Application Guidebook for Students of General Selection
Graduate School of Medical Sciences
Master's Degree Program of Major in Medical Sciences
Nagoya City University
for Academic Year 2018（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. In graduate education, based on our 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.

[Master's Degree Program of Graduate School of Medical Sciences]

《Desirable Students》

Individuals who are keenly interested in the most advanced medical science, medical care and life science
Individuals who intend to be a pioneering and creative researcher or a highly-specialized engineer
Individuals who have sufficient academic ability in the basic field of natural science, and are motivated to work at study and research proactively and autonomously.

《Content and level of knowledge that should have been acquired》

In addition to having acquired university-level knowledge in various fields of natural sciences, applicants are required to have specialized basic knowledge in life science or related fields. In addition, as reading research papers in English is necessary during research, applicants are also required to have a sufficient level of reading comprehension in English.

1. Prescribed enrollments (total of general selection and special selection on recommendation)

Major in Medical Sciences 10 students

2. Eligibility of applicants

All applicants must satisfy at least one of the following conditions:

(1) A person who has graduated from university or is expected to graduate from university by March 2018.
(2) A person who has a bachelor's degree by the National Institution for Academic Degrees and Quality Enhancement of Higher Education under Article 104 (4) of the School Education Law, or who is expected to complete that course by the end of March 2018.
(3) A person who has completed a 16-year course of schooling program outside Japan or is expected to complete that course by March 2018.
(4) A person who has completed a 16-year course of schooling program outside Japan that is provided by correspondence education in Japan or is expected to complete that course by March, 2018.
(5) A person who has completed or is expected to complete by March, 2018 a 16-year program of the foreign educational institution established in Japan based on the educational system of this foreign country. In such cases, this the institution should be approved by the Minister of Education, Culture, Sports, Science and Technology of Japan.

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 email.***

(6) A person who has completed or is expected to complete to be awarded a bachelor's degree by March, 2018 a 3-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 established 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.
(7) A person who has completed a specialized training course in an advanced vocational school (it is limited that the courses have 4 or more years and that the level of courses is designated by the Ministry of Education, Culture, Sports, Science and Technology of Japan) after the date designated by the Ministry of Education, Culture, Sports, Science and Technology, or who is expected to complete such a course by the end of March, 2018.
(8) A person who has been approved by the Minister of Education, Culture, Sports, Science and Technology of Japan.
(9) A person who has been enrolled in university for 3 years or more, or completed a 15-year course of schooling program outside Japan, and who have acquired the prescribed credits with excellent academic results that is approved by the Graduate School of Medical Sciences.
(10) A person who has academic ability equivalent to or higher than those who have graduated from university by individual achievement test conducted by Graduate School of Medical Sciences and and will become 22 years or older by March 31, 2018.

※Prior to submitting application documents, please contact the faculty member in charge of the department where you wish to belong, consult him/her regarding your application, and then indicate the potential supervisor by email below.

medkyomu@sec.nagoya-cu.ac.jp

<Email Example>
(Title) Master's Degree Program of Major in Medical Sciences April Enrollment
(Text) Full name: First/Middle/Last name
Potential Supervisor: Professor's name

To contact the faculty member, please refer to the following URL:
http://www.med.nagoya-cu.ac.jp/w3med/en/organization.html

3. Screening of Qualification for examination under Category（9）or (10) as described above

(1) Application period of "Screening of Qualification for examination"
First exam：June 20 (Tue) – June 27 (Tue), 2017 ※must be reached at the end of period.
Second exam：November 13 (Mon) – November 21 (Tue), 2017 ※must be reached at the end of period.
※The second will be held only if the admission capacity is not reached after the first exam.

(2) Application documents
Applicants who fall under Category (9) or (10) must write in red "application qualification documents enclosed, Graduate School of Medical Sciences, Master's Degree Program（April Enrollment）" on the envelope, and send the following 5 documents (ⅰ) Request for Screening of Eligibility for Examination (prescribed form "M-4"), (ⅱ)Resumé (prescribed form "M-2"), (ⅲ)Achievement Records (prescribed form "M-5"), (ⅳ)Academic Transcript, and (ⅴ)Diploma (a graduation letter), certificate of completion (expected completion) by registered express mail.

※Must be sent by post. Delivery in person is not accepted. Applications which cannot be reached 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 by post directly from overseas will not be accepted. Notifications from NCU will be sent to your proxy's address.
※If you have graduated from university in the People's Republic of China, refer to Note 3 in page 5.

Send the application documents by mail to:

Entrance Examination and Public Relations Division, Administration Office of 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 and application procedures

(1) Period of application
First exam：July 12 (Wed) –July 19 (Wed), 2017 ※must be reached at the end of period.
Second exam：December 7 (Thu) –December 14 (Thu), 2017 ※must be reached at the end of period.
※The second will be held only if the admission capacity is not reached after the first exam.

(2) Application procedures
・Enclose the application documents, etc. in the prescribed envelope of NCU, and send them by registered express mail.
・ Must be sent by post. Delivery in person is not accepted. Applications which cannot be reached by the designated date will not be acceptable.
・Applications which cannot be reached 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 by post 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 the following dates: First exam; July 25 (Tue) and Second exam: December 20 (Wed). If you did not receive by those dates, please contact the administrators, Department of Admission (refer to page2).

5. Application documents, etc.

Documents, etc.		Description
1	Application for admission/ Photo Identification card/ Examination Admission card	[Use the prescribed form "M-1"] Stick your photograph on the application form. A photograph should be taken within 3 months, full-faced, upper body, no caps or hat, no background, full-color and sized 4cm ×3cm. Please fill in the address which you are (or a proxy is) certain to be contacted.
2	Resumé *Note 1	[Use the prescribed form "M-2"] In "Academic Background," start from admission to university (including the course and the department). If you have work experience, provide details in "Employment History." If you apply under Category (3), (4), (5) (6) or (9) of "2. Eligibility of applicants," and you have completed curricula in a foreign country, fill in your education history from elementary education (equivalent to elementary school) to higher education (equivalent to university education).
3	Academic transcript *Notes 1, 3, 4	Academic transcript should be prepared by university you are currently enrolled in or have graduated from. If you apply under Category (2) or (8) of "2. Eligibility of applicants," the academic transcript is not required. If you apply under Category (3), (4), (5) (6) or (9) of "2. Eligibility of applicants," and

		you have completed curricula in a foreign country, submit an original transcript of your higher education (equivalent to university) completed in a foreign country. A photocopy will not be acceptable (*Note 2). 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 you have graduated from university in the People's Republic of China, refer to Note 3 on page 5
4	Diploma (graduation letter) *Notes 1, 3, 4	Your diploma should be prepared by the university you are enrolled in or have graduated from. If you apply under Category (2) or (8) of "2. Eligibility of applicants," submit a document certifying your eligibility. If you apply under Category (3), (4), (5) (6) or (9) of "2. Eligibility of applicants," and you have completed curricula in a foreign country, submit an original transcript of your higher education (equivalent to university) completed in a foreign country. A photocopy of your transcript will not be acceptable. (*Note 2). 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 you have graduated from a university in the People's Republic of China, refer to Note 3 on page 5.
5	Residence certificate	If you are a foreign national and eligible for residence in Japan, residence certificate is required to submit. If your visa status is for short-term residence, submit a photocopy of the Japan entry visa stamped on your passport. If you are residing in a foreign country, submit a photocopy of your passport. ※Residence certificate without the"Social Security and Tax Number System" is acceptable. If the number is printed on the certificate, please make sure to make it invisible by using a permanent black pen.
6	Letter of permission for taking examination	[Use the prescribed form "M-3"] If you are in employment and wish to be admitted while remaining employed, submit the examination permission issued by the superior from your workplace.
7	Examination fee etc. (30,362 yen)	【Paying the examination fee in Japan】 When paying the examination fee, fill in the transfer request form (prescribed form of NCU) with the required information, and present it with 30,362 yen (30,000yen for Examination fee＋362yen for Express mail fee for the admission card to be sent) at bank, etc. for transfer. (*Yucho* 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. ・The examination fee was transferred twice. ・The application documents were not submitted after the examination fee has been transferred (or the application was not accepted). 【Paying the examination fee from overseas】 Transfer application fees of 30,362 yen (30,000yen for Examination fee＋362yen for Express mail fee for the admission card to be sent) to the following accounts by July 19 (Wed) 2017 for Firs exam and by December 14 (Thu)2017 for the Second exam, and submit a copy of the foreign remittance request form. Type of Transfer: Electronic Transfer Bank Transfer Fees: Paid by the remitter

		Amount of Transfer: 30,362 yen (JPY) ＋all fees associated with the transfer **1) The remitter should pay "Japanese bank fees," "remitter's bank fees," and all fees associated with the transfer.** 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 Tokyo-Mitsubishi UFJ, LTD Bank Branch: Takiko Branch 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
8	Mailing label	[Use the prescribed form of NCU] The mailing label will be used to announce the examination result to the applicants.

Note1: If you have taken the screening of qualification for examination, it is not necessary to submit the application documents 2, 3 and 4 when you submit an application.

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 and Public Relations Division when you come for the admission procedure.

Note3: For "Academic Transcript," "Diploma" and "Certificate of Completion" of a university in the People's Republic of China, arrange for these certificates to be sent directly from China Academic Degrees & Graduate Education Development Center (CDGDC) to the Entrance Examination and Public Relations Div. 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 (CDDC).

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

6. Prior consultation of applicants with a physical disability

Applicants (to the degree as determined by Article 22-3 of the School Education Act), who need special assistance during the examination or with their graduate studies should contact the administrator, Office of Medical School, NCU by e-mail (refer to page 2).

7. Date and method of selection for admission

Examination date	Examination time	Examination subject	Examination place
【First exam】 August.8(Tue), 2017	10:00－12:00	English (Written test. Dictionaries may be permitted except electronic one.	Lecture Room B, 11th floor, Medical School Research Building
	13:00－14:30	Basic science (Written test. Japanese or English proficiency is required.)	Lecture Room B, 11th floor, Medical School Research Building
	15:00－	Interview	Details will be presented on the day of the examination
Examination date	Examination time	Examination subject	Examination place
【Second exam】 January.24(Wed), 2018	10:00－12:00	English (Written test. Dictionaries may be permitted except electronic one.	Seminar Room, 2nd floor, Medical School Research Building
	13:00－14:30	Basic science (Written test. Japanese or English proficiency is required.)	Seminar Room 2nd floor, Medical School Research Building
	15:00－	Interview	Details will be presented on the day of the examination

※Examinees receiving the English examination and basic science examination should meet at the examination place 10 minutes prior to the start time of each examination.

※The second will be held only if the admission capacity is not reached after the first exam.

8. Results of examination:

First exam：September 4 (Mon), 2017 at 14:00

Second exam：February 13 (Tue), 2018 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.

9. Admission procedure

(1) Expected date of procedure:

First exam：September, 2017

Second exam：March, 2018

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 examination.

(3) Fees payable during the admission procedure

a. Admission fee　Nagoya City residents, etc.　232,000 yen

Others　332,000 yen

b. Disaster and accident insurance for student education and research　1,750 yen

Note 1: The admission fee should be paid through a financial institution before commencing the admission procedure. Paid admission fee is not refundable.

Note 2: “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 by his/her resident certificate’.

Note 3: Amount of the above tuition fee is example of year 2017. Any revisions to the fees upon admission shall become effective immediately.

10. Tuition

Annual amount 535,800 yen (267,900 yen per semester for 1st and 2nd semesters)

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 2017. Any revisions to the tuition during enrollment shall become effective immediately.

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

11. A waivers of tuition

Students who can hardly afford the tuition fees with financial reasons and who are recognized to be achieving excellent results in their academic work can apply for a waiver of either full, half, or a quarter of their tuition fees.

12. Scholarship system

Scholarships of the Japanese Student Services Organization (JASSO) are available to graduate students. Students wishing to apply to the programs will be referred following a review of academic achievement, research ability, etc., to determine eligibility.

Ryo Tanaka Incentive Scholarship: Graduate School of Medical Sciences will grant an annual scholarship of 300,000 yen per person to a small number of excellent students.

13. 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 this immediately to the administrator, Office of Medical School, NCU by e-mail (refer to page 1).
(5) Because the coursework is basically conducted in Japanese, applicants must have sufficient Japanese ability, however, a limited number of classes conducted in English is also available.
(6) A double enrollment is prohibited under the rule.

14. 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.

15. 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. With those reasons, please make sure to check the website or mobile site, especially the examination date comes closer. 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://daigaku.jc.jp/nagoya-cu/

16. 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 alleys around university campuses.

Research Contents Classified by Specialized Fields of Study

Specialized field of study Faculty member in charge	Research contents
Integrative Anatomy Prof. Takatoshi Ueki	(1) Neurobiology to study molecular machinery underlying rewiring of neural circuitry during the brain development, especially focusing on the physiology of neuron-glia interaction. (2) Neuroendocrinological studies to elucidate molecular basis of the functional maturation of brain-gut circuitry, and its involvement in pathophysiology of mental and neurological disorders.
Anatomy and Neuroscience Prof. Shinya Ugawa	Our current projects are focused on: (1) trying to understand how auditory hair cells convert sounds such as speech and music into electrical signals that the brain can interpret (2) trying to understand how newborn neurons in the adult hippocampus are integrated into functional circuits of the existing network Our lab consists of highly talented individuals with expertise in microscopy, molecular biology and electrophysiology needed to efficiently advance our research.
Biochemistry Prof. Makoto Michikawa	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. (2) To clarify the crosstalk between brain and systemic circulation, which is separated by the blood-brain barrier. (3) To clarify the molecular mechanisms underlying oral diseases-enhancing pathogenesis of Alzheimer's disease.
Cell Biology (To be confirmed)	(To be confirmed)
Cell Physiology Prof. Hikaru Hashitani	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. (3) Intrinsic properties of microvasculature in visceral organs. Major techniques employed: electrophysiology, intracellular calcium imaging and fluorescent immunohistochemistry.
Neurophysiology and Brain Science Prof. Hideki Hida	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 henorrhage model, Cell transplantation of ES/iPS cell-derived cells to motor dysfunction models.
Nephro-urology Prof. Takahiro Yasui	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, bimolecular science for urology, genetic therapy, development for voiding function, epigenetic mechanism for urological disease, congenital urological basic research.
Experimental Pathology and Tumor Biology Prof. Satoru Takahashi	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 patocarcinogenesis ・Discovery of modifying effects against carcinogenesis and their molecular mechanisms by natural products and compounds including health food products

Specialized field of study Faculty member in charge	Research contents
Pathology and Molecular Diagnostics Prof. Hiroshi Inagaki	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.
Comparative and Experimental Medicine Prof. Hisashi Oishi	We are are working on these subjects through the genome-editing technique and the phenotypic analyses on animals; (1) Identification of the susceptable genes in autoimmune-prone models, (2) Genetic programs of tissue development and differentiation especially in endoderm, and (3) New experimental tools for common marmoset.
Pharmacology (To be confirmed)	(To be confirmed)
Bacteriology Prof. Tadao Hasegawa	Pathogenesis of virulent bacteria, such as group A streptococcus (*Streptococcus pyogenes*) 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
Immunology Prof. Sayuri Yamazaki	(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 or complement system (4) Developing new molecular targeted immune therapy
Virology Prof. Yasuhito Tanaka	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
Psychiatry and Cognitive-Behavioral Medicine Prof. Tatsuo Akechi	Cognitive-behavioral therapy of anxiety disorders and mood disorders, Mental health of physically ill patients, Palliative Medicine, Family intervention for families of mood disorders and scizophrenia, Epilepsy, Mental health of children and neurodevelopmental.
Obstetrics and Gynecology Prof. Mayumi Sugiura	Recurrent pregnancy loss, preimplantation genetic diagnosis, prenatal diagnosis, artificial reproductive technology, genetic counselling, reproductive oncology
Pediatrics and Neonatology Prof. Shinji Saitoh	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.
Molecular Neurobiology Prof. Kiyofumi Asai	Neuron-glial cell interactions in biology and disease.Therapeutic approach for neuronal diseases by modulating glial functions.

Specialized field of study Faculty member in charge	Research contents
Molecular and Cellular Biology Prof. Takashi Okamoto (retiring at the end of March, 2018)	Analysis of the pathogenic processes of various intractable disease including cancer, autoimmunity, rheumatoid arthritis, AIDS and schizophrenia. In particular, we are interested in 1) Identification of the interacting molecules of NF-kappaB and Tat (of HIV) and elucidation of their mechanisms of action; 2) Elucidation of biological actions of these interacting molecules; 3) Development of therapeutic drugs against these diseases using structural bioinformatics; 4) Examination of pathological activities of endogenous retroviral sequences within human genome.
Molecular Toxicology Prof. Masumi Suzui	(1) Development of a screening method of potential carcinogens by using *in silico* 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, *in silico* 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
Developmental and Regenerative Biology Prof. Kazunobu Sawamoto	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.
Epigenomics (to be confirmed)	(to be confirmed)
Respiratory Medicine, Allergy and Clinical Immunology Prof. Akio Niimi	・Chronic airway deceases (asthma, chronic cough, COPD and chronic airways infection): epidemiology, disease concept, pathophysiology, genetic determinants, CT image analysis, diagnosis and treatment. ・Lung cancer: molecular pathobiology, susceptibility to anticancer agents,and multicenter large-scale studies. ・Respiratory infection（nontuberculous mycobacteriosis, pneumonia）: epidemiology, pathophysiology, CT image analysis, diagnosis and treatment. ・Interstitial lung diseases: pathophysiology, CT image analysis and treatment. ・Relationship of respiratory symptoms such as cough and gastroesophageal reflux disease. ・Connective tissue disorders: search of novel autoimmune molecules, pathophysiology analysis and diagnosis using clinical samples, and treatment.
Hematology & Oncology Prof. Shinsuke Iida	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
Department of Advancing Acute Medicine Prof. Hiroshi Sasano Prof. Tomonori Hattori Prof. Asako Matsushima	（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.

Specialized field of study Faculty member in charge	Research contents
Occupational and Environmental Health Prof. Michihiro Kamijima	(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.
Public Health Prof. Sadao Suzuki	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.
Forensic Medicine Prof. Yasuhiro Aoki	Forensic genetics. Forensic pathology. Forensic analysis of digital imaging of human body.
Medical Education Prof. Junichiro Hayano	The goal of our research is the development of physiological big-data systems for predicting diseases, maintaining fitness level, and extending healthy life expectancy. We are approaching to this goal through big data systems of continuous biosignals during daily life and signal processing for quantifying autonomic functions, stress responses, sleep qualities, and physical and mental activities. Collaborating with biomedical engineering companies, we are developing wearable devices for biosignals such as pulse wave, electrocardiogram, and physical activities and also developing original computer software for processing, interpretation, and feedback.
Department of Medical Innovation Prof. Takeshi Kamiya	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
Department of Clinical Medical Design Prof. Haruyuki Kusama Prof. Katsushi Kunimoto Prof. Takahiro Matsumoto Prof. Akimichi Morita Prof. Takatoshi Ueki Prof. Takashi Kato Prof. Dai Hanawa Prof. Takaya Terada	（Prof. H. Kusama） Numerical Simulation Methods for Design Study in Clinical Medical System （Prof. K. Kunimoto） ・Medical equipment development・Flexible digestive-tube model ・The mechanical heart and heart valve prosthesis which carries out a stroke ・Stoma・Automatic radiation systems development to the dynamically target of a convergence USW・Multifunctional end effector surgery robotic development ・An exploitation of the diameter catheter of new style thin・A development of a new style nebulizer・An exploitation of a new style laryngoscope・A development of baby and child medical equipment （Prof. T. Matsumoto） ・Physics between nanomaterials (quantum wires, dots) and near-field electromagnetic waves (surface plasmon polariton and evanescent wave), and its application to nanoscale biomedical engineering. ・Deuterium separation by using nanomaterials and the design of new isotope drugs. （Prof. A. Morita） Development of medical device utilizing the photobiological specificity of wavelength Bridging translational research among medicine, biology and engineering （Prof. T. Ueki） ・Application of machine learning for computational anatomy and connectomics, and understanding of the pathophysiology of neurological and psychiatric disorders

	・Translational studies on construction of automated diagnostic imaging system based on analysis ・Medical technology of drive system of minimally invasive surgery robot （Associate Prof. T. Kato） Design and development of Control methods for medical equipments, Minimally invasiv surgical robots, Preventive medical devices based on human physics & biology, Novel personal healthcare indexes derived from clinical medicine. （Associate Prof. D. Hanawa） ・Human's biological/activity monitoring system using sensor networks ・Task supporting system using VR/AR/MR techniques （Assistant Prof. T. Terada） ・Medical engineering・Application of laser and optical technology・Medical device development