Guidelines of Application of Master's Programs
Master's Program in Medical Sciences
Master's Program in Public Health
Graduate School of Comprehensive Human Sciences,
University of Tsukuba

NUMBER OF STUDENTS TO BE ADMITTED

Limited

Applicant Eligibility

International applicants living abroad (including applicants formerly lived abroad and Japanese applicants living abroad)

QUALIFICATION OF APPLICANTS

The qualification for the admission includes at least one of the followings:

(1) 4-year College Degree Holder.

(2) Persons who have completed 16 years of school education outside Japan.

(3) Persons who have been qualified through our admission screening and was judged to have accomplished equivalent to 4-year College degree. The applicant must be 22 years or older before enrollment to the program.*

* The degree qualification will be examined individually.

To apply for Dual Master's Degree Program, the applicant must be enrolled in: The University of Medicine and Pharmacy at Ho Chi Minh City (Vietnam), University of Science at Ho Chi Minh City (Vietnam) or National Taiwan University.

PROFICIENCY IN ENGLISH

It is necessary for applicant to demonstrate an adequate command of the English language to benefit from studies at this University. All applicants, if their first language is not English or if their studies at university have not been conducted solely in English, must demonstrate English language proficiency by taking the Test of English as a Foreign Language (TOEFL), the Test of English for International Communication (TOEIC) or the International English Language Testing System (IELTS) and submitting the score report. TOEFL, TOEIC and IELTS score reports must be dated within two years of enrollment in this University. Photocopies are accepted.

REQUIRED DOCUMENTS

1 **Application Form**	Fill out the attached application form designated by University of Tsukuba. Please select which program and term you wish to apply.
2 **Reference Form**	Applications will be considered with academic references. Reference form should be accompanied with at least one letter of recommendation.
3 **Picture**	Attach a picture of yourself taken within three months, facing forward without hat on the Application Form Size: 4 cm x 3cm (h x w).
4 **Application Fee**	30,000 yen (will not be charged to the applicants with Japanese Government Monbukagakusho Scholarship or if applied for Dual Master's Degree Program). Payment by credit card is available at: https://e-shiharai.net/english/?schoolcode=OPU5100850000000 Due by application deadline.
5 **Certificate of Graduation**	Submit a certificate which fulfills our qualification requirements, Normally from the University/College (or the department) where degree was awarded.

6	**Transcript**	All applicants are required to provide evidence of their academic qualifications for the application. Submit a transcript of the school, which fulfills our qualification requirements, normally from the university (or the department) where a degree was awarded. If you are a transfer student, submit transcripts from both schools, before and after the transfer from your current University.
7	**English Language Proficiency**	If English is not your first language, submit your TOEFL, TOEIC or IELTS score report. Photocopies are accepted.
8	**Photocopy of your passport**	※ If you do not have a passport yet, you are required to submit Family Register or Certificate of Citizenship issued by your home country.

APPLICATION PROCEDURE

Please verify all the documents carefully and submit the documents to:

Academic Service Office for the Medical Sciences Area University of Tsukuba
1-1-1 Tennodai, Tsukuba, Ibaraki 305-8575, Japan

Please use the attached recommendation letter form. The letter may be sent from the referee as an e-mail attachment or with the application forms in a sealed envelope.
Information about Exam will be issued by e-mail when the application documents are accepted.

Applicants must contact their prospective supervisor about the specialized research field in advance.

<Please refer to attached list of Faculty for information (of the program) about the research fields.>

Application Period: Please refer to our web page for the application deadline.

SELECTION METHOD

Selection will be based on (a) Academic records (b) Oral examination (c) English proficiency during the interview. Prospective applicant will be contacted by e-mail after the preliminary screening based on the submitted documents. Date and location of an interview will be arranged. Oral examination will be conducted online as a general rule.

ADMISSION PROCEDURE

Succeed applicants will receive an instruction on the admission procedure by e-mail. An official letter from the University of Tsukuba will be sent by mail.

TUITION AND FEES

Admission Fee: 282,000 yen (will not be reimbursed once received).
Tuition Fee: First Half of Academic Year (April - September): 267,900 yen
Second Half of Academic Year (October - March): 267,900 yen
*Tuition Fees Amount: 535,800 yen annually

**Applicants are advised to make a sufficient financial plan for their tuition fee and living expenses in Japan.*

Both tuition and admission fee are waived for (a) Dual Master's Degree candidate (b) applicants with Japanese Government (Monbukagakusho) Scholarship.

NOTES

1) Application that is incomplete will not be processed.
Validation seals of the institution are required on the copies of Certificate of Graduation and Academic Transcript.
2) Application documents will not be returned to the applicants.
3) The inquiries about the result of Achievement Test are not accepted.
4) Please contact the International Office of further questions on admission or application procedure. E-mail: iga-in@un.tsukuba.ac.jp.

Application Form for Master's Programs
Master's Program in Medical Sciences
Master's Program in Public Health
Graduate School of Comprehensive Human Sciences, University of Tsukuba

PLEASE PRINT OR TYPE ALL SECTIONS

1. APPLICATION FOR: ☐ **Fall (October), 2024** ☐ **Spring (April), 2025**

☐ Master's Program in Medical Sciences (Two-years; including Japanese applicant living abroad)

☐ Master's Program in Public Health (Two-years; including Japanese applicant living abroad) *Only April enrollment

☐ Dual Master's Degree Program

2. PERSONAL DATA

Family Name _____ Middle Name _____

First Name _____ Title (Mr./Ms./Dr., etc.) _____

Nationality _____ Date of Birth (d/m/y) _____

Address _____

_____ Postal code _____

Telephone _____ Mobile _____

E-mail _____

3. PROPOSED STUDIES

List the 2nd and 3rd choices in case the 1st choice is not selected.

	Research Field	Supervisor
1st choice :		
2nd choice :		
3rd choice :		

4. DEGREE OR DIPLOMAS AWARDED OR TO BE AWARDED

University / College	Degree (AA, BA, MSc, etc.)	Major	Course Dates (month/year)	Conferred or expected date (month/year)
			____ to ____	
			____ to ____	
			____ to ____	
			____ to ____	

5. EMPLOYMENT HISTORY

Name and Address of employer (including country)	Type of Contract (fixed, temporary or permanent)	Position	Dates (month/year)
			____ to ____
			____ to ____
			____ to ____
			____ to ____

6. LANGUAGE

First Language _____ Other Language _____

English Language Test Taken (e.g. TOEFL, IBT)	Date of Test (month/year)	Overall Score	Written Score

Official copy of English language proficiency test must be sent to the Registrar office when the results are available.

7. LETTER OF RECOMMENDATION

If you have research experience in academic institutions during the past 5 years, you are required to obtain letters of recommendation from faculty who is familiar with your study. If you have any work experience, the second recommender should be from your employer. If you have no record of employment, the second recommender should be from another academic.

FIRST RECOMMENDER

Name _____ Position _____

Address _____

Tel _____ Fax _____

E-mail _____

SECOND RECOMMENDER

Name _____ Position _____

Address _____

Tel _____ Fax _____

E-mail _____

YOU SHOULD SEND YOUR REFERENCES IN A SEALED ENVELOPE WITH YOUR APPLICATION FORM

You should send your reference letter in a sealed envelope with your application forms or ask the recommender to send it directly to the International Office at the University of Tsukuba, Medical Branch.

8. FINANCIAL PLAN (Applicant for Dual Master's Program do not need to complete this section)

Who is paying your tuition?

☐ I will pay my own fees.
☐ I have been awarded for sponsorship. I will send an original document to Registrar and complete the details below.
☐ I have applied for sponsorship. Decision expected (month/year) _____

NAME & ADDRESS OF SPONSOR	AMOUNT OF AWARD

Who is paying your living costs?

☐ I will pay my own fees.
☐ I have been awarded sponsorship. I will send an original document to Registrar and complete the details below.
☐ I have applied for sponsorship. Decision expected (month/year) _____

NAME & ADDRESS OF SPONSOR	AMOUNT OF AWARD

I certify that the statements on this form are correct and complete. I certify that I will not be concurrently registered for another Degree of the University of Tsukuba. I understand that, if admitted to the University, the University will not be able to provide any financial assistance. To be signed and date by applicant.

Signature _____ Date: _____

Field of Study & Study Program

(1) Describe your current field of study:

(2) Describe your study and research you plan to pursue (use additional pages if necessary) :

Reference Form for Master's Program in Medical Sciences / Public Health
Graduate School of Comprehensive Human Sciences, University of Tsukuba

PLEASE TYPE OR PRINT AND COMPLETE ALL SECTIONS

TO THE APPLICANT: APPLICANT DETAILS

(Applicant should complete this part and submit this form to the recommender)

Family Name _____ Middle Name _____

First (Given) Name _____ Title (Mr./Ms./Dr., etc.) _____

Date of Birth (day/month/year) _____

Program applied for: _____

TO THE RECOMMENDER: PLEASE COMPLETE BOTH PAGES

The above student is applying to the Graduate Program in Medical Sciences at the University of Tsukuba. To help us in the selection process, please fill out the required information.

APPLICANT'S INFORMATION

How long have you known the applicant? _____

What is your relationship with the applicant? (e.g. student/employee) _____

RECOMMENDER'S INFORMATION

Name _____

Position/Title _____

Organization _____

E-mail _____ Telephone _____

ASSESSMENT

Please assess the applicant on a scale of Excellent (highest) to Poor (lowest) in relation to the following criteria. Please check the appropriate criteria.

	Excellent	Very Good	Good	Fair	Poor	Unable to comment
Intellectual ability	☐	☐	☐	☐	☐	☐
Written communication skills	☐	☐	☐	☐	☐	☐
Oral communication skills	☐	☐	☐	☐	☐	☐
Ability to meet deadlines	☐	☐	☐	☐	☐	☐
Ability to organize workload	☐	☐	☐	☐	☐	☐
Ability to work independently	☐	☐	☐	☐	☐	☐
Numerical/mathematical ability	☐	☐	☐	☐	☐	☐
English language ability	☐	☐	☐	☐	☐	☐
Motivation	☐	☐	☐	☐	☐	☐
OVERALL ASSESSMENT	☐	☐	☐	☐	☐	☐

COMMENTS

We would appreciate your comments on the applicant's qualifications for graduate study in the space below. If you prefer writing with a separate recommendation letter, or need additional space, please use official letterhead stationery and mark a cross this part.

OVERALL RECOMMENDATION

Please select one of the following:

- ☐ I strongly recommend this applicant for the program of study
- ☐ I recommend the applicant for the program of study
- ☐ I do not recommend the applicant for the program of study
- ☐ I am unable to comment

Signature _____ Date _____

Thank you for completing this form. Please sign above and enclose this form in an envelope, seal it and return it to the applicant or send directly to the address below. You may also e-mail the signed form to iga-in@un.tsukuba.ac.jp.

Academic Service Office for the Medical Sciences Area
University of Tsukuba
1-1-1 Tennodai, Tsukuba, Ibaraki 305-8575, Japan

（外国人出願者用）
(for foreign applicants)

履　　歴　　書

Curriculum Vitae

氏名	フリガナ ローマ字	Family name First Name Middle Name	男(M)・女(F) Sex	生年月日 Date of Birth	年　月　日	年齢 Age		国籍 Nationality		在留資格 Resident Status	

学校教育 Education		学校名・所在地 Name and Address of School	正規の修学年数 Officially Required Number of Years of Schooling	入学及び卒業年月 Year and Month of Entrance and Completion	修業年数 Period of Schooling	専攻科目 Major Subject if any	学位・資格 Diploma or Degree Awarded
初等教育 Elementary Education 小学校 Elementary School		学校名 Name 所在地 Location	年 yrs	入学 from 卒業 to	年 yrs		
中等教育 Secondary Education 中学及び高校 Secondary School	中学 Lower	学校名 Name 所在地 Location	年 yrs	入学 from 卒業 to	年 yrs		
	高校 Upper	学校名 Name 所在地 Location	年 yrs	入学 from 卒業 to	年 yrs		
高等教育 Higher Education 大学 Undergraduate Level		学校名 Name 所在地 Location	年 yrs	入学 from 卒業 to	年 yrs		
高等教育 Higher Education 大学院 Graduate Level		学校名 Name 所在地 Location	年 yrs	入学 from 卒業 to	年 yrs		
以上を通算した全学校教育就学年数 Total Number of Years of Schooling as given Above			年 yrs	TOTAL	年 yrs		

休学等、在籍中に修学を中断した期間（理由）　　Periods of interruption of studies, if any
from ＿＿＿年 yr.,＿＿＿月 mon.～to ＿＿＿年 yr.,＿＿＿月 mon.（　　）

研究歴 Research Activities （研究生の経歴を含む。）	研究機関名 Name of Research Institution	所在地 Address	身分 Status	研究期間 Duration of Research	年数 yrs
				～	
				～	
				～	

※	受験番号

記入は、日本語又はローマ字体を用いてください。　　Please type or print in Japanese or English

Graduate School of Comprehensive Human Sciences
Degree Programs in Comprehensive Human Sciences

Choose your prospective research fields from the list below and write the names in the "Prospective research fields (supervisors)" section on the application form. You can choose up to three research fields. As a general rule, you will be assigned to a research group during the process of selecting students for admission, so please choose carefully. It is hard to determine the exact details of your prospective group's research solely from the research themes listed below. To avoid writing your master's thesis on a different research topic from the one you had in mind, be sure to contact the supervisor in the field of your choice. Also, if you have any questions, please consult with the following person about your choice.

For guidance, contact:

【Master's Program in Medical Sciences】 Isobe Tomonori, Chair, Master's Program in Medical Sciences, Graduate School of Comprehensive Human Sciences, University of Tsukuba

【Master's Program in Public Health】 Kondo Masahide , Chair, Master's Program in Public Health, Graduate School of Comprehensive Human Sciences, University of Tsukuba

E-mail: frontier@md.tsukuba.ac.jp

〈Master's Program in Medical Sciences〉

Medical Sciences Basic Medicine		
Research Area	**Faculty**	**Research**
Anatomy and Embryology	高橋 智 TAKAHASHI Satoru	①Elucidation of molecular mechanism of pancreatic beta cell development and its application. ②Functional analysis of large Maf transcription factor family, MafB and c-Maf in macrophage development and functions. ③Elucidating biological roles of carbohydrates using glycosyltransferase conditional KO mice. ④Elucidation of skeletal muscle regulatory mechanisms. ⑤Elucidation of etiology and gene function in desease model mice. ⑥Elucidation of the mechanism of tissue formation.
Anatomy and Neuroscience	武井 陽介 TAKEI Yosuke	①Animal model studies on synaptic dysfunction in schizophrenia and autism. ②Cell-biological studies on synaptic dysfunction in schizophrenia and autism. ③Studies on synaptic dysfunction caused by inflammation. ④Studies on intracellular transport in neurons and glia.

Diagnostic Pathology	松原　大祐 MATSUBARA Daisuke	①Search for molecular targets of cancer, based on molecular markers and histomorphology, using surgical specimens and cell lines. ②Elucidation of the molecular mechanism of abnormal differentiation (dedifferentiation, neuroendocrine differentiation, EMT, gastrointestinal epithelial differentiation, etc.) in lung cancer. ③Study of drug sensitivity and resistance acquisition mechanism using cancer cell lines.
Experimental Pathology	（　　）	①Molecular mechanisms of stemness induction in cancer development ②Cell division kinetics of cancer stem cells by application of live imaging and three-dimensional quantitative analysis ③Glyco-profile using breast cancer cell lines and patient tissues ④Tumor microenvironment research using mouse model ⑤3D imaging using a low-vacuum scaning electron microscopy
Neurophysiology	小金澤　禎史 KOGANEZAWA Tadachika	①Study on the neural regulation of the cardiovascular system ②Study on the neural regulation of the respiratory system ③Study on the neural regulation based cardiovascular and respiratory diseases
Biochemistry, Molecular Cell Biology	入江　賢児 IRIE Kenji	①Post-transcriptional regulation of gene expression by RNA-binding proteins ②Molecular mechanism of mRNA localization and local translation regulating cell polarity, asymmetric cell division, and cell-fate ③Regulation of endoplasmic reticulum stress response ④Prospore membrane formation by vesicle docking
Molecular and Developmental Biology	小林　麻己人 KOBAYASHI Makoto	①Development of hematopoietic cells and globin switching ②Anti-aging and dietary antioxidants ③Animal models for human diseases and drug safety test ④Epigenetic regulation of learning and memory ⑤Functions of supersulfides in animal development
Biochemistry , Gene Regulation	久武　幸司 HISATAKE Koji	①Molecular mechanisms of iPS cell induction ②Mechanisms of adipocyte and chondrodyte differentiation ③Molecular basis of epigenetics ④Chromatin modifications and transcriptional regulation
Cellular and Physiological Biology	大林　典彦 OHBAYASHI Norihiko	①Physiological functions of the small G proteins: Rab and Arf ②Membrane dynamics research aiming at invasion/metastasis, vascularization and pigmentation
Molecular Neurobiology	桝　正幸 MASU Masayuki	①Molecular studies on neural development and neural circuit formation

		②Molecular studies on signal transduction in the nervous system ③Molecular studies on heparan sulfate in neural function ④Development and function of the corticospinal tract ⑤Regulatory mechanism of spinal motor nerve development
Infection Biology (Molecular Virology)	川口 敦史 KAWAGUCHI Atsushi	①Molecular mechanism of virus replication , species specificity and pathogenicity of emerging viruses including influenza virus ②Molecular mechanism of innate immunity
Infection Biology (Bacteriology)	森川 一也 MORIKAWA Kazuya	①Infection strategies in pathogenic bacteria ②Adaptation and evolution of staphylococci
Infection Biology (Molecular Parasitology)	HO KIONG	①Understanding the mechanism of gene expression in protozoan parasites with a goal in identifying parasite-specific processes that can be exploited as targets for novel therapeutic interventions. ②Mechanism of mRNA recapping pathway in regulating gene expression. ③RNA repair - understanding of the function and mechanism behind cellular responses to RNA damage.
Immunology	澁谷 和子 SHIBUYA Kazuko	①To reveal host defense mechanisms against cancer and infectious diseases, and to develop their therapeutic manipulation ②To reveal cellular and molecular basis of inflammation, allergy and autoimmune diseases, and to develop their therapeutic manipulation
Medical Genetics	野口 恵美子 NOGUCHI Emiko	①Identification of the susceptible genes related to allergic diseases ②Genetic analysis using next generation sequencer ③Functional studies of genes involved in allergy.
Molecular and Genetic Epidemiology	川﨑 綾 KAWASAKI Aya	①Identification of genomic variants associated with development and clinical characteristics of human autoimmune rheumatic diseases such as systemic lupus erythematosus and ANCA associated vasculitis ②Analysis of genomic “dark region” including *HLA* and NK receptor family genes to identify variants which account for “missing heritability” in the autoimmune rheumatic diseases
Genome Biology	村谷 匡史 MURATANI Masafumi	①Technology development and application of spatial multi-omics analysis of limited samples. ②Liquid biopsy analysis of environmental stress responses ③Promotion and organization of open science projects in space life sciences
Regenerative Medicine and Stem Cell Biology	大根田 修 OHNEDA Osamu	①Development of Stem Cell Therapy using Mesenchymal Stem Cells ②Functional Analysis of Hypoxia Inducible Transctiption

		Factors in vivo ③Analysis of Cancer Stem Cells and Tumor Stromal Cells ④Regenerarion of retinal ganglion cells
Stem Cell Biology and Biotechnology	西村 健 NISHIMURA Ken	①Functional analysis of transcription factors during cell reprogramming ②Epigenetic regulation during cell reprogramming ③Safe and efficient production of differentiated tissue cells
Laboratory Animal Science	水野 聖哉 MIZUNO Seiya	①Development of fundamental genetically modified mice for in-depth gene function analysis ②Development of genome editing technology for producing mutant mice ③Identification of redundant genes using multi-gene mutant mice
Bioinformatics	尾崎 遼 OZAKI Haruka	①Development of technologies to interpret and predict the function of genome sequences: genome (DNA), transcripts (RNA) and AI ②Development of single-cell level omics data analysis techniques: scRNA-seq and spatial transcriptome ③Automation of life science research: automation of experiment planning, experiment execution, and data analysis ④Medical data analysis: Large-scale databases such as hospital data and cohorts, databases
In silico Drug Design and Chemical Biology	広川 貴次 Hirokawa Takatsugu	①In silico drug discovery using molecular modeling and simulation ②Development of the methods based on bio-chem informatics for in silico drug discovery and design
Medical Physics	熊田 博明 KUMADA Hiroaki	①Developement of techniques for high precision proton therapy ②Developement of dose calculation system for neutron capture therapy ③Application of techniques for photon therapy ④Quality assurance of radiation therapy ⑤Developement of new techniques for radiation measurement ⑥Study for radiation protection ⑦Basic research for acquiring information of biological function with image diagnostic techniques
Molecular Biology	（ ）	① Metabolism and methylation-regulated aging and longevity (cultured cells・C. elegans) ② Cardiorenal damage in mice with hypertension
Developmental Gentics	丹羽 隆介 NIWA Ryusuke	①Studies on molecular mechanisms of cancer cachexia using *Drosophila* as a model ②Mechanisms of interorgan communication in the regulation of development, stem cell proliferation, post-mating responses, and aging

		③Molecular, cellular, and systemic mechanisms of the interaction between insects and parasitoid wasps ④Structural biology and chemical biology of insect growth control agents
Biomaterials Science	（　　）	①Design of Nanomedicine ②Design of Drug Delivery System ③Design of Materials for Degenerative Medicine ④Design of Biointerfaces
Legal Medicine	高橋　遥一郎 TAKAHASHI Yoichiro	①Development of forensic diagnostic methods based on molecular biological techniques ②Elucidation of the mechanisms of metabolism and poisoning of various toxicants ③Introduction of machine learning into forensic practice ④Research on medical jurisprudence and history of forensic medicine
International Institute for Integrative Sleep Medicine (WPI-IIIS) Yanagisawa/Funato Laboratory	柳沢　正史 YANAGISAWA Masashi	Our lab aims at solving the mystery of sleep ①Elucidation of the molecular mechanism regulating sleep/wakefulness through a forward genetic approach ②Medicinal chemistry to develop new drug for sleep disorder ③Visualization of neural and glial cell activity during sleep/wakefulness behavior
International Institute for Integrative Sleep Medicine (WPI-IIIS) Kutsumura/Saitoh Laboratory	沓村　憲樹 KUTSUMURA Noriki	①Synthesis of novel biologically active molecules ②Research on chemical reactions useful for drug discovery ③Elucidation of the mechanism of action of biomolecules
	斉藤　毅 SAITOH Tsuyoshi	We aim at creating new drugs targeting narcolepsy, insomnia, pain, etc (drug discovery). ①　In silico drug design ②　Organic synthesis of designed drugs ③　Evaluation of novel drugs using cells and mice ④　Elucidation of molecular mechanisms of drug adverse effects for the development of side-effect-free drugs We welcome students from a wide range of fields including organic chemistry, biology, medical science, and informatics.
International Institute for Integrative Sleep Medicine (WPI-IIIS) Sakurai（Takeshi）/Hirano Laboratory	櫻井　武 SAKURAI Takeshi	①Elucidation of physiological roles of novel neuropeptide ②Revealing the neural circuits and neural mechanisms that work in the system that regulates emotion. ③Studies on the neural circuits and neural mechanisms that play roles in the regulation of sleep/wakefulnesss states. ④Elucidation of neural circuits and mechanisms by which body temperature and metabolisms are regulated.
	平野　有沙 HIRANO Arisa	①Research on oscillatory mechanism of the circadian clock and the effect of disrupted rhythms on mice. ②Elucidation of moleacular mechanism of phase-resetting of the circadian clock and circadian photo-reception.

		③Identificatioin and functional analysis of neural circuits regulating the circadian rhythms. ④Development of optogenetics tools.
	征矢 晋吾 SOYA Shingo	①Elucidation of neural mechanisms of social distance and behavior ②Uncovering how neuropeptide affects the emotion. ③Revealing the neural circuits that regulate thermal and metabolic regulation in exercise-induced fatigue.
International Institute for Integrative Sleep Medicine (WPI-IIIS) Greene/Vogt Laboratory	VOGT Kasper Manuel	①Measuring and understanding brain activity in waking and sleep ②Determine the effect of sleep on brain circuits ③Discover the control mechanisms for sleep depth ④Develop new technologies and mathematical tools to study sleep function
International Institute for Integrative Sleep Medicine (WPI-IIIS) Sakaguchi Laboratory	坂口 昌徳 SAKAGUCHI Masanori	①Function of sleep in memory ②Function of sleep and adult neurogenesis for memory ③Developing new therapy for PTSD via sound stimulation in sleep https://sakaguchi-lab.org/
International Institute for Integrative Sleep Medicine (WPI-IIIS) Lazarus/Oishi Laboratory	LAZARUS Michael	① Understanding the link between sleepiness and motivation by exploring mesolimbic glia-neuron interactions ② Sleep circuits as potential therapeutic targets for insomnia ③ Adenosine A2A receptor function in schizophrenia ④ Solving the mystery of immune regulation by sleep with single-cell RNA sequencing Website: https://iiis-lazarus-oishi-lab.org/
	大石 陽 OISHI Yo	①Sleep regulation by dopamine-related neural circuits ②Sleep mechanisms and functions using short-sleeper mice ③Neural mechanisms of sleepiness explored from antihistamines' effects
International Institute for Integrative Sleep Medicine (WPI-IIIS) Honjoh Laboratory	本城 咲季子 HONJOH Sakiko	①The dynamics of thalamocortical system across sleep/wake cycles ②Elucidation of neural circuits underlying NREM sleep specific EEG patterns ③Analysis of vigilance state-depedent transcriptional changes ④Elucidation of the function of vigilance-state specific genes in neural activity
International Institute for Integrative Sleep Medicine (WPI-IIIS) Toda Laboratory	戸田 浩史 Toda Hirofumi	Understanding of the molecular mechanism of how sleep is regulated using Drosophila ①Study of the mechanism of the novel sleep inducing factor ②Study of the neuronal circuit regulating stress-inducing sleep

International Institute for Integrative Sleep Medicine (WPI-IIIS) Abe Laboratory	阿部 高志 ABE Takashi	①Development of new methods to evaluate human sleep and alertness ②Development of non-invasive methods to improve human sleep and alertness ③Neurobehavioral consequences of sleep deprivation ④Functional roles of human sleep
International Institute for Integrative Sleep Medicine (WPI-IIIS) Sakurai(Katsu) Laboratory	櫻井 勝康 Sakurai Katsuyasu	①Functional analysis of the sleep related neural circuits ②Functional analysis of the sensory system related neural circuits
International Institute for Integrative Sleep Medicine (WPI-IIIS) Shi Laboratory	史 蕭逸 Shi Shoi	①Theoretical biology of sleep ②Comparative biology of sleep ③Population level homeostasis in scoial insect, ants
Occupational Psychiatry / Space Psychiatry	（ ）	①A study of the strong qualities unexpectedly in space ②Salutogenesis and Sense of coherence ③Nature based Rehabilitation
Vascular Matrix Biology (TARA Center)	柳沢 裕美 YANAGISAWA Hiromi	①Identification and functional analysis of novel extracellular matrix proteins in the vessel wall ②Molecular mechanism of aortic aneurysm formation and rupture ③Mechanotransduction in the vessel wall ④Characterization of niche matrix associated with epidermal stem cells
	木村 健一 KIMURA Kenichi	①Molecular mechanism of aortic dissection ②The role of endothelial cells in vascular diseases ③CD73 and mesenchymal stem cells

Clinical Medicine		
Research Area	**Faculty**	**Research**
Nephrology	（　　）	①Mechanism of chronic progressive kidney diseases ②Method of early diagnosis and prevention of kidney diaseases ③Approach to treatment of progressive kidney diseases ④Epidemiology of acute kidney injury and chronic kidney disease ⑤Outcome research of lifestyle diseases
Rheumatology	松本　功 MATSUMOTO Isao	①Mechanism of autoimuune diseases and allergy ②Cross talk between human autoimmunity and animal models via translational research ③T-B cell interaction in autoimmune diseases ④Approach to new treatment for suppresiing autoimmunity
Laboratory Hematology	小原　直 OBARA Naoshi	①Elucidation of expansion mechanism of clonal hematopoiesis in PNH ②Elucidation of regulatory mechanism of complement activation ③Mechanism of bone marrow failure
Hemato-oncology	坂田　麻美子 Sakata Mamiko	①Bioinformatics using clinical specimens of hematological cancer patients ② Elucidation of molecular mechanisms of hematological cancers by analyzing genetically modified mice ③Cancer immunology regulated by clonal hematopoiesis harboring epigenetic abnormalities
Gastroenterology	土屋　輝一郎 TSUCHIYA Kiichiro	①Basic research about pathogenesis of intestinal epithelial cells in inflammatory bowel disease ②Basic research about pathogenesis of inflammatory bowel disease related carcinogenesis
Pulmonary Medicine	檜澤　伸之 HIZAWA Nobuyuki	①Molecular genetics of chronic inflammatory lung diseases including asthma and COPD ②Role of genetics and environmental factors in allergic diseases ③Study of interactions between genetics and environment in respiratory diseases
Cardiology	（　　）	①Cardiac regeneration and translational research ②Reprogramming to generate cardiomyocytes ③Molecular mechanism and new therapy for cardiovascular diseases

Metabolism and Endocrinology	（　　）	①Molecular mechanism of obesity, diabetes, dyslipidemia, and atherosclerosis ②Physiology and pathophysiology of transcription factors involved in the metabolism of carbohydrate and lipid ③Sensing mechanism and transcriptional regulation of energy metabolism ④Hub-metabolites and epigenetic regulation in carbohydrate, lipid, and protein metabolism ⑤Quality aspect of fatty acids and physiology and pathophysiology of various organs ⑥Molecular visualization at organella level and synthetic biology ⑦Inhibition of cholesterol synthesis, myopathy, and brain dysfunction
Neurology	斉木　臣二 SAIKI Shinji	①Development of blood biomarkers for Parkinson's disease ②Development of anti-Parkinson's medicines by autophagy enhancement ③Research on molecular ageing process and its modulators ④Research on molecular pathogenesis of Alzheimer's disease
Lipid Medicine	松坂　賢 MATSUZAKA Takashi	①Role of fatty acid elongase Elovl6 in metabolic syndrome ②Role of Elovl6 in brain, neurodegenerative disease and sphingolipidosis ③Role of Elovl6 in cancer and stem cell ④The structural basis of Elovl6 ⑤Development of the new Elovl6 inhibitor
Infectious Diseases	鈴木　広道 SUZUKI Hiromichi 人見　重美 HITOMI Shigemi	①Epidemiological investigation of serious infectious diseases and HIV infection. ②Molecular investigation of pathogenic and drug-resistant factors of microorganisms. ③Evaluation of precautions against transmissible infections diseases. ④Clinical studies among patients with infectious diseases
General Thoracic Surgery	佐藤　幸夫 SATOH Yukio	This course is programmed to investigate on 1) minimal invasive thoracoscopic surgery for lung cancer, 2) angiogenesis and invasion of lung cancer, 3) leukocytes-endothelial interaction in acute lung injury, 4) novel sealant material for surgery, 5) screening of lung cancer with exhaled breath and 6) surgical simulation, and estimation of postoperative lung regeneration and function using 3D-CT.

Cardiovascular Surgery	平松 祐司 HIRAMATSU Yuji	①Development of novel microangiography system using synchrotron radiation ②Elucidation of signal transduction in aneurysmal formation ③Elucidation of hematological deterioration during cardiopulmonary bypass ④Study of ischemic myocardial remodeling using knockout mice ⑤Development of novel tissue crosslinking treatment technology ⑥Development of vitamin K-reduced functional food ⑦Development of valve simulation technology ⑧Exploration of valve-sparing right ventricular outflow reconstruction ⑨Study in rehabilitation medicine in reduced venous return ⑩Regulation of gaseous microemboli in cardiopulmonary bypass ⑪Regenerative medicine using stem cells ⑫Production of 3D heart replicas
	鈴木 保之 SUZUKI Yasuyuki	①Development of new surgical procedure aboout congenital cardiac surgery ②Development of cardiac assist device using artificial muscle ③Elucidation of hematological deterioration during cardiopulmonary bypass ④Development of the new regenerative therapy using intraoral mesenchyma system cells
Pediatric Surgery	増本 幸二 MASUMOTO Kouji	①Bioengineered tissue transfer in infants and children ②Studies related to carcinogenesis and progression of malignant solid tumors in children ③Pathological, molecular biological and genetic studies of congenital alimentary tract malformations ④Studies of treatment for hypoplastic lungs in congenital diaphragmatic hernia
Neurosurgery	石川 栄一 ISHIKAWA Eiichi 松丸 祐司 MATSUMARU Yuji	① **Neurooncology** ①-1 **Neurooncology(Advanced Therapeutics):** Boron neutron capture therapy(BNCT), Proton therapy, Tumor vaccination, Gene thrapy, Photodynamic diagnosis and treatment (PDD, PDT) ①-2 **Neurooncology(Diagnostics):** Molecular maker and gene analysis of brain tumor(glioma, pediatric brain tumor, craniopharyngioma), Intraoperative neurophysiological monitoring (MEP, SEP, EEG), Imaging study(Intraoperative MRI, Tractography, PET) ② **Cerebrovascular disease:** Neuroprotection using nanoparticle and stem cell therapy for ischemic stroke. Prevention of carotid artery restenosis. Evaluation of oxidative stress in brain. Regenerative Medicine using dental pulp stem cells ③ Analysis of **cerebral function, perfusion and metabolism using neuroimaging** (functional -MRI, MR spectroscopy, diffusion tensor imaging, PET)

		④ Neurorehabilitation using **Robot Suit HAL**, Brain machine interface ⑤ **Functional neurosurgery** for epilepsy, involuntary movement, central pain and Headache ⑥ **Gene therapy and regeneration therapy** using DDS (Angiogenesis, bone regeneration) ⑦ **Pediatric Neurosurgery:** Epigenetic biomarkers from woman with neural tube defect affected pregnancies ⑧ **Development of advanced medical equipment and device** (laser endoscope, new device of endoscopic surgery) ⑨ Neuroendovascular Therapy: Development of new devices, functional neurovascular anatomy, Outcome research of neuroendovascular therapy
Control of the Musculoskeletal System	（　　）	Clinical and basic research on following themes: ①Treatment of spinal disorders ②Treatment of joint disorders ③Sports medicine ④Regeneration of peripheral nerve ⑤Functional improvement treatment using Robot suit HAL for muscloskeletal disorders
Rehabilitation Medicine	羽田　康司 HADA Yasushi	①Medicine for disabilities ②Adapted sports ③Rehabiltation using robot suit HAL ④Development of new rehabilitation equipment through medical-engineering collaboration
Urology	西山　博之 NISHIYAMA Hiroyuki	①Cancers of genitourinary system ②Urodynamics ③Andrology ④Urolithiasis ⑤Urinary tract infection
Ophthalmology	大鹿　哲郎 OSHIKA Tetsuro	①Visual science ②Visual optics ③Minimally invasive ocular surgery ④Vision-related quality of life ⑤Development of artificial vitreous ⑥Development of new generation of OCT ⑦Arttificial intelligence in Ophthalmology
Otolaryngology & Head and Neck Surgery	田渕　経司 TABUCHI Keiji	①Inner ear pathology ②Research for head and neck surgery
Oral and Maxillofacial Surgery	（　　）	①New development of biological marker for oral cancer (p63 and GNT-V) ②Research for clinical diagnosis and treatment of oral cancer using microRNA (miR203, miR155, miR205 and let-7) ③Regenerated research using dental pulp stem cell ④Research for oral bacterial flora involved internal medical disease (NASH, NAFLD and diabetes mellitus)

Psychiatry	新井　哲明 ARAI Tesuaki	①Neuropathology of dementia and neurodegenerative disorder ②Clinical study of diagnosis, therapeutics, prevention and care of dementia ③Geriatric psychiatry ④Neuroimaging of neuropschyatric disorders ⑤Transdisciplinary team approach for psychiatry
Disaster and Community Psychiatry	太刀川　弘和 TACHIKAWA Hirokazu	①Psychosocial study of disaster victims ②Mental health support for disaster supporters including health workers ③Development of post-disaster mental health and psychosocial support systems ④Social psychiatry of depression and suicide prevention ⑤Development of community mental health services and systems
Pediatrics	高田　英俊 TAKADA Hidetoshi	①Development of new gene therapy for genetic disorders of childhood using new Sendai virus vector ②Establishment of new vaccine modalities ③Analysis of the characteristics of immune reaction of fetuses and neonatates ④Nation-wide analysis of child disorders including primary immunodeficiencies ⑤Long term analysis of therapeutic effect of childhood cancer ⑥Research of etiology and pathophysiology of diseases of childhood
Obstetrics and Gynecology	濱田　洋実 HAMADA Hiromi	Basic and clinical researches about diagnosis, treatment, and prevention of diseases/disorders in the field of obstetrics and gynecology are conducted. Major subjects are gynecological malignancy, infertility, reproductive endocrinologic disorder, fetal genetic disease/malformation, fetomaternal infection, maternal, natal, and puerperal complications, etc.
Diagnostic and Interventional Radiology	中島　崇仁 NAKAJIMA Takahito	①Research in basic and clinical fields related to diagnostic imaging 1) Radiomics and Artificial Intelligent 2) DICOM transfer and storage system 3) Big data association with medical imaging and genomics ② Basic and clinical research about novel IVR treatments 1) Transarterial chemoembolization with baloon-occulusion 2) Cryoablation 3) Photoimmunotherapy
Radiation Oncology	櫻井　英幸 SAKURAI Hideyuki	①Research for radiosensitivity, and improvement of radioresistance ②Radiation treatment planning using multimodality imaging ③New cancer therapy using particle radiation therapy

Radiation Health Risk Science	磯辺 智範 ISOBE Tomonori	①Environmental radiation (distribution of radiation in soil, river, sea, crops and wildlife) ②Radiation exposure evaluation ③Soil and surface decontamination technology ④Dose Evaluation and Radiation Protection Technique of Medical Radiation Exposure to Eye Lens ⑤Dose evaluation of neutron exposure in radiotherapy ⑥Technical development on radiation disasters ⑦Development of new educational tool using X Reality
Anesthesiology	（ ）	①Effects of anesthetics and anesthetic techniques on arterial baroreflex function ②Genetic polymorphism of opioid receptor in humans ③Research on basic mechanisms of pain perception ④Effects of anesthetics and age on Bispectral Index
Clinical Laboratory Medicine	（ ）	①Molecular understanding of the endocrine tumor and apoprotein. ②Molecular analysis of the cell proliferating factor. ③Molecular understanding of the hormone synthesis and secretion.
Molecular Sportology	竹越 一博 TAKEKOSHI Kazuhiro	①Personalized treatment for exercise through using genetic infomation ②Research for anti-doping ③Exercise and hormone, especially catecholamine ④Exercise and stress marker, especially salivary Chromogranin A (collaborated with Prof. Omori)
Pharmaceutical Sciences	本間 真人 HOMMA Masato	①Gene Polymorphism analysis for assessing drug metabolizing enzymes and transporters ②Therapeutic drug monitoring for assessing drug efficacy and adverse reactions. ③Pharamcokinetic analysis of Kampo-medicine (Japanese herbal remedies)
Emergency and Critical Care Medicine	井上 貴昭 INOUE Yoshiaki	①Physiology of septic shock and shock ②Physiology of acute respiratory distress syndrome and multiple organ failure ③Physiology of Post cardiac arrest syndrome ④Scientific approach for post intensive care syndrome and delilium
Clinical and Translational Research Methodology	橋本 幸一 HASHIMOTO Koichi	①Regulatory science ②Clinical trials for functional foods ③Translational research for drug and medical device development ④Construction of seamless platform for translational research ⑤Education of experts of integrative celerity research process for translational researches

Primary Care and Medical Education	**前野　哲博** MAENO Tetsuhiro	①Clinical research in primary care ②Development of community-based medical System ③Health promotion in the community ④Clinical medical education
Integrated Study on Health Information	**大庭　良介** OHNIWA Ryosuke	①Studies to unravel the activities of researchers and their communities ②Studies to understand the relationship between researchers and public society ③Studies to implement science communication ④Studies to reconsidering the scientific methodology

〈Master's Program in Public Health〉

Research Area	Faculty	Research
Occupational Psychiatry / Space Psychiatry	（　　）	①A study of the strong qualities unexpectedly in space ②Salutogenesis and Sense of coherence ③Nature based Rehabilitation
Primary Care and Medical Education	前野　哲博 MAENO Tetsuhiro	①Clinical research in primary care ②Development of community-based medical System ③Health promotion in the community ④Clinical medical education
International Community Care and Lifespan Development：Empowerment Sciences	安梅　勅江 ANME Tokie	①Community empowerment ②Plasticity of lifespan development and implications ③System sciences for health social services
Gerontological Nursing & Caring	橋爪　祐美 HASHIZUME Yumi	①Gender issues and Japanese family caregiving, Interpersonal support for the middle-aged couple ②Caring the formal caregivers who take care of the relatives ③Toyama-style daycare service ④Community care in Mongolia ⑤Family caregiving by foreign bride and Japanese husband ⑥Qualitative research method (Grounded theory approach) , mixed method
Health Services Research	田宮　菜奈子 TAMIYA Nanako	①Health Services Research (clinical medicine, long-term care, prevention services) ②Cooperation of medical care and welfare in the local community ③Policy evaluation of the long-term care insurance system ④Study for the improvement of the quality of in-home care and facility care for older people and people with disability ⑤Public Health based on legal medicine (older people, child abuse, solitary death, actual state of service-related death, etc.)
Digital health	岩上　将夫 IWAGAMI Msao	①Descriptive study, prediction, and causal inference using real world data (e.g. medical claims data and electronic health records) ②Genome and omics study using biobanks ③Digital health (clinical study using medical device and AI) ④Pharmacoepidemiology ⑤Global burden of disease study
Global Health Nursing	Togoobaatar Ganchimeg	①Adolescent reproductive health ②Respectful childbirth care and doula support ③Cultural adaption and psychometric validation of research instruments ④Community health promotion

Epidemiology	我妻 ゆき子 WAGATSUMA Yukiko	①Principles and methods in epidemiology and their applications ②Medical statistics and medical information science ③Epidemiology for diseases ④Methods of clinical trials ⑤Strategy to control diseases
Biostatistics	五所 正彦 GOSHO Masahiko	①Developments of novel statistical methods for medical researches ②Evaluations of the performance of statistical methods ③Database studies
Social Psychiatry & Mental Health	森田 展彰 MORITA Nobuaki	①Mental health of victims, Psychotherapy ②Intervention and treatment for family violence (Child abuse, Domestic violence, alder abuse and parent abuse by children) ③Recovery of addiction (Substance use disorder, gambling disorder and internet dependence) ④Forensic psychiatry, Criminology
Global Public Health	市川 政雄 ICHIKAWA Masao	①Global health research ②Community design & health ③Injury prevention & control
Occupational Health	堀 愛 HORI Ai	①Socio-economic disparity and countermeasure for infectious disease ②Health impact assessment on new tobacco ③Health checkup among workers, workers' cohort study ④Occupational health for healthcare workers
Health Care Policy and Health Economics	近藤 正英 KONDO Masahide	①Application of economics for health care ②Health care policy research ③Global health economics