long-Term Study Program (Form 1-1)
ⅱ) Reasons to apply to the Long-Term Study Program (Form 2)
ⅲ) Study plan of the Long-Term Study Program (Form 3)
ⅳ) Documents to prove the need for the Long-Term Study Program

5. Shortening or re-extension of Long-Term Study Program

When deemed necessary by the Graduate School of Medicine, study term of Long-Term Study Program could be either shortened or re-extended once during the program.
Please contact Student Affairs Office of the Graduate School of Medicine for further information.

6. Tuition Fees

Annual tuition fee of the Long-Term Study Program is determined by dividing the total fees of the regular program of standard term (annual fee×2 years) by the number of years allowed for the Long-Term Study Program. Tuition fee is non-refundable, and the tuition already been paid will not be adjusted.

* Please do NOT pay tuition fee of the long-term study program before receiving a notice of determination.

※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 4. Functional morphology of endogeneous lectins and glycoconjugates
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	HATAKEYAMA Shigetsugu	1. Neuropharmacological studies of the serotonergic system development and its dysfunction 2. Neuropharmacological studies of the relationship between stress and emotional system 3. Neuropharmacological studies of impulsivity 4. Functions and molecular basic of local neuronal circuits for fear and anxiety 5. Optical imaging of learning-induced neural circuit reorganization 6. Optical imaging of abnormal neural circuit functions of autism spectrum disorders 7. Mechanisms for perception and recognition of virtual reality 8. Development of novel neural activity imaging techniques
	Cellular and Molecular Pharmacology	Professor Associate Professor	HATAKEYAMA Shigetsugu 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. Environmental exposure assessment using earth observation data 4. Assessment of environmental health risk, disease burden, and health impact of health policy 5. Emergency preparedness for climate change, natural disasters, and infectious diseases in long-term 6. Epidemiological study on behavioral and psychological symptoms of dementia 7. Studies on the health effects of physical, chemical environment and social systems at the global and
	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	HATAKEYAMA Shigetsugu	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
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
	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

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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 pathogenesis 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 training 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. Autophagy in left ventriculoplasty 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. Tissue engineering for musculoskeletal tissue repair 2. Etiology and pathogenesis of osteoarthritis 3. Role of glycans and these regonizing molecules in bone and cartilage metabolism 4. Pathophysiology of secondary osteoporosis 5. Study of intervertebral disc apoptosis for prevention of the disc regeneration 6. Basic research for elucidation of rheumatoid arthritis pathogenesis 7. Regulationof arthritis and osteolysis by manipulation of inflammation 8. Biomechanical evaluation of surgical efficacy for musculoskeletal disorders 9. Regenerative medicine for spinal cord injury and peripheral nerve injury
	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. Development of the diagnostic method and oral immunotherapy of food allergy. 3. Molecular epidemiological studies on macrolide-resistant mycoplasma pneumoniae 4. Clinical and molecular study for diagnosis and management in pediatric hematology and 5. Clinical and molecular study in pediatric stem cell transplantation and cell therapy. 6. Molecular analysis of pediatric endocrine disease. 7. Comprehensive molecular analysis of congenital hypothyroidism. 8. Pathogenesis and function analysis of epilepsy using magnetoencephalography. 9. Pathological analysis and therapeutic development using neurological disease model animals. 10. Histopathological analysis on the role of activated glomerular parietal epithelial cell in childhood kidney disease. 11. Molecular genetic diagnosis and management in pediatric cardiomyopathy. 12. Development of a Mitochondrial Drug Delivery System for Myocardial Regeneration Therapy. 13. Study to improve outcome of neonatal chronic lung disease. 14. Study on influence from environmental parameters on fetal and neonatal health. 15. 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 pathophysiology and treatment of alopecia 8. 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
	Functional Immunology	Professor Associate Professor	MURAKAMI Masaaki KITAMURA Hidemitsu	1. Molecular and cellular mechanisms on the functional regulation of dendritic cells and its application to immune-related diseases 2.Evaluation of IL-6 signaling-mediated immunosuppression 3. Research on pathogenesis of severe asthma and chronic inflammation and development of the novel immunotherapy 4. Identification of novel biomarkers for development of personalized medicine
	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