

# Application Guidebook for Research Students Graduate School of Medical Sciences Nagoya City University for Academic Year 2019 (April Enrollment)

Enrollment of research students takes place twice a year, in April and October.  
This application guidebook is intended for April enrollment.

## Admission policy of Graduate School of Nagoya City University

Nagoya City University (NCU) aims to be a university in which all citizens feel pride and affinity.<sup>22</sup> graduate education, based on recognition that research guidance, for graduate students is a challenge in offering research activities; We aim to cultivate researchers and professionals who can gain advanced expertise and an interdisciplinary thinking.

With this philosophy and aim, the graduate school is widely looking for individuals who possess advanced expertise and an eagerness and aptitude for activity both within Japan and abroad, in addition to diverse skills and work experience.

**1. Prescribed enrollments**                      Only a limited number of students

### 2. Eligibility of applicants

A person who fall under any of the followings:

- (1) A person who has completed a program in medicine, dentistry, pharmacy or veterinary medicine (limited to 6 years for pharmacy and veterinary medicine) and graduated from university or is expected to graduate from university by March 2019.
- (2) A person who has completed an 18-year program (limited to programs including a course in medicine, dentistry, pharmacy or veterinary medicine) in school education in a foreign country or is expected to complete such a program by March 2019.
- (3) A person who has completed an 18-year program (limited to programs including a course in medicine, dentistry, pharmacy or veterinary medicine) in school education in a foreign country by completing in Japan the same program of correspondence education provided by the foreign country or is expected to complete such a program by March 2019.
- (4) A person who has completed or is expected to complete by March, 2019 an 18-year program (only limited programs including a course in medicine, dentistry, pharmacy or veterinary medicine) of the foreign educational institution established in Japan based on the educational system of this foreign country. In such cases, the institution should be specified by the Minister of Education, Culture, Sports Sciences and Technology of Japan.
- (5) A person who has completed or is expected to complete by March, 2019 a 5-year or more year's program in the university or other tertiary institution in a foreign country assured by the government or authorized organization in the original country, or specified by the Ministry of Education, Culture, Sports, Science and Technology of Japan. The program includes the comprehensive education study provided by the foreign university in tertiary institution in Japan, or the program provided by the foreign educational institution in Japan based on the educational system of the original country. In such cases, the institution should be specified by the Ministry of Education, Culture, Sports, Science and Technology of Japan.
- (6) A person who has been designated by the Minister of Education, Culture, Sports, Science and Technology of Japan
  - a. A person who has graduated from National Defense Medical College established under the Ministry of Defense Establishment Law (Law No. 164, 1954) or is expected to graduate from said college by March 2019.

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Contact information: Norie Oba, Administration officer, Administration Office, Graduate School of Medical Sciences, Nagoya City University

E-mail : medkyomu@sec.nagoya-cu.ac.jp

***Inquiries must be made by e-mail.***

- b. A person who has completed a master's program or is qualified to be awarded the master's degree, and been enrolled in a doctoral program (not divided into 2 segments: first 2-year for master's course and second 3-year for doctor's course) for 2 years or more, acquired 30 or more credits, received necessary research guidance, and is determined by the Graduate School of Medical Sciences to have an academic ability equivalent to or better than those who have completed a program of medicine, dentistry, pharmacy or veterinary medicine at university.
  - c. A person who has graduated from university (excluding a course in medicine, dentistry, pharmacy or veterinary medicine) or completed a 16-year program of school education in a foreign country, subsequently been engaged in research for 2 years or more at a university, research institute or the like, and is determined by the Graduate School of Medical Sciences from their achievements in such research to have an academic ability equivalent to or better than those who have completed a program of medicine, dentistry, pharmacy or veterinary medicine at university.
- (7) A person who has been enrolled in university (only limited a course in medicine, dentistry, pharmacy or veterinary medicine) for 4 years or more, or completed a 16-year program (only limited programs including a course in medicine, dentistry, pharmacy or veterinary medicine) in school education in a foreign country, and is determined by the Graduate School of Medical Sciences to have acquired the prescribed credits with excellent academic results.
- (8) A person who has determined by the Graduate School of Medical Sciences to have academic ability equivalent to or better than that those defined in (1) and will be 24 years old by March 31, 2019.

Note 1: Prior to submitting application materials to NCU, please contact the faculty member whom you would like to have as a supervisor, and consult him/her about your application.

Note 2: Some programs may require a medical license depending on your research theme. Consult with faculty member in advance, whom you would like to have as a supervisor.

### **3. Screening of Qualification for the examination under Category (6) b , (6) c , (7) or (8) as described above**

(1) Application period for "Screening of Qualification for the examination"  
January 4 (Fri) – 9 (Wed), 2019 ※must be reached at the end of period.

(2) Application documents

Applicants who fall under Category (6) b , (6) c , (7) or (8) must write in red "application qualification documents, Graduate School of Medical Sciences, Research Students (April Enrollment)" on the envelope and send the following documents by registered express post, or bring them in person to the address of NCU in page 3.

※If you would like to apply from overseas, please make sure to entrust your application procedure to the proxy residing in Japan. Application directly from overseas will not be accepted. Notifications from NCU will be sent to your proxy's address.

Applicants who fall under Category (6) b,

Send the following documents ; ( i ) Request for Screening of Eligibility for Examination (prescribed form of "R-3"), ( ii ) Resumé (prescribed form of "R-2"), ( iii ) Certificate of Completion of graduate school, and ( iv ) Academic Transcript of graduate school.

Applicants who fall under Category (6) c,

Send the following documents ; ( i ) Request for Screening of Eligibility for Examination (prescribed form of "R-3"), ( ii ) Resumé (prescribed form of "R-2"), ( iii ) Diploma, ( iv ) Academic Transcript , ( v ) Certificate of Engagement in Research, and ( vi ) Achievement Records (prescribed form of "R-4").

Applicants who fall under Category (7): A person who has been enrolled in university (limited to c a course in medicine, dentistry, pharmacy or veterinary medicine) for 4 years.

Send the following documents ; ( i ) Request for Screening of Eligibility for Examination (prescribed form of "R-3"), ( ii ) Resumé (prescribed form of "R-2"), ( iii ) Academic Transcript , ( iv ) Course Curriculum , and , ( v ) Syllabus of the university.

Applicants who fall under Category (7): A person who has been completed a 16-year program (limited to programs including a course in medicine, dentistry, pharmacy or veterinary medicine) in school education in a foreign country.

Send the following documents ; ( i ) Request for Screening of Eligibility for Examination (prescribed form of “R-3”),( ii )Resumé (prescribed form of “R-2”), ( iii) Diploma, and ( iv) Academic Transcript.

Applicants who fall under Category (8),

Send the following documents ; ( i ) Request for Screening of Eligibility for Examination (prescribed form of “R-3”),( ii )Resumé (prescribed form of “R-2”), and ( iii) “Diploma” of schools after junior high school (senior high school, junior college, other school) if you have graduated from such school.

※Several documents such as “Certificate of Completion”, “Diploma”, “Academic Transcript” and “Certificate of Engagement in Research” must be written in Japanese or English, or the translated documents in either of these languages should be attached.

※If you have graduated from a university in the People’s Republic of China, refer to Note 3 in page 5.

Office hours: 9:00 – 16:00 (excluding Saturday, Sunday and National Holiday and between 12:00 – 13:00)

Send application document by registered express post or hand-delivery to:

Student Affairs Division, Administration Office, Nagoya City University  
1 Kawasumi, Mizuho-cho, Mizuho-ku, Nagoya, Aichi 467-8601, Japan

(3) Results of the screening

The results of the screening will be notified to applicants as early as possible.

Applicants who passed the screening can apply to the examination.

#### 4. Period of application

January 25 (Fri) – February 1 (Fri),2019. ※must be reached at the end of period.

Office hours: 9:00 – 17:00 (excluding Saturday, Sunday and National Holiday and between 12:00 – 13:00)

Enclose the application documents, etc. in the prescribed envelope of NCU, and send the documents by registered express post, or hand-delivery to the address of NCU in page3.

Applications which cannot reach by the designated date will not be acceptable. (the date printed on the postmark is not accountable.)

If you would like to apply from overseas, please make sure to entrust your application procedure to the proxy residing in Japan. Application directly from overseas will not be accepted. Notifications from NCU will be sent to your proxy’s address.

Once your application documents are accepted, admission card and Test center information will be posted to applicants before February 7 (Thu). If you did not receive by those dates, please contact the administrators, Office of Medical School (refer to page1).

## 5. Application documents, etc.

Documents, etc.		Description
1	Application for admission/ Examination Admission card	<p>[Use the prescribed form of “R-1”]</p> <ul style="list-style-type: none"> <li>• Stick your photograph on the application form. A photograph should be taken within 3 months, full-faced, upper body, no caps or hats, no background, full-color and sized 4cmx3cm.</li> <li>• Please fill in the address which you are (or a proxy is) certain to be contacted.</li> </ul>
2	Resumé	<p>[Use the prescribed form of “R-2”]</p> <ul style="list-style-type: none"> <li>• In “Academic Background,” start from admission to university.</li> <li>• If you have work experience, provide details in “Employment History”.</li> <li>• If you submit an application under Category (2) or (3), or under Category (5), (6)c or (7) of “2. Eligibility of applicants,” with completion of a 16-year program in school education in a foreign country, fill in your school education in full from elementary education (elementary school) to higher education (equivalent to university education). If you submit an application under Category (8) of “2. Eligibility of applicants,” fill in your school education after junior high school.</li> </ul>
3	Academic transcript	<ul style="list-style-type: none"> <li>• Academic transcript should be prepared by the university you are currently enrolled in or have graduated from. If you graduated (or are expected to graduate) from the Medical School of NCU, it is not necessary to submit.</li> <li>• If you submit an application under Category (2), (3), (5), (6)c or (7) of “2. Eligibility of applicants,” and you have completed a 16-year program in school education in a foreign country, submit one of higher education (equivalent to university) completed in a foreign country.</li> <li>• A photocopy will not be acceptable (*Note 2).</li> <li>• These documents must be written in Japanese or English, or the translated document in either of these languages should be attached. In this case, however, prepare the translation documents separated from the original transcript. (If certificates of universities in China will be sent to NCU directly from CDGDC, the translated document will not be required.)</li> </ul> <p><b>*If you have graduated from a university in the People’s Republic of China, refer to Note 3 in page 5.</b></p>
4	Diploma (graduation letter)	<ul style="list-style-type: none"> <li>• Your diploma should be prepared by the university you are enrolled in or have graduated from. If you graduated (or are expected to graduate) from the Medical School of NCU, it is not necessary to submit the diploma.</li> <li>• If you submit an application under Category (2) or (3), or under Category (5), (6)c or (7) of “2. Eligibility of applicants,” and you have completed with completion of a 16-year program in school education in a foreign country, submit your diploma of higher education (equivalent to university) completed in a foreign country.</li> <li>• A photocopy of your diploma will not be acceptable (*Note 2).</li> <li>• These documents must be written in Japanese or English, or the translated document in either of these languages should be attached. In this case, however, prepare the translation documents separated from the original transcript. (If certificates of universities in China will be sent to NCU directly from CDGDC, the translated document will not be required.)</li> </ul> <p><b>*If you have graduated from a university in the People’s Republic of China, refer to Note 3 in page 5.</b></p>
5	Residence certificate	<ul style="list-style-type: none"> <li>• If you are a foreign national and eligible for residence in Japan, residence certificate is required to submit.</li> <li>• If your visa status is for short-term residence, submit a photocopy of the Japan entry visa stamped on your passport.</li> <li>• If you are residing in a foreign country, submit a photocopy of your passport.</li> </ul> <p>※Only the residence certificate without the “Social Security and Tax Number” is acceptable. If the number is printed on the certificate, please make sure to make it invisible by using a permanent black pen.</p>

6	Examination fee (10,162 yen)	<p><b>【Paying the examination fee in Japan】</b>  When paying the examination fee, fill in the transfer request form (prescribed form of NCU) with the required information, and present it with 10,162 yen (9,800yen for Examination fee + 362yen for Express mail fee for the admission card to be sent) at bank, etc. for transfer. (<i>Yucho</i> Bank does not accept this transfer. Do not use an ATM, etc.; use only a teller service.)  The relevant bank fees are to be paid by the applicant.  Submit the “Examination Fee Payment Certificate (Slip B)” received from the bank, etc., together with the other application documents. (Do not submit the “Receipt of Transfer Amount (and Transfer Fee) (Slip A),” which should be retained by you.)  The examination fee is not normally refundable. However, under a few circumstances, the paid examination fee may be refunded. Confirm this on the NCU website.</p> <ul style="list-style-type: none"> <li>• The examination fee was transferred twice.</li> <li>• The application documents were not submitted after the examination fee has been transferred (or the application was not accepted).</li> </ul> <p><b>【Paying the examination fee from overseas】</b>  Transfer application fees of 10,162 yen (9,800yen for Examination fee + 362yen for Express mail fee for the admission card to be sent) to the following accounts by February 1 (Fri) 2019. ※must be paid at the end of this day.  After transferred, submit a copy of the foreign remittance request form.  Type of Transfer: Electronic Transfer  Bank Transfer Fees: Paid by the remitter  Amount of Transfer: 10,162 yen (JPY) + all fees associated with the transfer  <b>1) The remitter should pay “Japanese bank fees,” “remitter’s bank fees,” and all fees associated with the transfer.</b>  2) If you transfer money in foreign currency, your application will not be accepted.  Purpose of Transfer: Application fees  [Application Fields]  Bank Name: The Bank of Mitsubishi UFJ, LTD  Bank Branch: Takiko Branch</p> <p>Account Number: 1232518  Beneficiary Name: Nagoya City University  Address: 1 Kawasumi, Mizuho-cho, Mizuho-ku, Nagoya-shi, Aichi 467-8601 JAPAN  Currency: JPY  Swift Code: BOTKJPJT</p>
7	Mailing label	<p>[Use the prescribed form of NCU]  The mailing label will be used to announce the examination result to the applicants.</p>

Note1: If you have already submitted the documents required for application at the screening of qualification for examination, it is not necessary to submit them again when applying for the exam.

Note2: If any of your “Diploma,” “Academic Transcript” and other certificates issued by a higher educational institution in a foreign country cannot be reissued, a photocopy is acceptable. If a photocopy is submitted, the original certificates must be presented at the administration office, Entrance Examination Division when you come for the admission procedure.

Note3: **For “Academic Transcript,” “Diploma” and “Certificate of Completion” of a Chinese university, arrange for these certificates to be sent directly from China Academic Degrees & Graduate Education Development Center (CDGDC) to the Student Affairs Division of NCU (registered code: C901902). (Certificates received by the applicant and personally submitted to NCU are not valid.) These certificates are acceptable only when they reach NCU by the deadline for applications (or by the deadline for the screening of qualification for examination when taking the screening). These certificates should be issued in English (and non-English certificates are not acceptable). For details of the procedure, check the website of CDGDC (<http://www.cdgdc.edu.cn>). (As it takes approximately one month for certificates to be sent by following the procedure,**

applicants are advised to make arrangements from the earlier time.)

Applicants who have completed the program at the Institute in China to fulfill the eligibility for examination are also required to submit the certificate directly sent from the China Academic Degrees & Graduate Education Development Center (CDGDC).

Note 4: If the name written on your “Academic Transcript”, “Diploma” or other certificates is different from your current name, provide the document prove that your name has been changed (e.g., family register).

## 6. Prior consultation with the applicants with disability

Applicants who need special assistance for their disability during the examination or to complete their graduate studies should contact to the administrator, Office of Medical School, NCU by e-mail (refer to page 1).

## 7. Method of selection for admission

Screening of application documents.

An interview examination may be conducted. The date and time will be notified.

## 8. Results of selection for admission

February 15, 2019 (Fri) at 14:00

The results of the examination will be announced on the bulletin board on the 1st floor of the Medical School Research Building of NCU, and also posted to each applicant. (or to your proxy if the applicant resides in a foreign country).

## 9. Admission procedure

(1) Date of procedure: March, 2019

Detailed schedule will be noticed at the announcement of examination results.

(2) Details of procedure

The details of the procedure will be notified to you together with the results of the selection for admission. Note that if the procedure is not taken on time, the admission will be revoked.

(3) Fees payable during the admission procedure

a. Admission fee	Nagoya City residents, etc.	69,600 yen
	Others	99,600 yen
b. Disaster and accident insurance for student education and research		1,000 yen

Note 1: “Nagoya City residents, etc.” means ‘enrolled students’ or ‘those whose spouse or first degree family member can prove that his/her continuous residential period in Nagoya city is at least one year before the date of admission (April, 1) by his/her resident certificate’.

Note 2: The admission fee should be paid through a financial institution before commencing the admission procedure. The paid admission fee is not refundable.

Note 3: Amount of the above fee is example of year 2018. Any revisions to the fees upon admission shall become effective immediately.

## 10. Tuition

Semester amount: 178,200 yen (Annual amount: 356,400 yen)

Note 1: After admission, tuition is to be paid twice a year (for the 1st semester and the 2nd semester) (automatic withdrawal from your account).

Note 2: Amount of the above tuition fee is example of year 2018. Any revisions to the fees upon admission shall become effective immediately.

Note 3: Graduate School of Medical Sciences may charge additional cost without any advance notification.

## 11. Cautions

(1) Applications lacking necessary documents will not be accepted.

(2) Applications found to have made false statements in their applications may have their admission revoked even after their enrollment.

(3) Application documents, etc. will not be returned.

(4) If your return address has been changed, notify it immediately to the administrators, Office of Medical School, NCU by e-mail (refer to page 1).

(5) If you a foreign citizen, contact the following regarding details of entry permission:

### **Notifications from NCU in case of emergency**

In case of emergency (e.g., occurrence of disaster) or if changes are required to the contents of this application guidebook, students will be notified those changes through the website or mobile site of NCU. Particularly as the examination day draws near, pay close attention to the website or mobile site of NCU. Applicants may also be directly contacted. In your application documents, therefore, be sure to provide contact details where you can always be reached.

NCU Website <http://www.nagoya-cu.ac.jp/>  
NCU Mobile site <http://daigakuic.jp/nagoya-cu/>

### **Treatment of your personal information**

NCU treats your personal information in accordance with the Act on the Protection of Personal Information of Nagoya City.

#### **(1) Use of your personal information**

- a. Your name, address and other personal information given in application documents, etc. are used for our operations of selection for admission (e.g., application registration, selection, application result announcement, admission procedure).
- b. Your personal information used for selection for admission (e.g., academic transcript) may be used as reference material for investigative research and academic research to improve future selection for admission and graduate education. (Investigative research results are announced in such a way that individuals cannot be identified.)
- c. After you are admitted, your personal information is used for operations related to educational affairs (e.g., enrollment management, schooling guidance), student support (e.g., health control, tuition waiver, application for scholarship, job placement support), and tuition collection.

#### **(2) Entrustment of operations to external business operators**

The operations of (1) above may be entrusted to some external business operators under an agreement with them for proper treatment of personal information.

### **Smoke free campus**

**NCU hold the smoke free policy on campus. All students are required to follow this policy, and asked to further cooperate to avoid smoking on roads and around university campuses.**

## Research Contents Classified by Specialized Fields of Study

Major	Specialized field of study	Research contents
	Faculty member in charge	
Structure and Function in Biomedical Sciences	Integrative Anatomy	(1) Molecular neurological studies aiming at comprehensive understanding of pathophysiology of neurodegenerative diseases such like amyotrophic lateral sclerosis (ALS), and studies of molecular machinery underlying the involvement of dysfunction of neuron-glia interaction in the onset and progress of those diseases.
	Prof. Takatoshi Ueki	(2) Molecular neurobiological studies of homeostasis of neuroimmune system, and pathophysiology of dysfunction of neuroimmune system and its association with the etiology of neurodevelopmental disorders such as autism.
	Anatomy and Neuroscience	Conducting seamless research into both sensory organs and the brain (1) Identification of auditory/gustatory recipient; and functional analysis using genetically-modified animals
	Prof. Shinya Ugawa	(2) Morphological / molecular biological / physiological research into the new nerves of adult brain hippocampus
	Biochemistry	Ongoing studies being performed are (1) To clarify the molecular mechanisms, by which risk factor, ApoE, diabetes mellitus, and altered lipid metabolism in the brain contribute to the development of Alzheimer's disease.
	Prof. Makoto Michikawa	(2) To clarify the role of exosome in the pathogenesis of Alzheimer's disease. (3) To clarify the molecular mechanisms underlying oral diseases-enhancing pathogenesis of Alzheimer's disease. (4) To study the role of ATBF1 in the pathogenesis of Alzheimer's disease.
	Cell Biology	Cilia are antenna-like organelles which are outgrowths of the plasma membrane of eukaryotic cells. They are known to be related to a wide range of diseases. We focus on the following subjects; (1) the mechanism of ciliogenesis controlled by signal transduction pathways (2) the mechanism of basal body docking (3) the relationship between ciliary morphologies and cancers
	Prof. Yoichi Kato	
	Cell Physiology	Investigations into the functional and morphological characteristics of smooth muscle cells and their neighbouring cells. (1) Generation and propagation of spontaneous activity in smooth muscle. (2) Neurohumoral regulation of smooth muscle function.
	Prof. Hikaru Hashitani	(3) Intrinsic properties of microvasculature in visceral organs. Major techniques employed: electrophysiology, intracellular calcium imaging and fluorescent immunohistochemistry.
	Neurophysiology and Brain Science	Mechanism in the formation of emotion during development by external stimuli (enriched environment, umami intake), Mechanism of emotional/ motivational behavior in the mesocorticolimbic dopaminergic system, Mechanism in the regeneration/repair of diffuse white matter injury model and internal capsule hemorrhage model, Cell transplantation of ES/iPS cell-derived cells to motor dysfunction models
	Prof. Hideki Hida	
	Gastroenterological Surgery	Analysis of mechanisms of tumorigenesis, invasiveness, metastasis, and angiogenesis in digestive organ. Inflammation and cancer. Nutrition, Immunity and Inflammation. Development of techniques in laparoscopic surgery. Surgical Infection.
Prof. Shuji Takiguchi		
Oncology, Immunology and Surgery	Development of techniques in thoracoscopic surgery, Development of minimally invasive treatment using thoracoscopic surgery and radio-chemotherapy for locally advanced lung cancer, Improvement of quality of life of patients during surgery, Establishment of educational and safety systems during thoracoscopic surgery, Genetic abnormalities on lung cancer and thymic malignant tumor, Malignant tumors and genetic disorders in pediatric surgery.	
Prof. Ryoichi Nakanishi		



Major	Specialized field of study	Research contents
	Faculty member in charge	
Structure and Function in Biomedical Sciences	Nephro-urology	Molecular biology for urolithiasis, endoscopic urology, prostate cancer and bone metastasis, thermotherapy for urological cancer, male infertility and reproductive urology, space urology, technological development for urological surgery, biomolecular science for urology, genetic therapy, development for voiding function, epigenetic mechanism for urological disease, congenital urological basic research
	Prof. Takahiro Yasui	
	Cardiovascular Surgery	Pathological analysis and development of operative method for complex cardiac anomaly; pathological analysis and development of approach to treatment for pulmonary hypertension due to cardiac anomaly, and its clinical application; clarification of myocardial metabolism and cardiac function based on the elementary study of cardiac ischemia and reperfusion abnormality; mechanism and prevention of spinal cord disorder due to macrovascular operation; mechanism and prevention of brain disorder due to heart-lung machines
	Prof. Akira Mishima	
	Breast Surgery	1. Research on molecular mechanisms of hormone dependent growth in breast cancer, 2. Research on predictive factors of endocrine therapy in breast cancer, 3. Research on "triple negative" breast cancer, 4. Research on prognostic factors in breast cancer.
	Prof. Tatsuya Toyama	
	Pediatric urology	Basic and clinical researches about etiology, diagnosis, and treatment of pediatric or congenital disease. (1) Kidney and urinary tract: differentiation of the kidney; regenerative medicine of the kidney using ES/iPS cells; etiology of the CAKUT (congenital anomalies of the kidney and urinary tract); investigation of the histology and gene expressions in hydronephrosis or vesicoureteral reflux (2) Gonad and genitalia: molecular biological mechanism of sex differentiation, testicular development, testicular descent, spermatogenesis, and differentiation of external genitalia; differentiation of spermatogonial stem cells; endocrinology (3) Others: pediatric oncology, rare disease such as cloacal exstrophy
	Prof. Yutaro Hayashi	
	Ophthalmology and Visual Science	Diagnosis and treatment of diabetic retinopathy, Pathogenesis and treatment of age-related macular degeneration, Retinal microcirculation, Drug delivery system to the posterior segments of eye, Vitreoretinal microsurgery
	Prof. Yuichiro Ogura	
	Otolaryngology, Head and Neck Surgery	Basic and clinical study of the cause, pathological condition and treatment of spasmodic facial nerve paralysis (Bell's paralysis); pathological condition and treatment of smell and taste disorders; regeneration of peripheral nerve; mechanism and prevention of the development of otitis media due to virus-bacterium combined infection; immunological approach to allergic rhinitis
	Prof. Shingo Murakami	
	Geriatric and Environmental Dermatology	Mechanism analysis and development of phototherapy for refractory skin diseases Development of treatment using dendritic cells for allergic, autoinflammatory and malignant diseases Environmental factors and skin aging Peripheral immune tolerance and cutaneous immune regulation
	Prof. Akimichi Morita	
	Oral and Maxillofacial Surgery	1. Basic and clinical study on jaw bone regeneration. 2. Basic and clinical study on treatment for oral precancer lesion. 3. Development of new dental implant therapy. 4. Basic and clinical study on jaw bone reconstruction and oral rehabilitation. 5. Clinical study on oral care.
Prof. Yasuyuki Shibuya		
Plastic and reconstructive surgery	Management of impaired wound healing, soft tissue reconstruction by adipocyte-derived stem cells, lymphedema and lymphatic regeneration	
Prof. Kazuhiro Toriyama		

Major	Specialized field of study	Research contents
	Faculty member in charge	
Biosignaling and Regulation in Medical Sciences	Experimental Pathology and Tumor Biology	Research Description: We principally employ cell culture and genetically engineered rat models to understand the molecular characteristics of prostate cancers, and to explore their potential as chemopreventive targets. Alternatively, the following themes are studied in subgroups. • Clinicopathological analysis for development and progression of prostate, breast, and female gynecologic tumor • The potential of a gap junctional protein in experimental and human hepatocarcinogenesis • Discovery of modifying effects against carcinogenesis and their molecular mechanisms by natural products and compounds including health food products
	Prof. Satoru Takahashi	
	Pathology and Molecular Diagnostics	Our research fields include human pathology, diagnostic pathology, molecular pathology, surgical pathology, neoplastic pathology, and pathology of the lymphoid tissue, digestive system, lung, soft tissue, head and neck (salivary gland), and thymus.
	Prof. Hiroshi Inagaki	
	Comparative and Experimental Medicine	We are are working on these subjects through the genome-editing technique and the phenotypic analyses on animals; (1) Identification of the susceptible genes in autoimmune-prone models, (2) Genetic programs of tissue development and differentiation especially in endoderm, and (3) New experimental tools for common marmoset.
	Prof. Hisashi Oishi	
	Pharmacology	Ion channels are potential targets for drug discovery in autoimmune and inflammatory diseases and cancers. We are interested in understanding of the expression, functional role and regulatory mechanism of ion channels (especially, K <sup>+</sup> channels) in non-excitabile, proliferative cells such as immune cells (lymphocytes, macrophages) and cancer cells by molecular and cellular biological approaches.
	Prof. Susumu Ohya	
	Bacteriology	Pathogenesis of virulent bacteria, such as group A streptococcus ( <i>Streptococcus pyogenes</i> ), Analysis of the function and the expression of virulence-associated proteins of bacteria, Development of novel strategies for the treatment of severe bacterial infectious diseases.
	Prof. Tadao Hasegawa	
	Immunology	(1) Immune regulation using dendritic cells and regulatory T cells (2) Cell based immune therapy using (1) (3) Inducing effective immune responses by breaking immune tolerance (4) Developing new molecular targeted immune therapy
	Prof. Sayuri Yamazaki	
	Virology	① Determining genetic factors associated with disease progression and drug response in patients with viral hepatitis ② Search for novel biomarkers using genome-wide association study (GWAS) as well as omics analysis ③ Innovative drug development for hepatitis B virus including immunotherapy ④ In silico screening for novel inhibitor of receptor binding against human and animal influenza A viruses
	Prof. Yasuhito Tanaka	
	Orthopedic Surgery	(to be confirmed)
	(to be confirmed)	
	Psychiatry and Cognitive-Behavioral Medicine	Cognitive-behavioral psychotherapy and interpersonal psychotherapy for anxiety disorders, post-traumatic stress disorders, depression, and physical illness; Consultation-liaison psychiatry/Psychooncology; Psychoeducational intervention for family members of psychiatric disorders; Neurocognitive disorders, Neuroimaging studies; Development of novel Intervention programs for children with psychiatric illness; Epilepsy/Sleep medicine; Pharmacological studies for depression
Prof. Tatsuo Akechi		
Psycho-oncology	Psychosocial intervention for cancer patients; Advance care planning; Communication; Collaborative care programs, Evaluation of competency; Psycho-geriatric oncology; Family support for patients with pediatric cancer; Education for oncology staff	
Prof. Tatsuo Akechi (Cooperative graduate school)		
Neurosurgery	Surgery of ischemic cerebrovascular disorder; molecular mechanism of brain lesion repair; molecular biological study of the pathological condition of subarachnoid hemorrhage, hydrocephalus and increase in intracranial pressure; development of a new method for basilar surgery, stereoecephalotomy and cerebrovascular surgery; development of a surgical treatment method for Parkinson's disease; pathological analysis and development of treatment for diffuse brain injury; development of neural function recovery by means of stem cell transfusion; development of operation	
Prof. Mitsuhiro Mase		

Major	Specialized field of study	Research contents
	Faculty member in charge	
Biosignaling and Regulation in Medical Sciences	Rehabilitation Medicine	1. Pathogenesis and development research of new therapeutic approaches for musculoskeletal abnormalities with the central-peripheral neurological problem 2. Verification of motor learning effects on transcranial direct current electric stimulation for Parkinson's disease 3. Verification of kinetic effects on exercise therapy for disuse syndrome and sarcopenia, etc. 4. Application of robot technology to movement disorders and its fundamental investigation
	Prof. Ikuo Wada	
	Obstetrics and Gynecology	Recurrent pregnancy loss, preimplantation genetic diagnosis; prenatal diagnosis and fetal therapy; assisted reproduction technology; genital tumor development mechanism; genetic counselling; Birth cohort of the Japan Environment and Children's study.
	Pediatrics and Neonatology	Pathogenesis and treatment of neonatal brain injury, diagnosis and treatment of pediatric endocrinological disorders, comprehensive management of congenital heart diseases, diagnosis and treatment of pediatric malignancy, pathogenesis of pediatric liver diseases, pathogenesis of pediatric neurological disorders, genomic medicine in pediatrics, pediatric application of regenerative medicine, evaluation and management of developmental disabilities.
	Prof. Shinji Saitoh	

Major	Specialized field of study	Research contents
	Faculty member in charge	
Biodefense System and Comprehensive Medical Sciences	Molecular Neurobiology	Neuron-glia cell interactions in biology and disease. Therapeutic approach for neuronal diseases by modulating glial functions.
	Prof. Kiyofumi Asai	
	Molecular and Cellular Biology	(to be confirmed)
	(to be confirmed)	
	Molecular Toxicology	(1) Development of a screening method of potential carcinogens by using <i>in silico</i> toxicogenomics, risk assessment of xenobiotics in foods and occupational or environmental exposure, development of a biomarker that predicts adverse side effects of medical drugs; (2) Molecular design and generation of a new antitumor drug aiming at toxicity mitigation, <i>in silico</i> analysis of its anticancer activity and activity analysis by using the wet system; (3) Development of an animal model that is highly sensitive to carcinogenesis by using transgenic technology, analysis of molecular mechanism of carcinogenesis, evaluation of extrapolative efficacy of the animal models to humans, development of a diagnostic biomarker of cancer
	Prof. Masumi Suzui	
	Developmental and Regenerative Biology	Our lab is interested in new neurons generated by neural stem cells in the adult brain. We are studying the mechanisms for neuronal migration, maturation and survival in the physiological and pathological conditions using a variety of in vitro and in vivo systems. We are also developing technologies to promote migration and regeneration of brain cells.
	Prof. Kazunobu Sawamoto	
	Epigenomics	(to be confirmed)
	(to be confirmed)	
	Gastroenterology and Metabolism	(to be confirmed)
	(to be confirmed)	
	Respiratory Medicine, Allergy and Clinical Immunology	<ul style="list-style-type: none"> <li>• Chronic airway diseases (asthma, chronic cough, COPD and chronic airways infection): epidemiology, disease concept, pathophysiology, genetic determinants, CT image analysis, diagnosis and treatment.</li> <li>• Lung cancer: molecular pathobiology, susceptibility to anticancer agents, and multicenter large-scale studies.</li> <li>• Respiratory infection (nontuberculous mycobacteriosis, pneumonia): epidemiology, pathophysiology, CT image analysis, diagnosis and treatment.</li> <li>• Interstitial lung diseases: pathophysiology, CT image analysis and treatment.</li> <li>• Relationship of respiratory symptoms such as cough and gastroesophageal reflux disease.</li> <li>• Connective tissue disorders: search of novel autoimmune molecules, pathophysiology analysis and diagnosis using clinical samples, and treatment.</li> </ul>
Prof. Akio Niimi		
Cardiac and Nephric Hypertension Internal Medicine	Investigation of the pathophysiology of cardiovascular diseases, Development of advanced technology in the treatment of cardiovascular diseases, Research on the relationship between life style and cardiovascular diseases, Research on the mechanism and treatment of heart failure with preserved ejection fraction, Development of the therapeutic strategy for coronary artery disease, Research on the relationship between vascular endothelial function and cardiovascular accidents, Blood pressure circadian rhythm, Research on the role of kidney in developing hypertension, Prevention of end-stage renal disease.	
Prof. Nobuyuki Ohte		

Major	Specialized field of study	Research contents
	Faculty member in charge	
Biodefense System and Comprehensive Medical Sciences	Neurology	Clinical study of the pathological condition of cerebrovascular accidents and intractable nervous diseases; development of model animal preparation method for neurodegenerative diseases; development of gene therapy for intractable nervous disease; clarification of memory and recall mechanisms; clarification of molecular biological pathogenic mechanism and development of treatment method for Alzheimer's disease and vascular dementia
	Prof. Noriyuki Matsukawa	
	Community-based Medical Education	Establishment of teaching methods and systems by the educational general medical team. The studies of educational methods with medical simulators. Establishment of the efficient education of general medicine.
	Prof. Hirotaka Ohara	The investigation about the usefulness of medical network system in community medical care system. Establishment of the effective and efficient preventive medicine with cooperation in community medical care system.
	Anesthesiology and Intensive Care Medicine	Analysis of the function of water channels in the brain (aquaporin); analysis of the function of the aquaporin in acute lung injury; study of respiration-circulation correlation; study of the influence of CO <sub>2</sub> on lungs; development of a new cardiac output measurement method; involvement of respiration and circulation in CO intoxication; search for acute lung injury predicting factors; clarification of pathogenic mechanism of aching pain, and countermeasures against pathogeny; functional analysis of capsaicin receptor, and its involvement in aching pain; elementary study of nutritional management for critically-ill patients; development of a new nutritional supplement for immunoregulation, and its clinical application; examination of the influence of anesthetic on higher brain function; clarification of the pathogenic mechanism of central nervous system damage due to sepsis
	Prof. Kazuya Sobue	
	Radiology	Investigations on radiology-pathology correlations in various diseases and new diagnostic imaging modalities
	Prof. Yuta Shibamoto	Basic and clinical researches on combined modality therapy Methodology in clinical nuclear medicine
	Hematology & Oncology	1. Dissection of molecular pathogenesis of hematopoietic neoplasms, identification of novel molecular targets, exploration of biomarkers predicting for the efficacy and adverse events of molecular targeting therapies, and mechanisms responsible for the drug resistance 2. Development of novel immune therapies against cancer with therapeutic antibodies or induction of tumor-specific cytotoxic T lymphocytes 3. Planning and conducting preclinical studies and clinical trials against cancer
	Prof. Shinsuke Iida	
	Clinical Pharmaceutics	1. Basic and clinical studies on sexual dysfunction in men. 2. Mechanisms involved in overactive and underactive bladders and development of a novel therapy. 3. Mechanism of vascular endothelial dysfunction induced by chronic kidney disease. 4. Analysis of acylcarnitine in patients with organic acidemia. 5. Validation of a medicine consumption standard and analysis of factors that influence medication adherence.
	Prof. Kazunori Kimura	
	Department of Advancing Acute Medicine	(Prof. Hiroshi Sasano) Breathing-circulation cooperation (heart rate, blood flow variability analysis, physiology of respiratory sinus arrhythmia), the development of clinical devices (ultrasound-guided puncture, oxygen administration), peripherally inserted central venous catheter, medical simulation education. (Prof. Tomonori Hattori) The effect of immune regeneration by bone marrow transplant for the immunoparalysis in sepsis. The effect of treatment by PMX-DHP and HDF for septic shock patients. (Prof. Asako Matsushima) Clinical study for improvement of sepsis survival, team work study for severe traumatic patients, clinical study for nosocomial infection control.
	Prof. Hiroshi Sasano	
Prof. Tomonori Hattori		
Prof. Asako Matsushima		
Infection Control Function Science	Establishment of a hepatitis virus cultivation system; analysis of the expression mechanism and infection, growth and replication mechanism of hepatitis virus; search for a new antiviral target against hepatitis virus; screening of new antiviral drugs, and analysis of antiviral mechanism; analysis of drug-resistant virus; search for host factor that correlates with hepatitis virus	
Guest Prof. Ryuji Wakita (Cooperative graduate school)		
Hepatitis and Immunology	Molecular evolutionary analysis of the genetic mutation of various pathogens, and its clinical application, particularly, to relation with genetic mutation of various hepatitis viruses and pathological condition and to treatment	
Guest Prof. Masashi Mizokami (Cooperative graduate school)		

Major	Specialized field of study	Research contents
	Faculty member in charge	
Community Medicine, Environmental Health Sciences and Medical Education	Occupational and Environmental Health	(1) Experimental and epidemiological studies on pathogenesis and mechanisms of health disorders due to environmental chemicals such as insecticides and other organic compounds, dose-response relationship between exposure and outcomes, and exposure characterization; (2) Occupational ergonomics studies on patient safety culture, maturity levels of organizational resilience, and risk factors for work-related disorders. Big data analytics and its application in occupational health practice.
	Prof. Michihiro Kamijima	
	Public Health	The department specializes in epidemiology. The target outcome includes lifestyle-related diseases such as cancer, diabetes mellitus, and metabolic syndrome, QOL, health status, and death. Using a statistical approach, we discuss the relationship between these outcome and genetic and/or environmental factors such as life styles, psychosocial factors, and genetic polymorphism including the interaction. We also work on evaluation and comparison of diagnostic tests, clinical epidemiology and descriptive epidemiology of intractable diseases.
	Prof. Sadao Suzuki	
	Forensic Medicine	Forensic genetics. Forensic pathology. Forensic analysis of digital imaging of human body.
	Prof. Yasuhito Aoki	
	Medical Education	Prediction and control of disease development as the next-generation medical treatment; unconscious recording of biological information in daily life, and building of a large-scale database; prognosis of cardiovascular diseases mainly by the analysis of heart rhythm disturbance, and prediction of death in emergency; detection of sleep-disordered breathing; industry-academic cooperative study for the development of stress and fatigue evaluation hardware and software
	Prof. Junichiro Hayano	
Department of Medical Innovation	1. Evaluation on clinical trials of gastrointestinal disorders 2. Pathophysiology and epidemiology of gastroesophageal reflux disease 3. Clinical studies on new therapeutic agents of functional gastrointestinal disease (functional dyspepsia and irritable bowel syndrome) 4. Basic studies on the mechanisms of visceral perception 5. Regulatory science, and Clinical pharmacology and therapeutics	
Prof. Takeshi Kamiya		