



2021 Academic Year
Application and Admission Guidelines

Dentistry

Doctoral Course (Dentistry Program)
(For students enrolling in October 2021)

Tohoku University
Graduate School of Dentistry

Applicant Guidelines

1. Admissions policy

The Tohoku University Graduate School of Dentistry strives to foster researchers and sophisticated professionals who: possess advanced knowledge and skills in dentistry, oral care, and oral health, as well as the sensibilities and fundamental human qualities that support that expertise; are closely attuned to the needs of society; and can identify problems on their own and develop concrete solutions for various challenges of dentistry.

Specifically, we seek applicants who aspire to become sophisticated professionals capable of contributing to society with their specialized knowledge and skills backed by sensibilities and fundamental human qualities, or to become researchers able to contribute to new advances in dentistry.

To attract such candidates we offer three admissions tracks: general admissions, special admissions for Working-adults, and special admissions for international students. We use these admissions processes to assess and select applicants, placing emphasis on whether each candidate has the high-level competencies and qualities needed to engage in research aligned with our educational principles and goals.

Doctoral Course

The doctoral course seeks students who are highly motivated to study dental science, possess outstanding competencies, a broad perspective, and flexibility, and are able to pursue original, advanced, transdisciplinary, and exploratory research founded on bench founded on unity in specialization and academics.

The general admissions track evaluates applicants through three exams: a written exam of basic knowledge and understanding of specialized disciplines, an externally administered certification exam of English reading comprehension, and an interview and transcript review for comprehensively assessing whether the applicants possess strong motivation to study dental science, outstanding competencies, a broad perspective, and flexible sensibilities. These exams are given approximately equal weight in the selection process.

Special admissions for Working-adults evaluates applicants through three exams: a written exam of knowledge and understanding of specialized disciplines, an externally administered certification exam of English reading comprehension, and an interview and a review of transcripts and statement of purpose for comprehensively assessing whether the applicants possess strong motivation to study dental science, a broad perspective, and flexible sensibilities. These exams are given approximately equal weight in the selection process.

Special admissions for international students evaluates applicants through two exams: a written exam of basic knowledge and understanding of specialized disciplines, and an interview and transcript review for comprehensively assessing whether the applicants possess strong motivation to study dental science, and outstanding competencies. These exams are given approximately equal weight in the selection process.

Those who are not native speakers of English are expected to acquire sufficient ability in English comprehension and communication before enrolling.

2. Major, course, major field etc. and enrollment quota

| Major | Course etc. | Major Field | Quota |
|---|--|---|------------------------------|
| Dentistry | Ecological Dentistry | Oral Ecology and Biochemistry | <u>Limited Number</u> |
| | | Oral Microbiology | |
| | | Oral Molecular Bioregulation | |
| | | Periodontology and Endodontology | |
| | | Operative dentistry | |
| | Community Social Dentistry | International Oral Health | |
| | | Dental and Digital Forensics | |
| | | Preventive Dentistry | |
| | | Pediatric Dentistry | |
| | | Craniofacial Anomalies | |
| | | Orthodontics and Dentofacial Orthopedics | |
| | Disease Management Dentistry | Oral Physiology | |
| | | Dental Pharmacology | |
| | | Oral Pathology | |
| | | Dental Informatics and Radiology | |
| | | Oral and Maxillofacial Surgery | |
| | | Dento-oral Anesthesiology | |
| | | Comprehensive Dentistry | |
| | Rehabilitation Dentistry | Oral and Craniofacial Anatomy | |
| | | Craniofacial Development and Tissue Biology | |
| | | Dental Biomaterials | |
| | | Craniofacial Function Engineering | |
| | | Advanced Prosthetic Dentistry | |
| Molecular and Regenerative Prosthodontics | | | |
| Innovative Liaison Dentistry | Aging and Geriatric Dentistry | | |
| | International Collaborative and Innovative Dentistry | | |
| | Co-Creative Dentistry | | |

3. Application Qualifications

Persons who meet any one of the following requirements are qualified to apply.

- (1) Students who have graduated from a university program in Medicine, Dentistry, Pharmacy, or Veterinary Science, or will do so by September 2021.
- (2) Students who have completed an 18-year school education program overseas, or will do so by September 2021.
- (3) Students who have completed an 18-year school education program in Japan by taking classes through distance learning offered by a school overseas, or will do so by September 2021.
- (4) Students who have completed a course of study at an educational facility situated in Japan within a foreign nation's educational system as possessing the nation's university education program (whose graduates are limited to those who have completed 18 years of school and university education in the nation) and designated separately by the Ministry of Education, or will do so by September 2021.
- (5) Students who have completed a Master course, the first two years of a Doctoral course, a professional degree curriculum, or will do so by September 2021 and have been certified through individual entrance qualification screening at this graduate school to possess academic abilities either equal to or exceeding those who have graduated from a university program in Medicine, Dentistry, Pharmacy, or Veterinary Science; or those designated by MEXT proclamation 39 of April 8, 1955.
- (6) Students who have been conferred a degree equivalent to a bachelor's degree (including those who are expected to be granted such a degree by September 2021) upon completion of a curriculum that has a course term of five years or longer at a university or other school (limited to schools whose overall educational and research activities have been evaluated by the relevant country's government or a government-approved individual, or are designated separately as having met this requirement by the Minister of Education) in a foreign country (including cases in which the student completed the curriculum by taking subjects conducted by said school via distance learning while the student resided in Japan, and cases in which the student has completed a curriculum at an educational facility that is positioned within that country's educational system as per the previous item).
- (7) Students who were enrolled in a university medical, dentistry, pharmacy or veterinary science program for four or more years, students who have completed a 16-year program of school education overseas (restricted to those that include curricula providing instruction in Medicine, Dentistry, Pharmacy or Veterinary Science; the same shall apply for below items), students who have completed a 16-year school education program by taking classes in Japan through distance learning offered by a school overseas, students in Japan that have completed a course (only those students who have completed a 16-year-program of school education in the nation in question) at an educational facility that is positioned within that nation's educational system and is separately designated by the Ministry of Education; and those who will be enrolled in such a program until, or will complete such a program by, September 2021 having obtained the prescribed credits and achieved outstanding results.
- (8) Students who have enrolled in the graduate school of another university (restricted to those that include curricula providing instruction in Medicine, Dentistry, Pharmacy or Veterinary Science) in accordance with the stipulations of the School Education Law, Article 102, Item 2 (Law 26, 2010) and who have been acknowledged to possess sufficient academic abilities to receive an education at this graduate school.
- (9) Students who have been certified through individual entrance qualification screening at this graduate school to possess academic abilities either equal to or exceeding those of a university graduate, and who will have reached the age of 24 years by September 2021.

[Notes]

A university mentioned in items (1), (5), (7) and (9) above refers to a six-year university in Japan. Applicants must undergo an advanced qualification screening for application.

Please submit the following required documents to the " Graduate School of Dentistry Educational Records and Programs Section " within an application screening application period.

-Qualification Screening Period: May 24 (Mon.)-28 (Fri.), 2021

| Document | Comments |
|--|--|
| Application Form | Form provided by this graduate school. |
| Certificate of Graduation (or expected graduation) | Certificate of graduation or withdrawal from school or student registration certificate issued by the school (a university or later). Or undergraduate degree certificate issued by the National Institution for Academic Degrees and University Evaluation. |
| Academic Transcript | The academic transcript of the school (a university or later) which entered a school until now. |
| English ability certificate | Score sheet certified by an English ability examination TOEFL-iBT, IELTS, TOEIC, etc. |
| Research-activities report | about 500 word of English. |
| In addition, documents to specify | Health Certificate (please include X-ray examinations of chest, X-ray taken more than 6 months prior to the certification is NOT valid) |

4. Application Procedures

Obtain the following necessary documents and submit them to the Educational Records and Programs Section of this graduate school during the Application Period. If sending materials by postal mail, applicants must use registered mail and print "University Doctoral Course Application Enclosed" on the front of the envelope.

-Application Period: June 7 (Mon.)-11 (Fri.), 2021

| Document | Comments |
|--|--|
| Examination Ticket Photo Sheet | Form provided by this graduate school (attach photo to Photo Sheet, taken within 3 months showing head/upper body, with head uncovered, 5cm high x 4cm wide) |
| Pledge of Online Entrance Examination | Form provided by this graduate school(handwritten) |
| Application Fee | JPY 30,000 (Regarding the payment method,we will contact each of you individually) |

Notes

- (1) It is recommended to contact the professor of your major field about your research plan before turning in an application.
- (2) Incomplete or otherwise inadequate application documents may not be accepted.
- (3) If application documents are found to have been falsified, the applicant's acceptance will be revoked, even if the applicant has already enrolled.
- (4) Application documents and test fees cannot be returned for any reason whatsoever.
- (5) Application documents sent by mail will only be accepted if they arrive during the Application Period.

5. Selection Process

Comprehensive screening will be conducted based on online examination to be completed in English (specialized subject), an online interview, and the applicant's academic transcript.

*Applicants should take one specialized subject examination for each desired major field.

6. Date/Time of Examination

-Date: July 13 (Tue.), 2021

-Time

| Description | Examination Subject | Time |
|--------------------|----------------------|--------------------|
| Online Examination | Specialized Subjects | 9:00— (tentative) |
| Online Interview | | 13:30— (tentative) |

7. Examination Venue

Please take the examination at home and prepare equipment on your own. The environment should be appropriate for taking the examination.

In case candidates have difficulties in taking the examination at home, they may take it online at the Graduate School of Dentistry.

(Details will be provided when exam admission tickets are issued.)

8. Announcement of Successful Applicants

July 26 (Mon.), 2021 10:00 AM (tentative)

Examination Numbers of successful applicants will be posted on the bulletin board in front of this graduate school's Educational Records and Programs Section.

Examinees will also receive a notification of examination results by postal mail.

9. Notes

(1) Handling of Personal Information

1. Personal information gathered in the course of applicant screening shall be used to conduct relevant operations, such as selecting applicants, enrollment procedures, post-enrollment scholarships/student welfare and academic advising, or in connection with tuition collection etc., and shall not be used for any other purpose.
2. Personal information gathered in the course of applicant screening shall be handled in strict accordance with the Act on the Protection of Personal Information of Tohoku University, and shall not be disclosed/provided to third parties without the applicant's consent.
3. By applying to this graduate school, the applicant agrees to all of the above.

(2) Inquiries on Special Considerations regarding Examinations and Education

Applicants requiring special provisions in connection with the examination, or who have special educational needs, are asked to inquire in writing, making note of the following (no official form required).

Making such inquiries will not put the applicant at any disadvantage with regards to this graduate school's entrance examination.

A. Timing of inquiries: In general, inquiries are accepted during the advanced application qualification screening period.

B. Inquiries should include the following information:

1. Applicants name and address (including telephone number)
2. Name of university etc. last attended
3. Any special provisions desired in connection with the examination
4. Any special educational needs
5. Any special provisions made at the university etc. last attended
6. Any circumstances related to the applicant's day-to-day lifestyle
7. Any other reference material (applicants currently undergoing medical treatment are asked to include a doctor's diagnosis)

(3) Disclosure of Examination Score

If an applicant wishes his/her examination score disclosed, he/she should submit the designated application form and his/her examination admission card (a copy is not acceptable) within one month from the announcement of successful applicants to the Educational Records and Programs Section of the Graduate School of Dentistry.

*Please note that the applications can be accepted only on weekdays.

*The examination scores can be disclosed only to failed applicants.

(4) If you have any questions, please inquire with this graduate school's Educational Records and Programs Section.

Tohoku University School/Graduate School of Dentistry
Liaison Center for Innovative Dentistry, International Cooperation Section

4-1, Seiryomachi, Aoba-ku,
Sendai, 980-8575, Japan
e-mail: international@dent.tohoku.ac.jp

The Application and Admission Guidelines can also be viewed at the below website.
URL: <http://www.dent.tohoku.ac.jp/english/examine/doctor.html>

Tohoku University, Graduate School of Dentistry (Doctoral Course) Admissions Guide

1. Curriculum policy

The Graduate School of Dentistry formulates and implements the curriculum based on the following policy in order to enable students to achieve the aims of the Diploma Policy.

- (1) Facilitate the acquisition of sophisticated knowledge and skills in specialized fields and transdisciplinary domains by providing specialized and transdisciplinary courses necessary for dental science research, and having students develop abundant expertise in dental science, dental care, and oral health, and write a dissertation based on that expertise.
- (2) Provide opportunities to develop the high ethical standards and leadership necessary for engaging in research, and opportunities in Japan and abroad to learn about and report the latest findings in cutting-edge research.
- (3) Clearly define the standards for evaluating academic progress, and appropriately conduct exams and research reviews based on the student's doctoral dissertation, thematic research results, etc.

2. Diploma policy

The Graduate School of Dentistry confers doctoral degrees to students who successfully achieve the following aims.

- (1) Be able to complete independent, original, and transdisciplinary research in dentistry using one's abundant expertise and high-level specialized knowledge and skills.
- (2) Be able to contribute to the advancement of society and scholarship by carrying out next-generation research as a leader in dentistry who tackles societal and scholarly challenges with original ideas, high ethical standards, and a firm sense of responsibility.
- (3) Be able to lead dental research in Japan and abroad by utilizing one's international perspective and communication skills, and by disseminating world-class research findings.

3. Long-term Student System

Under some circumstances, such as the student being employed (Note 1), the student may request, and this graduate school may upon review grant, permission for the student to take and complete (Note 2) an educational program over a planned, fixed period that exceeds the standard course term of four years. Those enrolling under this system are called "Long-term Students," and must pay total tuition fees equal to those paid by students who complete their studies within the normal course term.

Students who wish to enroll under this system must inquire with this graduate school's Educational Records and Programs Section during enrollment procedures.

(Note 1): In addition to employment, childbirth/child-care, nursing-care, or other reasons may be deemed legitimate by this graduate school.

(Note 2): The term of enrollment must not exceed eight years. However, students may request to shorten their authorized course term.

4. Enrollment Procedures

Enrollment Procedures are scheduled for end of September 2021.

Details will be provided in writing along with acceptance notices.

5. Required Fees

| | |
|----------------------|--------------------|
| Admission Fee | JPY 282,000 (est.) |
| Tuition (Annual sum) | JPY 535,800 (est.) |

Details on tuition due dates and method of payment will be provided in writing along with acceptance notices.

The above fees are estimated amounts; if fee amounts are revised at the time of enrollment or during the term of enrollment, the new fees will become applicable from the time of the revision.

6. Exemption from Entrance and Tuition Fees

Persons recognized as having special difficulties paying entrance/tuition fees due to economic reasons and who are deemed to have excellent academic records, may be exempted from paying half or all of their entrance/tuition fees upon application. Students wishing to have entrance/tuition fees waived or deferred should reference the below:

[The application for entrance fee/tuition waiver, etc.]
<http://www2.he.tohoku.ac.jp/menjo/>

7. Scholarship System

Scholarships provided by various organizations and the regional government will be announced as information becomes available.

8. Personal Accident Insurance for Students Pursuing Education and Research (Gakkensai), and Personal Liability Insurance for Students Pursuing Medical Education and Research (Igakubai)

It is the insurance which has imposed a duty of subscription upon all the students in Tohoku University. Grant of the cost of medical treatment concerning the injury in training, a lecture, attending school, and extracurricular activities and security at the time of burdening others with an injury or destroying equipment are carried out.

The insurance premium is JPY5,370 for four years.

9. Inbound Futaigakusou (Supplementary Comprehensive Personal Liability and Accident Insurance for International Students Enrolled in Gakkensai)

Inbound Futaigakusou is an insurance system that provides around-the-clock, enhanced coverage for injuries, illnesses, rescue fees, and liability in everyday life, enabling international students to live in Japan with a greater sense of security. In order to enroll in Inbound Futaigakusou, you must be enrolled in Gakkensai (Personal Accident Insurance).

All international students entering Tohoku University are asked to enroll in insurance.

Premiums (Examples) (Single payment that covers entire enrolled period) :

2 years JPY 20,130

4 years JPY 37,410

Major Field/Professor/Main Research Topics

*Applicants are advised to contact their academic advisor before applying.

| Course etc. | Major Field/Professor | Main Research Topics |
|----------------------|---|--|
| Ecological Dentistry | Oral Ecology and Biochemistry Nobuhiro Takahashi | <ul style="list-style-type: none"> • Genomics, proteomics and metabolomics of oral microbial ecosystem (oral biofilm) • Biochemical and molecular biological studies on metabolism and pathogenicity of microorganisms associated with dental caries, periodontal disease and oral malodor, using an anaerobic experimental system • Biochemical studies on caries-preventive properties of fluorides and sugar alcohols • Evaluation of cariogenic potential of food products and sweeteners by pH-telemetry using miniature transistor pH electrode • Biochemical studies on oral biofilm-induced deterioration of dental biomaterials • Metabolomic approach to oral cancer cells |
| | Oral Microbiology | |
| | Oral Molecular Bioregulation Shunji Sugawara | <ul style="list-style-type: none"> • Immune regulations in oral mucosal cells • Mechanisms of metal allergy development • Molecular mechanism of salivary gland diseases • Regulation of inflammation by biotin • Histamine in immunology and physiology • Role of chronic allergic inflammation in oral infectious diseases • Role of epithelial barrier dysfunction in oral infectious diseases • Regulation of oral mucosal homeostasis by oral commensal bacteria • Innate immune responses of bacterial cellular components |
| | Periodontology and Endodontology Satoru Yamada | <ul style="list-style-type: none"> • Study on an onset-mechanism of endodontic/periodontal diseases using molecular biological approach • Development of objective diagnosis of disease conditions in endodontic/periodontal disease • Development of endodontic/periodontal therapy with use of bioactive molecules and growth factors • Study on an interaction between endodontic/periodontal diseases and general status • Study on an endodontic/periodontal therapy with use of laser • development of a novel biomaterial scaffold for periodontal regeneration |
| | Operative dentistry Masahiro Saito | <ul style="list-style-type: none"> • Development of tooth regeneration therapy • Investigation of molecular mechanisms that regulate periodontal ligament regeneration • Conservative dentistry for cardiovascular disease • Cell transplantation therapy for periodontal disease • Development of novel dental material that posses anti-inflammatory ability |

| Course etc. | Major Field/Professor | Main Research Topics |
|----------------------------|--|---|
| Community Social Dentistry | International Oral Health Ken Osaka | <ul style="list-style-type: none"> • Analysis of dental systems and oral health problems by international comparison and the control strategy • Research on effective oral care in Japanese nursing insurance and the medical system • Research on cultivating methods and human resources involving international activities to promote oral health |
| | Dental and Digital Forensics Keiichi Sasaki (collateral office) | <ul style="list-style-type: none"> • Morphological studies on the human skeletal remains • Application of dental information in identification • Mass fatality incident management and assistance • Morphological studies on the teeth of Japanese • Comparative odontology on the mammals |
| | Preventive Dentistry Takeyoshi Koseki | <ul style="list-style-type: none"> • Study of diagnosis and prevention of early caries of enamel and root surfaces • Study of etiology of halitosis and development of diagnostic tools • Oral environment control focusing on saliva, for prophylaxis of dental caries and periodontal disease • Developing preventive measures for systemic diseases such as cardiovascular disease and aspiration pneumonia through maintaining oral health • Health management of oral mucosa under systemic medical intervention (prevention of cancer treatment-induced oral mucositis) • Development of mass screening methods of dental diseases |
| | Pediatric Dentistry Satoshi Fukumoto | <ul style="list-style-type: none"> • Identification of novel gene associated with tooth development • Study of enamel formation • Analysis of affected gene in oral disease • Study of tooth germ and salivary gland using organ culture • Study of genetic oral disease and stem cell research • Development and evaluation of new materials for the prevention of dental caries |
| | Craniofacial Anomalies Kaoru Igarashi | <ul style="list-style-type: none"> • Research on the diagnosis and treatment of craniofacial anomalies, including cleft lip and palate • Research on the role of immune cells in osteoclastogenesis • Research on growth and development of children with cleft lip and palate • Objective evaluation of oral sensation with somatosensory evoked magnetic fields • Development of a new anti-inflammatory bisphosphonate that also promote bone formation |
| | Orthodontics and Dentofacial Orthopedics Itaru Mizoguchi | <ul style="list-style-type: none"> • Development of temporary anchorage devices for orthodontic treatment • Evaluation on outcomes of orthodontic treatment • Study on the relationship between malocclusion and orofacial function • 3D simulation of surgical orthodontic treatment • Clarification of biomolecular mechanism of orthodontic tooth movement • Clarification of biomolecular mechanism of craniofacial development • Clarification of responses of osteocytes, periodontal tissue cells and chondrocytes against mechanical stress • Development of orthodontic materials • Clarification of regulatory mechanism in endochondral ossification • Development of acceleration techniques of orthodontic tooth movement with physical stimulation • Study on effects of joint loading on extracellular matrix (ECM) expression of temporomandibular joint |

| Course etc. | Major Field/Professor | Main Research Topics |
|------------------------------|---|---|
| Disease Management Dentistry | Oral Physiology Junichi Nakai | <ul style="list-style-type: none"> • Neural mechanisms of sensory and motor system • Psychophysical studies on gustatory function and oral fat sensitivity • Molecular mechanisms of mechanical stress reception in periodontal tissues • Molecular mechanisms of differentiation, regeneration, and apoptosis in osteoblasts and neurons |
| | Dental Pharmacology Minoru Wakamori | <ul style="list-style-type: none"> • Functional analysis of Ca²⁺-permeable cation channels • Molecular and neurobiological studies of taste, pain and mechanical stress |
| | Oral Pathology Hiroyuki Kumamoto | <ul style="list-style-type: none"> • Molecular investigation on lesions of the jawbones • Clinicopathological and genetic investigation on tooth development anomaly • Clinicopathological and immunohistochemical investigation on oral immune diseases and cancer • Investigation on regeneration therapy using biomaterials |
| | Dental Informatics and Radiology Masahiro Iikubo | <ul style="list-style-type: none"> • Development of new medical devices. • Imaging diagnosis of oral and maxilla-facial lesion. • Study on the relationship between systemic diseases and oral conditions. |
| | Oral and Maxillofacial Surgery Tetsu Takahashi | <ul style="list-style-type: none"> • Research on morphological and functional reconstruction in the oral and maxillofacial area • Research on bone augmentation using distraction osteogenesis and periosteal expansion • Research on bone augmentation for implant placement • Research on dento-alveolar reconstruction in cleft lip/palate patients • Research on pathophysiology of temporomandibular joint disorders • Basic and Clinical research on bone substitute • Research on control of growth and invasion of oral cancer • Research on surgical reconstruction for oral cancer • Development of dental implant materials with property of osteoinduction |
| | Dento-oral Anesthesiology Kentaro Mizuta | <ul style="list-style-type: none"> • Exploring novel therapeutic targets for bronchospasm, asthma, and COPD. • Exploring pathogenesis of orofacial pain by in vivo multiscale brain imaging. • Development of artificial intelligence-assisted robotic system for anesthesia. • Development of new strategies to expand regulatory T cells for the therapy of allergic and autoimmune diseases. • Clarification of the regulatory mechanisms of histamine production and its function. |
| | Comprehensive Dentistry Masahiko Kikuchi | <ul style="list-style-type: none"> • Research on periodontal tissue regeneration by applying periodontal ligament cells • Research on the relationship between deficit of teeth, periodontal disease and systemic illness • Research on circadian rhythm of toothache • Oral hygiene and oral microorganisms common in senior citizens • Development of effective treatment methods in primary care |

| Course etc. | Major Field/Professor | Main Research Topics |
|------------------------------|--|---|
| Rehabilitation Dentistry | Oral and Craniofacial Anatomy Hiroyuki Ichikawa | <ul style="list-style-type: none"> •Gross anatomical studies on human oro-facial structures •Nociceptive transduction from oro-facial regions •Innervation of pharynx and its adjacent regions for swallowing |
| | Craniofacial Development and Tissue Biology Yasuyuki Sasano | <ul style="list-style-type: none"> •Development, regeneration and healing of bones and teeth •Regulatory mechanisms of calcification •Remodeling of extracellular matrices in calcified tissues •Regulatory mechanisms of extracellular matrices on cell differentiation in calcified tissues |
| | Dental Biomaterials Osamu Suzuki (collateral office) | <ul style="list-style-type: none"> •Development of new dental titanium alloys and their clinical application •Research on mild antimicrobial or bacteriostatic dental alloys •Research on functional devices and dental applications using magnets •Research on new cutting-free dental materials suited to the CAD/CAM system •Research on deterioration and safety of dental materials in an oral cavity |
| | Craniofacial Function Engineering Osamu Suzuki | <ul style="list-style-type: none"> •Synthetic biomaterials used for hard tissue regeneration, including bone, tooth and the related tissues •Bone regeneration by octacalcium phosphate (OCP) originally synthesized •Biom mineralization of OCP and other calcium phosphates to form hydroxyapatite (HA) •Drug delivery systems for bone regeneration •Biomaterial surface and protein adsorption |
| | Advanced Prosthetic Dentistry Keiichi Sasaki | <ul style="list-style-type: none"> •Biomechanics and mechanobiology for stomatognathic morphology and function based on in vivo measurements and evaluation •Studies on transplantation, regeneration and construction for prosthodontics, implantology and maxillofacial rehabilitation •Studies on development and clinical application of novel biomaterials and creation of novel interfaces for prosthodontics, implantology and maxillofacial rehabilitation •Developmental and translational research for novel dental treatment technology and dental equipment based upon multi-disciplinary research and academia-industrial collaboration •Studies on clinical outcome of prosthodontics, implantology and maxillofacial rehabilitation |
| | Molecular and Regenerative Prosthodontics Hiroshi Egusa | <ul style="list-style-type: none"> •iPS cell-based oral tissue engineering •Regulation of functions and differentiation of iPS cells •Biomimetic materials for bone tissue engineering •Chemical biology for bone regenerative medicine •Osteo-immunology in alveolar bone resorption •Development of genome-based diagnostics for dental treatments •Basic and clinical research on CAD/CAM-generated restorations |
| | Aging and Geriatric Dentistry Yoshinori Hattori | <ul style="list-style-type: none"> •Analysis of causal relationship of oral and systemic health through large-scale cohort study •Development of evaluation methods of oral functions by applying and combining diverse modalities •Research on characteristics of oral functions and their change with age •Development of evaluation methods and criteria for determining the indication of dental treatment for the elderly •Study on the delivering system of multidisciplinary dental care for the elderly |
| Innovative Liaison Dentistry | International Collaborative and Innovative Dentistry Guang Hong | <ul style="list-style-type: none"> •Development of functional biomaterials •Rheology of biopolymer materials •Development of metal free dental implant materials •Establishment of the International Standard of dental materials |
| | Co-Creative Dentistry Hiroyasu Kanetaka | <ul style="list-style-type: none"> •Translational research on medical device / material development •Regulatory science through industry-government-academia collaboration •Formulation of international and domestic guidelines for various medical devices and materials •Development of advanced medical device / material through interdisciplinary research •Development of medical system applying the latest AI technology •Brain function analysis for oral functions |