

2023/2024 Academic Years
Graduate School of Integrated Sciences for Life
Hiroshima University

Application Guidelines

General Selection

Master's Course

(October 2023/April 2024 Admissions)

May 2023

Hiroshima University

Admissions Policy <Master's Course>

The Graduate School of Integrated Sciences for Life, based on its Diploma Policy and Curriculum Policy, expects to admit master's students as described below.

Students who:

1. Have strong eagerness to learn, who wish to acquire deep expertise and understanding in a wide range of fields from the basics to applications that include medical treatment in the areas of study related to biology and life sciences, and who have basic academic knowledge for that purpose;
2. Wish to acquire interdisciplinary problem-searching and problem-solving abilities, which can integrate and link different fields, along with broad general education, without being constrained by conventional frameworks of research fields, and to create "science that can guide sustainable development"; and
3. Are aware of both academic fields and the real world, and who wish to acquire international and interdisciplinary communication skills as well as practical capabilities in society.

In order to admit such individuals, this Graduate School selects applicants through a multifaceted and comprehensive evaluation process based on its own Diploma Policy and Curriculum Policy, using interviews, academic tests, and external examinations.

1. Type of Students We Seek

[Program of Biotechnology]

Based on its Diploma Policy and Curriculum Policy, this program expects to admit students as described below.

Students who:

1. Have acquired an education at the level of completing an undergraduate of university course and basic knowledge in biological sciences and bioengineering as their special field of study;
2. Have a high level of interest in the bioengineering field, as well as the ambition and strong will to carry out research to its end;
3. Have a logical thinking ability and communication skills to verbally express their logical thinking;
4. Have acquired a command of English at the level of completing an undergraduate of university course or higher; and
5. Have acquired common sense and ethical standards as a working member of society.

In order to admit such individuals, this program selects applicants through a multifaceted and comprehensive evaluation process based on its own Diploma Policy and Curriculum Policy, using interviews, academic tests, and external examinations.

[Program of Food and AgriLife Science]

Based on its Diploma Policy and Curriculum Policy, this program expects to admit students as described below.

Students who:

1. Have a high level of interest in theories and methods of understanding and utilizing foods and biological functions from the perspective of molecules and cells;
2. Have a high interest in finding and solving problems from a scientific perspective regarding creatures' diverse functions and the advanced use of food resources;
3. Have acquired a command of English at the level of completing an undergraduate of university course or higher;
4. Have acquired abilities at the level of completing an undergraduate of university course or higher regarding the knowledge, attitude, and skills related to their desired foods and life science fields; and
5. Have acquired common sense and ethical standards as a working member of society.

In order to admit such individuals, this program selects applicants through a multifaceted and comprehensive evaluation process based on its own Diploma Policy and Curriculum Policy, using interviews, academic tests, and external examinations.

[Program of Bioresource Science]

Based on its Diploma Policy and Curriculum Policy, this program expects to admit students as described below.

Students who:

1. Have a high level of interest in systematically understanding life phenomena related to the production and use of biological resources based on the studies from the molecular level to ecosystems basis;
2. Have a high interest in understanding and dissolving various problems in the production of biological resources from regional to global scopes regarding roles and trends of biological resources in food production, their application to human life, and their relationships with the natural environment;
3. Have acquired a command of English at the level of completing an undergraduate of university course or higher;
4. Have acquired abilities at the level of completing an undergraduate of university course or higher regarding knowledge, attitude, and skills related to their desired biological resources and science fields; and
5. Have acquired common sense and ethical standards as a working member of society.

In order to admit such individuals, this program selects applicants through a multifaceted and comprehensive evaluation process based on its own Diploma Policy and Curriculum Policy, using interviews, academic tests, and external examinations.

[Program of Life and Environmental Sciences]

Based on its Diploma Policy and Curriculum Policy, this program expects to admit students as described below.

Students who:

1. Have a broad interest in the life science fields from the molecular level to whole environments and ecosystems, and who wish to acquire basic research abilities for a specific field and to learn the theories and methods of understanding and utilizing these abilities from a comprehensive perspective supported by related expertise and skills;
2. Wish to understand various problems existing in life science and environmental science, and to solve them in cooperation with organizations outside the university and the international community;
3. Wish to play an active role as a generalist who covers areas outside life science and environmental science without being constrained by their own expertise;
4. Have acquired a command of English at the level of completing an undergraduate of university course or higher;
5. Have acquired abilities at the level of completing an undergraduate of university course or higher regarding knowledge, attitude, and skills related to their desired specialized fields; and
6. Have acquired common sense and ethical standards as a working member of society.

In order to admit such individuals, this program selects applicants through a multifaceted and comprehensive evaluation process based on its own Diploma Policy and Curriculum Policy, using interviews, academic tests, and external examinations.

[Program of Basic Biology]

Based on its Diploma Policy and Curriculum Policy, this program expects to admit students as described below.

Students who:

1. Have acquired basic knowledge and skills in biology at molecular, cellular, individual, ecological, and evolutionary levels that should have been acquired in the related faculties;
2. Have acquired a command of English at the level of completing an undergraduate of university course or higher; and
3. Have acquired common sense and ethical standards as a working member of society.

In order to admit such individuals, this program selects applicants through a multifaceted and comprehensive evaluation process based on its own Diploma Policy and Curriculum Policy, using interviews, academic tests, and external examinations.

[Program of Mathematical and Life Sciences]

Based on its Diploma Policy and Curriculum Policy, this program expects to admit students as described below.

Students who:

1. Are equipped with basic academic abilities in the fields of mathematics, physics, chemistry, and biology;
2. Have an ambition to open up a new research field for the mathematical science, molecular science, and life science fields as well as integrated fields;
3. Have acquired a command of English at the level of completing an undergraduate of university course or higher; and
4. Have acquired common sense and ethical standards as a working member of society.

In order to admit such individuals, this program selects applicants through a multifaceted and comprehensive evaluation process based on its own Diploma Policy and Curriculum Policy, using interviews, academic tests, and external examinations.

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The Graduate School of Integrated Sciences for Life, Hiroshima University, is recruiting students for the Master's Course in the Department of Integrated Science for Life to be enrolled in October 2023 / April 2024.

1. Number of Students to Be Recruited and Venue for Examinations, etc.

	Program	Number of students to be recruited	Examination Date	Examination Venue	Inquiries & Submission addresses	
Department of Integrated Sciences for Life	Biotechnology	October 2023 Admission A few	August 22, 2023 (Tue)	School of Integrated Arts and Sciences, Hiroshima University	Support Branch Office for the fields of Science, Hiroshima University 1-3-1, Kagamiyama, Higashi-Hiroshima, 739-8530 TEL: (082) 424-7008, 7009	
	Food and AgriLife Science				Support Office for the fields of Biosphere Science (Graduate Student Affairs), Hiroshima University 1-4-4, Kagamiyama, Higashi-Hiroshima, 739-8528 TEL: (082) 424-7908	
	Bioresource Science				Support Office for the fields of Integrated Arts and Sciences (Graduate Student Affairs), Hiroshima University 1-7-1, Kagamiyama, Higashi-Hiroshima, 739-8521 TEL: (082) 424-6316	
	Life and Environmental Sciences	April 2024 Admission 85				Support Office for the fields of Science (Graduate Student Affairs), Hiroshima University 1-3-1, Kagamiyama, Higashi-Hiroshima, 739-8526 TEL: (082) 424-7309, 4468
	Basic Biology					
	Mathematical and Life Sciences					
	Biomedical Science					

2. Applicant Eligibility

Applicants must satisfy one of the following qualifications or be expected to receive any one of the following qualifications by September 30, 2023(for October 2023 admission) or by March 31, 2024 (for April 2024 admission). Applicants shall be residing in Japan and must make an affirmation of admission when applicants will pass the entrance examination.

- (1) have graduated from a Japanese university;
- (2) have completed a 16-year course of formal education outside Japan;
- (3) have taken a correspondence course from an overseas educational institution in Japan and completed a 16-year course of formal education;
- (4) have completed an undergraduate course of an overseas-based educational institute located in Japan that has been approved by the Minister of Education, Culture, Sports, Science and Technology (MEXT), whose graduates are regarded as having completed 16-year course of formal education.
- (5) have been conferred, a degree equivalent to a bachelor's degree through attending an overseas university or other overseas school (limited to those whose education and research activities have been evaluated by persons who have been certified by the relevant country's government or a related institution, or have been separately designated by the Ministry of Education, Culture, Sports, Science and Technology as being equivalent to such) and graduated from a course that requires 3 or more years to complete (Includes graduating from a course implemented by the relevant overseas school while living in Japan through distance learning, as well as graduating from a course implemented by an educational facility established with the relevant overseas country's school education system and has received the designation mentioned above).

Be sure to contact each support office in charge of the program before the application period, if you think you have academic achievements equivalent to or higher than those having completed an undergraduate course at a university.

3. Application Procedures

(1) Application methods

Applicants are required to apply using “online application system”, and send the necessary documents by post. (Partially online application hereinafter referred to as “online application”)

<Online application>

- 1) Enter your personal information.
- 2) Pay the application fee, 30,000 yen.
- 3) All application documents must be either sent by mail or delivered in person to the aforementioned address.

Note: Online application, entering necessary information on the website and paying the application fee, is the initial registration process, and doesn't mean the completion of the application procedure. **The application procedure wouldn't be completed without either sending or delivering in person all the necessary application documents by the due date.** Be sure to send or bring in person all the necessary application documents to the support office (the aforementioned address). Application documents must arrive within the specified period at the support office. Fully paper -based application without registering online application cannot be accepted in this graduate school.

(2) Application period

Applicants must complete all of the above procedures (from 1 to 3 in (1)) within the application period.

From July 19, 2023 to July 25, 2023 (No later

(3) Online application

↳ Inquiries regarding entrance examination system

Online Application Helpdesk (*Japanese speaking only)

Inquires accepted from 10:00 am to 6:00 pm (*Except Saturday, Sunday and national holidays until July 31)

Tel: 03-5952-3902

UCARO Support Office (*Japanese speaking only)

Inquires accepted from 10:00 am to 6:00 pm (*Except from December 30 to January 3)

TEL: 03-5952-2114

↳ If you have any questions regarding the entrance examination, please contact the support office stated on page 5 in these guidelines. Inquiries are accepted from 9:00 to 17:00. (Excluding Saturday, Sunday, and national holidays)

<How to apply > **Complete the following eight steps within the application period stated below:**

Step 1: Access the online application system

Access the online application system from the Hiroshima University Admissions Information web page:

<https://www.hiroshima-u.ac.jp/en/nyugaku>

Step 2: Select Membership 5 H J L V W the UCARO Log in Screen.

Hiroshima University uses the UCARO website for the process from the application to enrollment procedures.

UCARO is an Internet application and enrollment procedure support system.

Account registration for UCARO is required for all applicants (free of charge) and it enables applicants to use the above online application system and complete the enrollment procedures.

Step 3: (If you have, otherwise, skip 3) Enter the Account

Enter the alphanumeric code (consisting of 8 or more characters) which you received from the Graduate School.

Applicants who wish to exempt the entrance examination fee should contact the support office (page 5) before applying. Those applicants who are judged to be applicable will receive the Account.

Step 4: Input your application data into the Internet application system

Follow the instruction on the screen and enter your name, address, etc.

Step 5: Confirm the necessary documents and upload photo

Confirm the necessary documents when they are shown and upload a digital photo of yourself.

↳ The uploaded photo, which will be used for identification at the examination, will be also used for your student ID card after enrollment and will be maintained in the university's educational system until graduation.

Therefore, please upload an appropriate photo for use after enrollment as well.

Once uploaded, your photo will not be allowed to be replaced.

A fee of JPY 1,000 will be charged for changing the content of your student ID card (photo and your name) after enrollment.

(4) Documents to be submitted (Specified forms can be downloaded from the Home Page.)

A	Academic Transcripts	Should be prepared and signed by the president/dean of the university from which you have graduated and sealed securely.
B	Certificate of (Expected) Graduation	<p>Should be prepared and signed by the president/dean of the university from which you have graduated.</p> <p>*If you are a graduate or a current student of a university in China, please obtain the following document by requesting it at “ p\9x¼ M*ñ Û #m[“ M7iÉ (CHSI)” (http://www.chsi.com.cn/xlcx/bgys.jsp), and submit it to us together with “;¼ [‘M (Certificate of Graduation” and “ Û>& H<>' Û) [‘M (Bachelor/Master's Diploma)”.</p> <p>í Graduates: Online Verification Report of Higher Education Qualification Certificate (M*ñ4Š Û#m[“ ME Ê @ Ê(î L²)</p> <p>í Expected Graduates: Online Verification Report of Student Record (M*ñ4Š Û(~ N!js[“2CE ì)</p> <p>Please note that applicants must pay the issuing fee for the Online Verification Report (2 –/ certificate) by themselves. Also be sure that there are 15 or more days left until the expiration date of the online verification at the time of its submission.</p>
C	Score Certificate of English Proficiency Tests (The certificate will be returned to you after confirmation by the office.)	<p>Submit a score certificate (original) of English language proficiency tests administrated by outside organizations. (*The score certificate must be ORIGINAL (not copy).)</p> <p>If you have score certificates of more than one test, you may submit them all. In that case, the highest score will be adopted.</p> <p>The types of tests should be any of the following:</p> <ul style="list-style-type: none"> - TOEIC®Test - TOEIC®-IP (including College TOEIC®) - TOEFL®-PBT - TOEFL®-ITP - TOEFL®-iBT - IELTS™ - The EIKEN Test in Practical English Proficiency>&EIKEN>' - Cambridge English - GTEC (Limited to CBT type) - TEAP>& skills>' - TEAP CBT>& skills>' <p>TOEIC e-IP>&Online test>' is not applicable.</p>
D	Curriculum vitae	(Use the official form) All the schools/educational institutions you have enrolled in shall be written.
E	Research Plan	(Use the official form) Submit the research plan in master’s course written in about 400 English words.
F	Return Envelope	A self-addressed standard-size envelope with appropriate postage (stamps)

(5) Address for submission of application documents:

Please see page 5 of these application guidelines.

(6) Pre-arrangements for special needs applicants

Those who require special consideration for taking examinations and/or pursuing an academic program due to a disability or other legitimate reason must first contact the Support Office (see page 5) and then submit a statement of information as described below (in free format) to provide advance notice so that necessary arrangements may be made.

(a) Period of statement submission: From July 5, 2023 to July 7, 2023

(b) Information to include in the statement

[1] Applicant's name, address, and contact telephone number

[2] Name of the last school attended, the name of program in which you wish to enroll, and the name of the expected academic supervisor

[3] Type and degree of disability (If you are being treated, please submit a medical certificate.)

[4] Requested consideration regarding examinations

[5] Requested consideration after enrollment

[6] Arrangements made at school(s) previously attended

[7] Description of daily life

4. Examination Date and Time

Examination Date	Examination	Time
August 22 (Tue), 2023	Specialized subject I	9:00 – 10:30
	Specialized subject II	11:00 – 12:30
	Interview (oral) (about 10minutes/person)	14:00-

5. Details of Examinations

(1) Written Examination

Program	Subject of Written Examination (score) *<Note>
í Biotechnology í Food and AgriLife Science í Bioresource Science í Life and Environmental Sciences í Basic Biology í Mathematical and Life Sciences í Biomedical Science	Specialized subject I (150 points) Specialized subject II (150 points)

<Note> Please see below for details regarding specialized subjects.

Program of Biotechnology

Specialized subject I: Select two subjects from the following four subjects:

Biochemical Engineering, Microbiology, Fundamentals of Biotechnology I, and Fundamentals of Biotechnology II.

* Fundamentals of Biotechnology I and Fundamentals of Biotechnology II:
Questions on general knowledge of the application of biotechnology will be presented in essay format.

** Students are required to take two subjects from the four subjects:

Biochemical Engineering, Microbiology, Fundamentals of Biotechnology I and Fundamentals of Biotechnology II.

* * In Special Subjects I, those who have graduated (or are expected to graduate) from the Program of Biotechnology in Cluster 3, the Faculty of Engineering, Hiroshima University, are required to take Biochemical Engineering and Microbiology. Students other than the above should select any two subjects from the following four subjects:
Biochemical Engineering, Microbiology, Fundamentals of Biotechnology I, and Fundamentals of Biotechnology II.

Specialized subject II: Two subjects. Molecular Biology and Biochemistry

ÖProgram of Food and AgriLife Science

Specialized subject I: An essay-based exam to qualify a person for the admission policy of the Food and AgriLife Science program.

Please refer to the page 1 for admission policy.

Specialized subject II: Specialized subject of the applicant's expected academic supervisor

Please refer to the home page of Graduate School of Integrated Sciences for Life
(<https://www.hiroshima-u.ac.jp/en/ilife/research/food-and-agrilife-science>)

6. Screening Criteria

Screening will be based on the results of examinations (written examination and interview) and the interview.

(1) 150 points will be allocated to the test in a specialized subject I. 150 points will be allocated to the test in a specialized subject II.

(2) 150 points will be allocated to foreign language proficiency.

Evaluation of applicants' foreign language proficiency will be based on the conversion to a maximum of 150 points according to the following conversion formula using score certificate of English language proficiency administrated by outside organizations submitted at the time of application.

Conversion formula

$$\text{TOEIC}^{\text{®}} \text{ Test} / \text{TOEIC}^{\text{®}}\text{-IP} = 150 \times (\text{Score of TOEIC}^{\text{®}} / 990)^{0.75}$$

$$\text{TOEFL}^{\text{®}}\text{-PBT} / \text{TOEFL}^{\text{®}}\text{-ITP} = 150 \times \{(\text{Score of TOEFL}^{\text{®}} - 310) / 367\}^{0.75}$$

Score certificates for English language proficiency test other than the above, please check the conversion table below.

Conversion table of score for English language proficiency tests other than TOEIC e Test>*

TOEIC e-IP>*TOEFL e-PBT, and TOEFL e-ITP

English Proficiency Tests Foreign Language Proficiency (Max. of 150 points)	Cambridge English	The EIKEN Test in Practical English Proficiency >EIKEN>'	GTEC (Limited to CBT type)	IELTS™	TEAP (4 skills)	TEAPCBT (4 skills)	TOEFL iBT®
150	200 - 230			8.5 - 9.0			
145	180 - 199	Grade 1	1350 - 1400	7.0 - 8.0	375 - 400	800	95 - 120
126	160 - 179	Grade Pre-1	1190 - 1349	5.5 - 6.5	309 - 374	600 - 795	72 - 94
97	140 - 159	Grade 2	960 - 1189	4.0 - 5.0	225 - 308	420 - 595	42 - 71
49	120 - 139	Grade Pre-2	690 - 959		135 - 224	235 - 415	
31	100 - 119	Grade 3	270 - 689				

,Q WKH LQWHUYLHZ \$SSOLFDQWV· XQGHUVWDQGLQJ RI KLV studying at the Graduate School, and purpose of research will be discussed and evaluated.

7. Announcement of Successful Applicants

12:00 (expected), Friday, September 1, 2023

- (1) Successful applicants' ID numbers will be released on the bulletin board belonging to each support office (page 5) and the website of the Graduate School of Integrated Sciences for Life, Hiroshima University.
- (2) The Graduate School will send letters of acceptance to successful applicants. If you do not receive the letter by Wednesday, September 6, even if your ID number is on the list of successful applicants, please inquire at each support office (page 5).
- (3) Please note that the announcement of the website will be unofficial. Official announcement will be made via the bulletin board and the letters of acceptance. The office will not accept inquiries by phone regarding the results of the examinations.

8. Enrollment Fee and Tuition Fee

Payment

Enrollment Fee: ¥282,000

Tuition Fee: ¥535,800 per year (¥267,900 per semester)

- (1) The enrollment fee, once paid, will not be refunded for any reason.
- (2) The enrollment fee and tuition shown above were correct as of April 2023. If they are changed, students must pay the revised amount.
- (3) Details of enrollment procedures, which will be conducted in mid-September, 2023 for October 2023 admission, and will be conducted in mid-March, 2024 for April 2024

11. Examination Information Disclosure

The disclosure of examination results (considered as personal information) may be requested in the following manner:

(1) Obtain an examination information disclosure application form:

Write to the address below, indicating on the envelope "Examination Information Disclosure Application Form Request," enclosing a self-addressed return envelope (long No. 3 type, 120 mm×235 mm) bearing the examinee's name, address and postal code and an 94 yen stamp.

(2) Complete the examination information disclosure application form, and send by post the documents listed below between April 1 and May 31, 2024(postmarked) to the address mentioned page 5.

q Completed examination information disclosure application form

r Original Examination Card for the admission examination of the Graduate School of Integrated Sciences for Life, Hiroshima University (a copy will not be accepted; the original Card will be returned at the time of information disclosure)

D! Self-addressed return envelope (long No. 3 type, 120 mm × 235 mm) bearing the examinee's name, address and postal code and a 414 yen stamp.

Disclosure Applicants may be requested to correct any submitted documents found to be inappropriate.

(3) The Graduate School of Integrated Sciences for Life will send a notice of examination information disclosure to the Disclosure Applicant by simplified registered mail within 30 days from the receipt of the application form.

12. Frontier Development Program for Genome Editing

Hiroshima University launched the Frontier Development Program for Genome Editing, an integrated Master's-PhD course, with the aim of training PhD students to introduce innovations to society. This program consists of the Life Science Course (5-year curriculum) and the Medical Course (4-year curriculum) in order to provide students with opportunities to acquire basic and applied knowledge and to learn techniques of genome editing. This program enables students to master genome editing technology and connect it directly to industry.

° Admission

Hiroshima University seeks students who wish to enroll in the Life Science Course (5-year curriculum) of the "Frontier Development Program for Genome Editing" in October 2023 and April 2024.

[Admission Requirements]

Those who took/will take the entrance examinations for October 2023 or April 2024 enrollment of the Master's Course of the Graduate School of Integrated Sciences for Life.

1. Prospective students of the program must have passed the above-mentioned examinations by the date of the interview as a first step.
2. All applicants must choose a prospective advisor from the list of faculty members and consult him/her about the relevance of the program to the activities they wish to conduct.

Please refer to the website for the admission information.

(URL><https://genome.hiroshima-u.ac.jp/en/recruitment/index.html>)

° Life Science Course (5-year curriculum)

In the first and second years, students will learn basic and advanced genome editing techniques. From the third year, they will conduct research utilizing the knowledge they have acquired. Through basic courses on social implementation of technologies and internships, they will be trained to become experts able to work at the cutting edge of genome editing technology.

*Students of this program are required to satisfy the requirements of both their major in the graduate school and this program simultaneously.

° Economic assistances

We currently provide students of the program with financial supports mentioned in (1), (2), and (3) below.

>&>' 50,000 yen per month will be provided for six months for up to three students who are recognized as displaying excellent academic performance and having outstanding achievements in academic activities after enrolling. This begins from the following semester after enrolment in the program. (Details of the application procedure will be announced after admission.)

>&>' Free tuition will be provided for third and later years of the Life Science Courm wc SM

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F·\F·MF·(Academic Staff	%EF·F·2F·F·ÆF·F· Research Fields	G;GSG)GSGW Keywords
M> > 5 Professor &ÄF· ä/n Tsunehiro AKI	<p>μ+ ö +!G"#Ō#ŌFéG #Ō"@FpG@G\Gn*ñ' FøFifp ū H . H i Ū H G^G2G8G6G[GyG<GŠ j)%G Fp Å#Y Ž G"G FæFçFî%Ê'2</p> <p>Genomic breeding of oleaginous microorganisms for provision of new health foods, pharmaceuticals, chemicals and sustainable bioenergy.</p>	<p>+!2Ad ŪH #Ō@G#G2#HG#G2#G GcG/G2GXGxGŠ Lipid engineering, Microbial biotechnology, Biorefinery</p>
M> > 5 Professor šF· ò Ê Yoshiko OKAMURA	<p>•RG^G=GTGxG0Fp •%±G%• <#YFp4G Ê2(;G"0Ž Ō FçFŌ •/j6â\$Ī"/œFŌH 4G Ê2(;G" w#Y"@2A#Ō#ŌFŪ FéG GIGxG•G^G2G8GTG=G\G(GFGŠ •RG^G=GTGxG0Fp5 "7Ÿ" + ŠG"H GzG0GoGMGyG% 2(; G pFçH 5 "GXG\(\ ÊFŪ š nFéG G^G2G8GmG[GwG GEGuG•</p> <p>Marine Biotechnology: Development of new technologies using marine bacterial metagenome to produce useful materials. Biomineralization: Recovery of heavy and mild metals and rare earth elements, and nanoparticle formation.</p>	<p>GIGxG•G^G2G8GTG=G\G(GFGŠ G[GwGxGJGŠGEGuG•H G^G2G #Ō#Ō >ŭ? ? ? ? ? > H> ? ? ? ? ? ? ? ? ? ? Biomineralization, Biofuel production</p>
M> > 5 Professor •(F·ç M Junichi KATO	<p>#" CG^G2G8GTG=G\G(GFGŠH #" C2 , 3M öH #" C w i GpGYGMGxG•G>G FpG^G2G8GTG=G\G(GFGŠFp4:# GTG=G\G(GFGŠH #Ō"@ μ+ G" q#YFçFî#" C4: œ #Ō# GGFp ò% •/j6â\$Ī</p> <p>Environmental Biotechnology: Development of new biotechnology for bio-remediation, bioprevention, and biomonitoring. Chemical Biotechnology: Development of bioprocess for production of fine and commodity chemicals using solvent tolerant bacteria.</p>	<p>#" CG#G2G8GTG=G\G(GFGŠH (Ê #Ō "@#Ō Å d ŪH #Ō /0•y Environmental biotechnology, Molecular microbiology, ecological engineering, Biocatalysis</p>
M> > 5 Professor •F· G Seiji KAWAMOTO	<p>G0GzGyG<GŠFp\$Ī\$UG% \$μFp (Ê \$? ŪFø ,0d \$ª 26 \$ĪH G0GzGyG<GŠ"¼!V\$U ö7"SSG" £75FéG μ+ ö8x F \$ĪH \$? 6 1 _ μ SFpŌŽ ÄFø a æ \$? š D cG% ,0d !V\$U. 6â\$ĪG Fp p. Ž6ä</p> <p>We are interested in the molecular mechanisms underlying the pathogenesis of allergic disorders. We are also searching for anti-inflammatory foodstuffs, which are useful to prevent atopic and proinflammatory disorders. Another ongoing project is to elucidate mechanisms involved in the establishment of immune tolerance, and its application to the development of novel immunosuppressants and anti-inflammatory drugs.</p>	<p>G0GzGyG<GŠFp\$Ī\$UG% \$μFp (Ê \$? ŪFø ,0d \$ª 26 μ+ ö8x Allergy/Immunology, Animal cell technology, Functional foods</p>
M> > 5 Professor ;î#âF·v μ Akio KURODA	<p>(Ê4 i d ŪG"#YFŌFö ,FiFŪGMG•G_G=2AG%GhGeG FçH G^G2G8GIG•GCGŠG \$ªFŪ Å#YFéG %Ê'2F1 [FŌ GgGGGV) œGMG•G_G=2AG" p BFçFöG0GGGgGGG G F'G Fi+w) œGhGeGOGWG" p BFçH G:G•FŪFŪFp\$ G6G=GKKGKŠGnG GIG2G=G(GgGEG=GyFŪFŪFp+w #YFéG F'</p> <p>Creation of new proteins/peptides by evolutionary molecular engineering. For example, we created an asbestos-binding protein in order to analyze asbestos. We also created a membrane-binding peptide in order to isolate extracellular membrane vesicle (exosome, microvesicle) that have great potential as diagnostic tools and biomarkers for many kinds of diseases such as cancers.</p>	<p>G0GzGyG<GŠFp\$Ī\$UG% \$μFp (Ê \$? ŪFø ,0d \$ª 26 μ+ ö8x Protein engineering, Evolution engineering, Biosensing</p>
MF· 5 Professor p â#âF·1Ī Yutaka NAKASHIMADA	<p>#Ō"@FpG6G[GyG<GŠ æ1p) 2°G" ö8ö d Ū\$×G FiFŪ "@ Ū\$×FŪ 5 šFçH "IFŪG^G2G8GIGGFŪFŪFp ĩ#Ō •+ G G<GŠ#â ¶Fp N qG"G FøFŪFçFŌH Ê(öH GoGMG•H G FŪFŪFp w#Y"@2AG" "á\$×FŪ#Ō#ŌFéG •/i%Ê'2</p> <p>The subject of research in a field of energy metabolic engineering for production of bio-fuels such as methane, hydrogen and alcohols, and bio-materials from renewable feedstocks such as biomass based on fermentation technology and genetic engineering of microorganisms.</p>	<p>\$Ī 4Yd ŪH#Ō@i Ū d ŪH æ1pd Ū Fermentation technology, Biochemical engineering, Metabolic engineering</p>

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Research Fields

G;GSG}GSGW
Keywords

MF-5	È F. G ž		
Professor	Masaki MIZUNUMA		<p>"(ý+ %? >#Ō"@G%4Ý •G"#ÝFŌFŏH >ï? >P>xGEG>G Fp ²1úG" ÁG FÚFÚFéG F"IFŪH >ï? >P>xFŪ6ð ZFéG (Q èH FÚG G (ý+ ZFp (È µ SG"0Ž ÁFéG F'G Fih "(ý+ #Ō"@G%)z.xG"#ÝFŌFŏ* iG% Q è µ SFŪ6ðFéG %É'2 4Ý •H)z.xH Q è</p> <p>We focus on mechanisms of Ca2+-dependent signaling Yeast, <i>C. elegans</i>, Lifespan using the unicellular eukaryote, <i>Saccharomyces cerevisiae</i> as a model system. In particular, we are currently investigating aspects of calcium-dependent signal transduction in yeast, including cell-cycle, life span, and ? ? ? ? ? ? ? >ŪF. ? ? >ï? ? ? ? >ï? ? !? ?%>ï? ? >ï Caenorhabditis elegans.</p>
(M 5 Visiting Professor	2e •F. ú Takeshi AKAO		<p>è4Ç4Ý •G"FÿFèG FøFçFí5 4 #Ý4Ý •Fp Á#ÝG@G\GmC FpG@G\Gn _ G" <#ÝFçFŏ,æ 4Fp(- &' 9 •/jFp6ä\$ÍH è 4Ç4Ý •Fp w#Ý µ+ Fp4G \$xŌI IFp0Ž ÁH "á\$*ñ' • /jFp6ä\$ÍFúFúG"% æFçFŏFŌG F'1</p> <p>Applied genomics of sake yeast and the related industrial strains: Utilization of the genome information for exploration of unique DNA markers in each lineage, genetical study on characteristic features of valuable sake yeast strains and development of efficient breeding method.</p>
(M 5 Visiting Professor	&>1ÁF. T È Atsuko ISOGAI		<p>è4ÇG !•4ÁFp96 ¼ B (FŪ6ðFéG %É'2G"/œFŏFŏFŌG F "I ŏFú \$ ZFéG B (G" ÁG FÚFÚFçH FíFp#Ō B µ SFp0Ž FÚG G D š •/jFp& 'gG"% æFçFŏFŌG F'1</p> <p>è4ÇH !•4ÁH 96 ¼ B (</p> <p>Studies on the aroma compounds in sake and shochu, aiming at identification of components responsible for the characteristics, elucidation of their formation mechanism and development of control techniques.</p>
(M 5 Visiting Professor	¾ WF. ô/ñ Kazuhiro IWASHITA		<p>;Ū,æG" p °FøFçFí5 4 #Ō"@FŪFŏFŏFŏH è4ÇFúFúFç G ;Ū,æFp"i ŏFŪ6ðG G (ÈGoG9GYGHGnG"G@G\GmC GmG=GGG" p °FøFçFí)r œG8GmGQG=GGFúG G 0Ž ' Fp B ÝG" <#ÝFçH ;Ū,æFúG G µ+ ŏ"@2AFp#Ō#ŌG%œ FíFú5 4 2Fp6ä\$ÍFúFúH #" CG ÇFp ú áFú fFçFŌ5 4 (5 4 #Ō@H)r œG8G9GŽ ŌH G2G\GgGŠGEGU•</p> <p>The genomics and metabolomics study of industrial microorganisms (especially Japanese national fungi of <i>Aspergillus oryzae</i>) to illustrate the primitive molecular mechanisms. The outcome of our researches should be applied to the design for new industrial strains and new process to produce beneficial metabolite and fermentation products.</p>
(M 5 Visiting Professor	Å#ãF. m Å Tomotake MORITA		<p>\$Î4ÝFúG G G^G2G8GgGŠGG(ò !Fp#Ō#ŌFø Á#ÝFú6ð "@FpGGG=GxGŠGYG•G>G µ+ 0Ž ŌF,4G È) nFŌFí G^G2G8GgGŠGG(ò !H #Ō #Ō 5, G"/œFŏFŏFŌG F'1</p> <p>À#Ý #Ō"@ Ū</p> <p>To develop new bio-based materials, we are promoting Bio-based materials, Industrial screening, characterization, and genetic modification of microbes, Applied microbiology industrial microbes.</p>
ø M 5 Associate Professor	7÷ -F.1Ý3d Yoshiteru AOI		<p>#" C pFŪ "FB Ñ ~FçFŏFŌG 7' ŏð ŏ #Ō"@G" P1ßFŪH 8 , \$xFú (7³ ŏð ŏ •/jFp6ä\$ÍH D • ŏð5 0[#Ō"@Fp µ+ 0Ž ÁFø <#ÝH D! •%± Q j D šGoG9GYGHGnFp0Ž ð \$x FøFéG F'FíG G G"3úFèFŏH #Ō"@Fp#Ō ÁFÚG G µ+ G" ÁG FÚFÚFçH #Ō"@G" D šFéG /jG" mFŪ °G G FäG Fú . G" p °FøFçFí • <#Ý2(;Fp6ä ÁFú ¥FáFí ,Fí •%± #Ō"@H 7' ŏð ŏ #Ō"@H Fú4("½G" S(FéG FäFøG"% æFçFŏFŌG F'1 %@G%0I4ð</p> <p>Our research goals are (i) bringing innovation to microbial cultivation, by development of radically new cultivation technology; (ii) isolation of environmentally important or potentially useful but 58.30(on40)-4(o)-3(i)7(-)-56nu7u5(</p>

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F. \F. MF. (Academic Staff		%ÉF.F.'2F.F. ÆF.F. Research Fields	G;GŠG)GŠGW Keywords
ø M 5 Associate Professor	, JF-2< Kenji ARAKAWA	" JFú#Ō#. q ö"@2AG"#Ō#ŌFéG :)z,æFúFôFôFôH æ "#Ō œ B μ SFp0Ž ĀG § æ1p D šG9GGG?GŠGWf 0Ž ÖG"/œFôF'G Fî#Ō#. q ö 3!,"@Fp "73G% S4 ô G # B4Y(ôFp o Ā μ S0Ž ÖH FāG Fû 3°. 6āšĪG"% æFçFī Ā #Y%É'2G /œFôF'1 We aim to characterize the mechanism for the biosynthesis of bioactive compounds and their regulatory system in Streptomyces species. Isolation of new metabolites and characterization of biosynthetic enzymes are also studied in our laboratory.	#Ō#. q ö"@2AH #Ō œ BH § æ1 >Ī? ? ? ? ? ? ? ? ? >Ī? ? ? ? ? ? ? ? ? >Ī? ? ? ? ? ? ? ? ? >Ī? ? ? ? ? ? ? ? ? >Ī? ? ? ? ? ? ? ? ? H >ÿ? ? ? ? ? metabolism
ø M 5 Associate Professor	â#âF. T Takeshi IKEDA	(ý.æFúG G GEGxGAG-s' μ SFp (Ê#Ō"@ Ū\$×0Ž ŌF'1 ÉFø" μ i qFp#ú8 D šFúG G ,0d μ+ Fp p FøG^G2G8 /% œGUG^G2GGG%GIGTGxG0GyôâšĪG Fp Ā#YF'1 Our research focuses on the interaction between biomolecules and inorganic materials. We are developing biointegrated devices/materials using solid-binding proteins/peptides as an interface.	G/GŠG)GŠGW.GŠGW[/) œ G/GŠG)GŠGW.GŠGW[/) œ G/GŠG)GŠGW.GŠGW[/) œ G/GŠG)GŠGW.GŠGW[/) œ G/GŠG)GŠGW.GŠGW[/) œ GUG^G2GGG%GIGTGxG0Gy >Ī? ? ? ? ? ? ? ? ? >Ī? ? ? ? ? ? ? ? ? >Ī? ? ? ? ? ? ? ? ? >Ī? ? ? ? ? ? ? ? ? >Ī? ? ? ? ? ? ? ? ? >Ī? ? ? ? ? ? ? ? ? devices/materials
ø M 5 Associate Professor	V5 F. ¾ Masaru UENO	%, >#Ō"@FpGTG(GoG0)T ā μ SG%œ>đ>ú>Ī Ÿ Ÿ μ SFp Fp *iG% \$'6ô4 Ī. G Fp Ā#Y%É'2 Study on molecular mechanisms of telomere maintenance and DNA repair and their applications for development of anti-cancer and anti-ageing agents.	GTG(GoG0H FÜG#H *i Telomere, Cancer, Aging
ø M 5 Associate Professor	.(F. Setsu KATO	JF»Fú#» CFúFÚFāG #Ō#@Fp#Ō Ū S\$ H FíFçFô(ý+ 4#&ŪG">Ÿ(ý+ GzGgGyF÷ ĀG FÚFúFéG FāFøF÷#Ō èG G FúG #.0ŽFø(ý+ μ+ Fp Q IG"% æFéF'1 We analyze how microbial cells adapt and survive under various conditions using the single cell quantitative method. We are also interested in the process of cell death to identify the weakness of cellular homeostasis. These analyses will help us to find the principles of life and to create useful host cells for bioprocess.	(ý+ Fp – ôH #ŌFø ZH >Ÿ(ý+ ŌŽ Cellular homeostasis, Life and death, Single cell analysis
ø M 5 Associate Professor	Ī šF. – Kenji KITAMURA	\$8ôFúG G #Ō"@>Ō4Ÿ •>ŌFp#Ō#. μ+ 1*(Fp%É'2F'1 \$8ô3z3æ /FpšĪ#G%œ q ö D šG ô2A"İŠ ôH GFghGeGô Fp ,0d#Ō#. 8#Ÿ>Ō Q j7< FúFù>Ō H(ôFøFīFp 8#Ÿ μ SĪ Ā'¼G"3ûFèFôH (ý+ Fp#» C Ā'ĀG"#.0ŽFéG FøFøG FúH + ĪFçFī4Ÿ •(ý+ FpôâšĪFú Ā#YFéG F'1 Studies on modulation of cellular physiology in yeast by nutrients via regulation of peptide transporters. Searching for their non-peptide substrates, and exploration of novel bioactivities of dipeptides. Development of high-functioning yeast strains.	4Ÿ •H 3z3æ /H G0GmG¼šH GFô GW Yeast, Transporter, Amino acid/dipeptide
ø M 5 Associate Professor	.(F. M0d Kazunori KUME	%, >(ý+ FpGpGUGyFøFçFô4Ÿ •G"#ŸFôH #Ō èFp ö • FÔG (ý+ FpFúG FīFñG"#.0ŽFéG FøFøG FúH (ý+ FÜ C FôF÷ ? ĪFøFúG (ý+ ÆEGEGGTGnFp0Ž ĀG"% æFéF'1 FŸH (ý+ [wFp gG" ôG G (ý+ ôFp D š μ SH (ý+ G" S BFéG G8GyG:G[GwFpGCG2GHFÚG G g ĀFp D š Ī FôFôH FīFp 21úG" ĀG FÚFúFçH (ÊGzGgGyF÷Fp0Ž , FéF'1 We would like to understand mechanisms of global cell systems which are fundamental to cellular growth, development and reproduction of eukaryotic cells. Especially we are interested in cell polarity and organelle size and shape. For this research, we use the genetically amenable model organism, yeasts.	(ý+ S4 H G8GyG:G[GwH (ý+ ô Cell structure, Organelle, Cell polarity

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F. \F. MF. (Academic Staff		%ÉF.F.'2F.F. ÆF.F. Research Fields	G;GŠG)GŠGW Keywords
ø M 5 Associate Professor	#ã âF-1 , Takahisa TAJIMA	#" C #Ō"@H w µ P y*• ö #Ō"@G * ,æH G" q#ÝFçF "á\$xFú"@2A#Ō#ØFpFiG Fp#Ō /0• y6ä\$ÍF¹G²G8G GIGTG1G=GGFúG G G@G\Gn_ G æ1p"@Fp0Ž ŐFç Fp <#Ý Development of biocatalysts for efficient bio-conversion processes by using solvent tolerance microorganisms and psychrophile. Bioinformatic analyses of genome information and metabolites, and their utilization for metabolic engineering.	"@2A#Ō#ØH * ,æH æ1p d Ū Bioproduction, Psychrophile, Metabolic engineering
ø M 5 Associate Professor	p <"F.U : Ê Miyako NAKANO	GMG•G_G=2A*(ŌÄ † Ÿ8iFp>ÝFðF÷FÒG (%6P Ū •FyH (G2GyGGFúFùFp\$S N /Fp æ H \$' iH . "@*• ö"Ō "FúFúF G FðFðFÒG F¹FäG G Fp#Ō"@ Ū\$xFú µ IG"2A5 (Ō/æ G"#ÝFŌF¹(%6P S4 ŐŽ Ő 2FúG G ŐŽ ÁFéG F¹ Glycosylation, which is one of the posttranslational modifications of proteins, is involved in infection by pathogens such as bacteria and viruses, cancer and acquisition of drug-resistance. We investigate these biological mechanisms with detailed analysis of glycan structures by mass spectrometry.	(%6PH 2A5 (ŐH G²G8GIGŠG Glycan, Mass spectromery, Biomarker
ø M 5 Associate Professor	#ãF-7o M Ryuichi HIROTA	#Ō"@Fp ²8r -(ðF÷FÒG GxG•Fp#Ō"@ #H æ1pFú6ðF '2F¹ zFú #Ō"@G"#ÝFŌFðGxG•Fp æ1pGoG9GYGHG GIGŠFp#Ō è µ+ G" (ÊGzGgGyF÷0Ž ÁFçH GxG•9x-s' "@G" QFðFi#" C w iH GxG•2(; ä i e8ÝFp0Ž ðH G²G GIGŠGcGTG1 •/jG G²G8GeG(GIGG S(G Á#ÝFéG Basic studies on the phosphorus metabolism in microorganisms, and its applications to biotechnology such as phosphorus removal using phosphate-accumulating organisms, phosphorus recycling from activated sludge, biosafety strategy, and the construction of bioprocesses	GxG• æ1pH G²G=GTGxG0H G²G G(GFGŠ Phosphorus metabolism, Bacteria Biotechnology
ø M 5 Associate Professor	.(äF-1 Makoto FUJIE	9x'¼ Ū"@Fð #Ō"@Fp%& « 8#ÝFúFðFŌFö (Ê#Ō"@ '2G'/œFðFðFÒG F¹G Fi>ØG@G\Gn)...7Ý •/jG" <#ÝFç #Ō"@FpG²G8GIGG#Ō#Ø+ ŠG" ¥ VFäFèG %Ê'2G G F¹ We focus on the interaction between microorganisms and higher plants. We also study biomass production using photosynthetic microorganism by molecular biological methods, such as genome editing.	Ū"@ #Ō#Ø%&« 8#ÝHG²G8GIG #Ō#ØH G@G\Gn)...7Ý Plant-microbe interaction, Biomass production, Genome editing
ø M 5 Associate Professor	+Ū «F. , Hisakage FUNABASHI	#Ō / (ÊG #Ō(ý+ G" µ+ ö ! qFðFçFð FØH FiG G FpFä FúG µ+ Fpðä\$ÍG ,FçFŌ <#Ý 2G"6ä ÁFéG F¹ µ+ öGM G=2AH >4ßFúFúG" <#ÝFçF¹G²G8GIG•GEG•G> (Ê #Ō(ý+ Á'Á 2H #Ō(ý+ µ+ D š 2Fpðä\$ÍG'/œFðFðFŌ G F¹ Our research focuses on using biomolecules and living cells as functional materials. We are developing novel functional molecules such as biosensing molecules with proteins and nucleic acids. We are also exploring new methods to create, evaluate, and manipulate functional living cells.	#Ō/ µ+ ! qHG²G8GIG²G8GIG G2G8GIG•GEG•G> Biofunctional materials, Biodevices, Biosensing
(ø M 5 Visiting Associate Professor	.(-F-4) " Tatsuya FUJII	G9GaG 4Ý •¼Fp%? > #Ō"@G" p °FúH FäG G FÜ&gF Fú/²# °H w#Ý"@2A9x#Ō#Ø ðH ' GGGVzGG* ðFú G9GYGHGnG" (ÊGzGgGyF÷0Ž ÁFçH Ì#Ō •+ 2(;Fp w #ÝFú z'gFðG FäFðG"% æFçFðFÒG F¹ To use filamentous fungi and yeasts effectively, we aim to reveal the mechanisms of their various phenotypes such as high-productivity of useful materials and high stress tolerance.	(Ō"g,æH 4Ý •H Ì#Ō •+ 2(; filamentous fungus, yeast, renewable resources

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F. MF. (Academic Staff		%Ê.F.'2F.F. ÆF.F. Research Fields	G;GŠG)GŠGW Keywords
"F. M Assistant)n#ãF. ó Ê Akiko HIDA	#" C(ý,æFp4 · öFü6öG G "@2A1 1' µ SFøFíFp#Ō"@6è « 8#YH ▯ G%o '1#ŌH FúFÚFâG z mG"0Z ÁFçH G^G2# GFGŠG Á#ÝFéG F' Studies on mechanism of chemical recognition involved motility of environmental bacteria and its roles in biological interactions such as infection and symbiosis, its applications to biotechnology.	#" C(ý,æH4 · ö H#Ō@6è%&« 8 #Y Environmental bacteria, Motility, Biological interactions
"F. M Assistant	, ÊF. \ Chihiro FURUMIZU	Ü"@Fý JF»Fú#" C H íFú PFçFö /Fp B6xG #Ō#. µ+ G" 3>Fú š íFâFéFö Á'ÁFéG F'FíFp Ū) G G" (ÊGzGgGyF- 0Z FçH Á#Ý Ž6âG" WFóFöH &%FíFñFp&k G #" CFú z %Ê'2G"% æFçFöFŌG F' Plants respond to shifting environmental conditions by changing their growth, development, and physiology. Our goal is to decipher its molecular underpinnings and to harness the power of plants for the good of society and environment.	Ü"@H ç (ý+ H(ý+ 6è _ 4)H (Ê4 í Plants, Stem cells, Intercellular signaling, Molecular evolution
"F. M Assistant	. JF. A • Masashi YUKAWA	; / (4ÄFü ²8rFú(ó5ý / ▯ ``ö g BFp (Ê µ S0Ž ŌF' %? >GpGUGy#Ō"@F÷FŌG 4Ý •G"#ÝFŌFö (Ê#Ō ŪG%o#Ō ì Ū\$×G0GeG{GŠGOFŪG G H >1%Ê'2G%o M FéG F'G Fi>Ø "G G Fí%±0bG"G'GV\$H \$ªFpFiG Fp /;G%o p. 6ãŠíFü Á#ÝFéG F' Our main research interests are the molecular mechanism to establish and maintain a bipolar spindle structure, which is essential for proper chromosome segregation. The research projects involve the use of molecular biology, genetics, and biochemistry to characterize the function of proteins involved in the organization of the bipolar spindle in yeast.	(ý+ Ø ‡ H , / (4ÄH (ý+ 9µ A >ï? ? ? >ìH??%? ? ? >Ø>ì>ï? ? ? segregation, Cytoskeleton

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F·\F·MF· (Academic Staff	%EF·F·'2F·F· ÆF·F· Research Fields	G·GSG}GSGW Keywords
M>ì>ì 5 Professor V5 F·*½ Satoru UENO	8x +!2AFp"@ ö0Ū oFÚG G ·\$x ö2AFp0Ž Ā Characterization of Physical properties and Clarification kinetics for edible lipids.	+!2A>Ø) i>Ø " g3?&ā Lipid, Crystallization, Polymorphic transformation
MF· 5 Professor] -F· ë – Kiyoshi KAWAI	8x Fp · dH – ÑH 8x ¶Fú6δFéG d Ú\$×%Ê'2 Food processing, preservation, and texture analysis.	8x · dH – ÑH 8x ¶ Food processing, Preservation, Texture analysis
MF· 5 Professor U · ŒF·.+³ ù Yoshihiro SAMBONGI	¶#Ō" @FpG6G[GyG<GŠ æ1p.®\$Ñ2AFp S4 Fø μ+ Fú6δFéG %Ê'2 Studies on structure and function of microbial energy metabolism proteins.	G6G[GyG<GŠ æ1pH 7H#" C ¶# " @H .®\$Ñ2A S4 μ+ >ñ? ? ? ? ?%>ì? ? ? ? ? ? ? ? ? ? ? >ñ? \$? ? ? ? ? ? ? ? ? ? ? ? ? ? H >ü? ?
MF· 5 Professor â#âF· Ā ... Masayuki SHIMADA	#Ō j μ SFp (Ê Æ (* Ú\$×0Ž ÒFúG G #Ō j d Ū •/iFp6â \$îFú6δFéG %Ê'2 The study for understanding molecular and endocrine mechanisms of reproductive functions and developing reproductive technologies.	#Ō j#Ō" @ ŪH (Ê Æ (* ŪH)% j •/i Reproductive biology, Molecular endocrinology, Reproductive technology
MF· 5 Professor â ·F· Z Tadashi SHIMAMOTO	8x p ~ (ý.æFp\$S N ö6ö4 4G ÊFø. c*· ö4G ÊFp0Ž Ò FÚG G G\G{G4G2GyGG » q 2Fp6â\$î Analysis of pathogenicity-related genes and drug resistance genes of foodborne pathogenic bacteria and development of norovirus inactivation method.	8x p ~ (ý.æH . c*· ö.æH G\G{G4G GyGG Foodborne pathogenic bacteria, Drug-resistant bacteria, Norovirus
MF· 5 Professor 5e ŒF· : Takuya SUZUKI	8x B (FúG G #Ō /1*(8#ÝFú6δFéG %Ê'2 Physiological functions of nutrients and food factors.	μ+ ö8x H \$8ðH ú ā Functional foods, Nutrition, Human health
MF· 5 Professor p äF·4 >ÿ?!? !? ?!F->ú>í>÷>í>ñ	G0GzGyG<GŠG%o+→ k \$? \$L HFp\$î\$U μ SFp0Ž Ā Studies of pathogenesis of allergic and autoimmune disorders.	ì ò!V\$UH GCG2GVG9G2G·H \$L GyGIG4GG chronic inflammation, cytokines, mouse models for human disease
MF· 5 Professor 6x F· Ž Takeshi NAGANUMA	#" C#Ō" @2(;Fp Ā#ÝFú6δFéG %Ê'2 Study on applications of environmental biological resources.	7H#" C>Ø>ì 7H#" C#Ō" @>Ø>ì#] ò Extreme environments, Extremophiles, Biodiversity
MF· 5 Professor 0Y üF· G,e Masahide NISHIBORI	." @G@G\Gn _ G" <#ÝFçFì 7 ™8@FÚG G :ý8@Fp (Ê4 (Ê(Ō)+FÚG G (Ê ...#. Ú\$×%Ê'2FøFìFp3° ŪG Fp Ā#Ý '2 Studies on Mammalian and Avian Molecular Evolution, Phylogenetics and Geography using Their Information of Animal Genome, and Their Application to Agricultural Sciences.	." @4G >Ø (Ê4 i>Ø (Ê(Ō)+ Ú\$×%Ê'2 Animal genetics, Molecular evolution, Molecular phylogenetic study
MF· 5 Professor 0Y \$F· Ā M Shinichi NISHIMURA	¶#Ō" @Fú#Ø#ŌFéG 1#ŌG% #Ō" @2AFpG?GmG9GyG GCG2GCG2F8S Chemical biology using bioactive natural products	³!," @ ì ŪF· #Ō#. q ò ì œ" @F· G?C GCG2GCG2F8S natural products chemistry, bioactive metabolites, chemical biology
M>ì>ì 5 Professor *Z 'F·*07· Yoshio HAGURA	8x Fp Š Ū" @ öG%7Á ¼" @ öFp0Ž ÒFøFíG G Fp" @ öG Fì ,0d · dG%0£ ·/iFp6â\$îFú6δFéG %Ê'2 Analysis of mechanical and electrical properties of the food, and development of food processing and measurement techniques using those properties.	Š Ū" @ ö>Ø>ì7Á ¼" @ ö>Ø>ì8x Mechanical properties, Electrical properties, Food processing
M>ì>ì 5 Professor (ý5 F·2< Kenji HOSONO	â)F\$×Fú8x q2(;Fp& -FøGcGŠGWG%GCGeGwG2G% 4 Fú6δFéG &k) ì3° ŪFp0!!!FÚG Fp%Ê'2 Socio-economic Agricultural Study about Sustainable Food Resource and Supply Chain.	8x q#Ō#Ø#ö#.H 8x q w H â)F\$× \$î Ž Food production management, Food market, Sustainable development

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Research Fields

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Keywords

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Professor Hiroyuki HORIUCHI

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Fp ö&OFÚG Â#Ÿ%Ê'2G Fp Ž6ä :ý8@H ç (ý+ H G@G\Gn)...7Ÿ
Basic and applied study using avian stem cells and gene editing technology in the agriculture field.

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F. M. MF. (Academic Staff	%EF.F.2F.F. ÆF.F. Research Fields	G;GSG)GSGW Keywords
"F. M Assistant #Ō1ÂF. f ^ Masashi IKUTANI	Ī ð!V\$U\$L HFŭFŪFáG G0GzGyG<GŠ6õ4 \$?(y+ Fp z 0Ž Ā Roles of allergy-related immune cells in chronic inflammatory diseases.	G0GzGyG<GS ö!V\$UH GCG2GV GV\$L H ."@GpGUGy Allergic inflammation, Cytokine, Animal models for human disease
"F. M Assistant à ĪF. ß Jun TOMINAGA	Ū"@Fp œ œ BG%"@2A#Ō#Ø μ SFp0Ž ĀFø 8" @#Ō#Ø Studies on mechanisms of photosynthesis and biomass production in land plants, development of techniques for sensing plant response to environment, and its application for crop production.	Ū"Ō#Ō# ŪH 8"@ ŪH œ œ B Plant Physiology, Crop Science, Photosynthesis
"F. M Assistant Ç ĪF.,F/° >ù? ? F->ù>í? >ÿ? ? >í>-	:y8@Fp w(-4#&iG" D šFéG GoG9GYGHGnFp0Ž ĀH >ĪG :y8@ 8 •;/;Fp6âšĪFø Ā#Ÿ Studies on regulation mechanisms of fertilization processes in birds, Development of techniques for producing genome edited birds and their application.	:y8@Fp#Ō jH G@G(Vn)...7Ÿ Avian reproduction, Genome editing
"F. M Assistant £ •F.&^ " ? ? ? ? ? ? ? ? F-? >í>-	8x G #Ō"@Fp \$?1*(8#ŸFp H(ðFø Ā#ŸFŭ6õFéG % Studies on immune functions of foods and microorganisms and its application for development of functional foods.	E2 \$? Ū>Ø>ĪG2GnG(VFG5GYC Food immunology, immunogenics health

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	F·VF·MF· (Academic Staff	%EF·F·2F·F· ÆF·F· Research Fields	G;GSG}GSGW Keywords
MF· 5 Professor	&>4ŠF·%\$ ž Naoki ISOBE	o,D ."@ TM+bFp \$?G%o Æ (* μ+ Immunology and endocrinology in mammary gland of ruminants.	TM c!VH ,æGhGeGOGWH +-!> Mastitis, Antimicrobial peptide, Innate immunity
MF· 5 Professor	V#ãF· í / Akihiro UEDA	Ū"@Fp#" CGGGVGzGG*· öFp ¥ VFø Ū"@#Ō*ñ ·4 #&# #Ý ·/iFp6ä\$! Improvement of environmental stress tolerance in higher plants and development of utilization technologies of plant growth promoting microbes.	Ū"@ \$8ö Ū>Ō#" CGGGVGzGG> ·4 #Ō"@ Plant nutrition, Environmental stress, Plant growth promoting microbes
MF· 5 Professor	·5 F· - " Tetsuya UMINO	È j#Ō"@Fp Q8ö jFø – ²#Ō ÂFü6öFéG %Ê'2 Stock enhancement and conservation resources of aquatic animal.	8ö jH : vH È j#Ō"@ Aquaculture, Stock enhancement, Aquatic animal
M>ì>ì 5 Professor	± /F· 7 Susumu OHTSUKA	· R!"+ (Ý ."@Fp "] öH (Ō)+ (8ŌH 4 ìH – ²#Ō ÂFü 6öFéG %Ê'2 Biodiversity, phylogeny, evolutionary biology and conservation ecology of marine invertebrates.	· R!"+ (Ý ."@H #Ō"@ "] öH – 2 Marine invertebrate, Biodiversity, Conservation
MF· 5 Professor	` iF· [Ç Taketo OBITSU	o,D \$ Fp8è q <#ÝFø \$8ö æ1pFü6öFéG %Ê'2 Nutrition and feed utilization in ruminants.	` iH GMG·G_G=2A æ1pH G6G[G æ1p Digestion, Protein metabolism, Energy metabolism
MF· 5 Professor	` äF· M j Kazuhiko KOIKE	ö&O#Ō#Ō*...H æ(ý.4G%o Ū"@GeGwG·G=GVG·H FÜG ^ Æ ·H GCG·GB&KH GIG·G>G(GŠGd æH Fp0Ū o Coastal biological processes of Seto-Inland Sea, coral reef and mangrove swamps based on primary producers (valve microalgae).	æ(ý.48ŌH Ū"@GeGwG·G=GVG· B Microalgae, Phytoplankton, Photosynthesis
MF· 5 Professor	· -F·7g M Yoichi SAKAI	:68ŌFp&k G)¼ jFü6öFéG /œ ·#Ō Â Ū\$×%Ê'2 Behavioral ecology of fish reproduction.	&k S4 >Ō>ì)¼ j S/ì>Ō>ì5 ¥1* Social structure, Mating tactics, Field survey
MF· 5 Professor	ã#ãF· Ä ... Masayuki SHIMADA	#Ō j μ SFp (È Æ (* Ū\$×0ž ŌFüG G #Ō j d Ū ·/iFp6ä \$!Fü6öFéG %Ê'2 The study for understanding molecular and endocrine mechanisms of reproductive functions and developing new reproductive technologies.	#Ō j#Ō"@ ŪH (È Æ (* ŪH)¼ j ·/i Reproductive biology, Molecular endocrinology, Reproductive technology
MF· 5 Professor	j5 F· < , Toshihisa SUGINO	ú ² öG" , –FçFì TM"58è8ö'ö#.Fp3ä'2 Effects of Feeding management on dairy cattle health and performance.	TM"5>Ō>ì8è8ö Ū>Ō>ì æ1p Dairy cattle, Nutrition and feeding, Metabolism
MF· 5 Professor	à ìF·G G Rumi TOMINAGA	Ū"@Fp(ý+ (ìFø g Â g BFü6öFéG %Ê'2 Studies on cell differentiation and development in plants	/²ö(ý+ H ? ÝH 3? × l È Epidermal cell, Root hair, Transcription factor
MF· 5 Professor	(· ÝF·7o / Takahiro YONEZAWA	\$ IG 5 #Ō ·"@FpG@G\Gn4 ì Ū\$×%Ê'2 Evolutionary genomics on the domestic and wild animals	(Ō)+>Ō>ì7Ý K · Â>Ō>ì4E ¥ phylogeny, demography, selection
MF· 5 Professor	ö ìF· ß Jun WASAKI	?Fp ØG FùFÚFáG Ū"@C& #Ō"@6è%& « 8#ÝFø8ö (·.ÂjH Ū"@#Ō#. ŪH 8ö (· Â Rhizosphere, Plant physiology, Nutrient dynamics	Rhizosphere, Plant physiology, Nutrient dynamics
ø M 5 Associate Professor	x ,F·*½ >ÿ? ? ? ? ? F->i>ÿ>i>ö> Assessment and restoration of aquatic environments using the tools of analytical chemistry.	(Ō ì ŪG"GRGŠGyFøFçFì È#" CFp0Ū oG%o Ý ÝFü6öFéG %Ê'2 Assessment and restoration of aquatic environments using the tools of analytical chemistry.	ø C Æ Ō ì ŪH #" C Ý ÝH È#" C Environmental analytical chemistry, Environmental remediation, Aquatic environment
ø M 5 Associate Professor	·.(F· ³º° Aki KATO	·.48ŌFp Q8ö jG%o – ²Fü6öFéG (Ō)+ (8ŌFÜG G #Ō#. # Ū\$×%Ê'2 Aquaculture and conservation of algal resources.	%¼!J.4GCG·GBGp8ŌH 8×#Ý ·.4 ¼ Ä š · Coralline algae, Edible seaweeds, Climate change

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F·\F· MF· (Academic Staff	%EF·F·2F·F· ÆF·F· Research Fields	G;GSG)GSGW Keywords
M> > 5 Professor	GMG·G_G=2AGxG·4ß ìG%+·GxG·4ß ìFû6ôG G ' 4Ý(2AFp#Ō ì Ū\$×%É'2 Biochemistry on enzymes and proteins which mediate protein phosphorylation and dephosphorylation.	_ 4)H 4Ý(ôH &,,) H/HEHCHJH=HHF·HPHNN=HJH Neuron
MF· 5 Professor	%¼ NF· ã ù Yasuhiro ISHIHARA G>GxG0(ý+ Fp\$S Â#Ō#. Ū\$× z mFp0Ž Â Glial function in health and disease.	&,,) . #.G%~ ö ŪH G>GxG0(ý+ H GUGy ."@ Neuropharma-toxicology, Glia, Model animals
M> > 5 Professor	'0F· ô*O Kazuyoshi UKENA 8x 'G G6G[GyG<GŠ æ1p1*(Fû6ôG G +; Æ"@2AFp#Ō, Fû6ôFéG %É'2 Study on the physiological functions of neuronal substances regulating appetite and energy homeostasis	&,,) Æ (* ŪH &,,) GhGeGOGWH Neuroendocrinology, Neuropeptide, Appetite
M> > 5 Professor	, CF·G FÛG Yukari KUGA u p#Ō Â(ŌFûFÚFáG Ū"@Fø #Ō"@Fp 1#ŌFû6ôFéG %É'2 Plant and microbe symbioses in soil ecosystem.	,æ ?H u p ö\$S H (ý+ >Ū#Ō Æ'p+ Mycorrhiza, Soil-borne disease, Cellular-ecological functions
M> > 5 Professor	,.(F· Â Ê Akiko SATOH &,,) (ý+ FûFÚFáG +wGMG·G_G=2AFp4E 93z3æGEGG The mechanism of the polarized vesicle trafficking in neurons.	GEGG·F·É'2>ì0i(ý+ >Ō>ìGEGuG Golgi units, Photoreceptors, Drosophila melanogaster
M> > 5 Professor	%œ#âF· M j Kazuhiko TAKEDA ¼ Ê jFûFÚFáG æ5 "@2AFø æ5 q ô4ß(ôFp FøFip# C · ÁFp%É'2 Environmental dynamics and analysis of trace compound and reactive oxygen species in the atmosphere and hydrosphere.	#" C (Ō ì ŪH q ô4ß(ôH ß " @ 2A Environmental Analytical Chemistry, Reactive Oxygen Species, Trace Pollutants
MF· 5 Professor	p æF· Ō ... Takayuki NAKATSUBO 7c æ#Ō Â(ŌFûFÚFáG Ū"@G%."@G% #Ō"@Fp z m Roles of plants, animals and microorganisms in terrestrial ecosystems.	#Ō Â(Ō#Ō Â ŪH Ū"@#Ō Â ŪH # - 2 Ecosystem ecology, Plant ecology, Environmental coservation
M> > 5 Professor	£#âF· † / Toshihiro YAMADA #Ō Â ŪG" ô&OFøFçFi#Ō"@G" - 2FéG %É'2 Conservation of organisms based on ecology.	#Ō"@ "] ö - 2H ¶ /L · ÂH !Ō · Ø Biodiversity conservation, Population dynamics, Tropical forests
MF· 5 Professor	ô ìF· ß Jun WASAKI ?Fp ØG FûFÚFáG Ū"@C& #Ō"@6ë%& « 8#ÝFø8ô (· ÂjH Ū"@#Ō#. ŪH 8ô (· Â Rhizosphere, Plant physiology, Nutrient dynamics	Rhizosphere, Plant physiology, Nutrient dynamics
M> > 5 Professor	G,G1GzGZGŠG,F·%? Ê* Masumi VILLENEUVE #ú8 Fp!Ō Š ŪG" ô&OFøFçFi#Ō /GpGUGy+wFø#Ō /6ô4 Fp%É'2H GWGwGQG>GUGxG^Gx6ô4 Fp ô&O%É'2 Thermodynamic studies on interfacial behavior of bio-related substances using model cell membranes, basic science related to drug delivery.	#ú8 ì ŪH !Ō Š ŪH +w Interface Chemistry, Thermodynamics, Membranes
ø M 5 Associate Professor	¼ ·F· R Ê Yoko IWAMOTO ¼ ÂFû s8jG" IG Fé ± ¼ · RëFp"@2A #"4#&iFp0Ž Â Biogeochemical cycles between the atmosphere and ocean and their impact on climate.	G6G0G{GLGyH 7¼H #Ō"@ ...#+ Aerosol, Cloud, Biogeochemistry
ø M 5 Associate Professor	u1ÂF· r#è Akio TSUCHIYA G0GIGL·Ō · ØFp ~ »FûG G ¼ Â š ì Climate change caused by deforestation of rainforests in Amazonia.	` ¼ Â ŪH #Ō"@ ¼1ß ŪH °3o ¼ Ū Small climatology, Biometeorology, Dendro-climatology
ø M 5 Associate Professor	<.(F· œ æ Mitsuyo SAITO 7c æHZ " Ê · æFûFÚFáG #" C>Ū ...2A>Ū#Ō Â(Ō6ëFp%& · WÈH " Ê#Ō Â(ŌH #" C ...2A Environment-geology-ecosystem interactions in terrestrial to coastal waters.	& · WÈH " Ê#Ō Â(ŌH #" C ...2A Groundwater, Coastal ecosystem, Environmental geology

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ø M 5 Associate Professor	F·\F·MF· (Academic Staff	%EF·F·2F·F· ÆF·F· Research Fields	G;GSG)GSGW Keywords
ø M 5 Associate Professor	p ØF·7ž Miyabi NAKABAYASHI	5 #Ō ."@Fp/œ ·G%#Ō Â Behavior and ecology of wildlife	!Ō ·7μ ØH #Ō Â ŪH 7 ™8@ Ū Tropical rainforest, Ecology, Mammalogy
ø M 5 Associate Professor	? 1F·4) μ Tatsuo NEHIRA	#Ō è#"1ßFûFÚFáG S4 w μ ì Ū\$×%Ê'2 Research of structural organic chemistry in life science.	w μ (Ō ì ŪH ³!)@ ì ŪH Ç § , ö Analytical organic chemistry, Natural product chemistry, Circular dichroism
ø M 5 Associate Professor	j·F· ! Akira HIKOSAKA	."@4 ìFpG@G\GnH 1#ŌH \$!#Ō Ū\$×%Ê'2 Genomic, symbiotic and embryonic studies on metazoan evolution.	."@4 ì Ū>Ø>ì!"+"· ."@>Ø>ì #Ō · Evolutionary Zoology, Acoelomorpha, Metazoa
1nF· Œ Lecturer	^#ãF· Ó Motomu TODA	Ã Ø#Ō Â(ŌFpG6G[GyG<GŠG%o!c(ò # Energy, water and carbon exchange between atmosphere and forest ecosystems.	GcGwGQG=GGH GpGUGxG·G> Flux, Modelling, Climate change
"F· M Assistant	` ØF· → · H5?!? ? F·>÷>û>î? >í>ý	p á&,) (ŌFûFÚFáG ß Ó\$×Fú Æ (* μ SFp0ž Â Elucidation of comprehensive endocrine mechanism in central nervous system.	&,) (Ê#Ō"@ ŪH Æ (* ŪH >óGMG·G_G=2A 1 z 0 w / Neuronal molecular biology, Endocrinology, G-protein coupled receptor

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M> > 5 Professor	Ō §F· Å " ? ? ? ? ! ? % ? F·>δ>ù>ì>ù? Understanding epigenomic mechanisms that underlie the development of primate brain.	7È6x8@>Ø> +;>Ø>ì\G·GAGŠGŠG primate, brain, non-coding RNA
M> > 5 Professor	Ū5 F·*Ō Hajime OGINO +(Ý ." @Fp\$ì#ŌG% ì#ŌH α0l ðFø p á&,) (ŌH G" -4ÄFé G@G\GnG%G6GbG@G\Gn D š μ SFp%É'2 g#Ō8@FúFÚFáG G@G\Gn4 ìFø#" C4: ÄFúFôFŌFôFp Ū\$%É'2 Genomic and epigenetic regulation of development and regeneration (sensory organs and central nervous system) in vertebrates. Molecular mechanisms of genome evolution and environmental adaptation in amphibians.	\$ì#ŌH ì#ŌH 4 ì Development, Regeneration, Evolution
M> > 5 Professor	,ä äF·/ñ Yutaka KIKUCHI FÜG# α `#" CG[GQGVG)GŠG=Fp%É'2 G=G{GIGOG·g / S4 Fp0Ž Ō Studies on tumor microenvironment network. Analysis of Chromatin 3D Structure.	FÜG# α `#" CH G=G{GIGOG·>ìH G\G·GAGŠGUG1G·G>>ð>ú>ì Tumor microenvironment, Chromatin, long non-coding RNA
M> > 5 Professor	,i F· TM Makoto KUSABA GpGUGy Ū" @G"#ÝFŌFi-%*· ì D šFp (Ê μ SFp%É'2 G;G= "FúFÚFáG (Ê4G Ū\$%0Ž%É'2 G;G=G%GAG·G<G=8@G%GKGTGR8@H FiFp ÚFp9x' ;Fp - ÑFø%É'2 Molecular mechanism of leaf senescence, Molecular genetics in the genus Chrysanthemum, Genetic resource of chrysanthemum and cycad.	(Ê4G ŪH -%*· ìH G;G= " Molecular genetics, Leaf senescence, Chrysanthemum
M> > 5 Professor	NF· ë/ñ Takahiro CHIHARA &,) G2°Fp g BH BlÍH FiFøFö)T äG" -G (Ê ö% Fp0Ž ÄF'#" C>Ō \$8δ" g ÄH ÝFŌH GGGVGzGGFúFúH Fø ¶ G /œ ·FúFúH Fp%& « 8#ÝFú6δFéG %É'2 Molecular mechanism underlying neural network formation, maturation and maintenance. Genetic studies to reveal molecular mechanism for the interaction between environment (nutrition, odor and various stress etc.) and individual condition (longevity and behavior etc.).	&,) G2°H ¶0IH Q è Neural network, Olfaction, Longevity
M> > 5 Professor	ØF· < Toshinori HAYASHI w · g#Ō8@G"#ÝFŌFi ð ì#ŌH \$ì#ŌFp%É'2F1 ð ì#ŌFŌ FÚFáG (ý+ Q j μ SFp%É'2 Study of organ regeneration and development using urodele amphibian. Regulatory mechanism of cell proliferation in organ regeneration.	G2GgGxG0GVG@G2GpGxH ð Iberian ribbed newt, Organ regeneration, Development
M> > 5 Professor	£ ·F·)> μ Tomio YAMAGUCHI GAG? Ū" @Fp(Ō)+H (8@H IG #Ō ÄFú6δFéG %É'2 Phylogeny, taxonomy and ecology of bryophytes.	GAG? Ū" @H (8@ ŪH #Ō Ä Ū Bryophytes, Taxonomy, Ecology
ø M 5 Associate Professor	- JF· J ? ? ? ? ? ? ? F·>δ>ó>í? > g#Ō8@Fp' (ìFø#" C4: ÄFú6δG G G@G\Gn4 ì Ū\$%É'2 Genome evolution underlying speciation and environmental adaptation of amphibians.	g#Ō8@H 4: Ä4 ìH G@G\GmG=C Amphibians, Adaptive evolution, Genomics
ø M 5 Associate Professor	Ü œF·<_ " Tatsuya UEKI ·#Ō!"+(Ý ." @FúFÚFáG 5 "G2G8G·Fp ð)° μ SFÜG G ì %T μ SFp%É'2 Study on the mechanism of metal ion accumulation and adhesion by marine invertebrate animals.	#Ō#·H 5 "G2G8G·>Ø K%T Physiology, Metal ion, Adhesion
ø M 5 Associate Professor	ß §F·*>(è Ê Misako OKUMURA œ %±GoG9GYGHGnFp0Ž Ä>Ū>ì/2#° · (öFp (Ê ö% Fp0Ž >ì œ w />Ø>ì/2#° · (ö Nematode, Photoreceptor, Phenotypic plasticity	Fp0Ž >ì œ w />Ø>ì/2#° · (ö Nematode, Photoreceptor, Phenotypic plasticity
ø M 5 Associate Professor	1 §F· G ž Masaki SHIMAMURA GAG? Ū" @Fp(Ō)+H (8@H g Ä IG #Ō ÄFú6δFéG %É'2 7c V Ū" @Fp(ý+ (/ä μ SFp "] öFø4 ìFú6δFéG %É'2 >ú? %? ? ? ? ? ? ? %>Ø>ì? ? ?\$? ? ? ? ? %H ? ? ? ? ? ? ? bryophytes. Diversity and evolution of cell division system of land plants.	GAG? Ū" @H Ū" @ (8@ ŪH g Ä Ū Bryophytes, Plant taxonomy, Morphology
ø M 5 Associate Professor	5e œF· L Atsushi SUZUKI g#Ō8@G"GpGUGyFøFçFi+(Ý ." @Fp 6 †\$ì#ŌH ì(ý+ F äFø (ìH FÜG G) È ì#ŌFp%É'2 Molecular mechanisms of vertebrate early development, maintenance/differentiation of stem cells, and tissue regeneration.	6 †\$ì#ŌH ì(ý+ H ì#Ō Early development, Stem cell, Regeneration

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F. \F. MF. (Academic Staff	%EF.F. 2F.F. /EF.F. Research Fields	G;GSGJGSGW Keywords
M> > 5 Professor 8ã6èF.™ Makoto IIMA	#0" @4 .FúFúFú6ô €FéG H FâG FâG Fú0 7§ G Fí GyFú PFéG X#. \$x0(!FUG Fp#. 1=G G 9,%É'2 Theoretical and experimental study of complex flows and models such as swimming/flying problems based on mathematical science.	v / Š ÚH #0" @Fp KFBG%80*gh Fluid mechanics, Swimming/Flying Vortex dynamics
M> > 5 Professor (F. †3\ Shunsuke IZUMI	#Õ /9x (Ê (ÔFpFiG Fp>ù>í>ø>ð>ôGIGVGxGQG=GGF >ý>í>ø>ð>ù>ð>ù>ý 2G"#YFÔFi ì Û .4J"@2AFp H(ô Development of MALDI matrix for protein analysis and search for chemical repellents using SALDI-IMS method	GIGyGUG1GŠ>ìGIGVGxG=GG>ì OŽ Ô>ð>ì>ý>í>ø>ð>ù>ð>ù>ý SALDI-IMS method
M> > 5 Professor ••F. T Atsushi SAKAMOTO	>Ô>Ý>Ô>ì Û" @Fp#" C ÂÂFøGGGVzGG4: ÂFp (Ê µ (ôG" ô3HFøFéG Û" @Fp B6x#Ô Ñ S\$ >ç>ì>ô>ß>Ô>ì G%#ø <#YFû ¥FâFi ô&O IG Â#Y%É'2>ì>ô>GGGV 8y ú ô ì iH .48@G^G2G8!P q6ã\$ÍFúFú>Ô (1) Molecular mechanisms for stress responses and adaptation in plants; (2) Metabolic plasticity-based strategies for plant growth and survival; (3) Basic and applied research on plant function towards its agricultural and industrial applications (improved performance under stress; algal bioenergy innovation, etc.).	Û" @ (Ê µ+ H GGGVGzGG ÂÂH 1pG% (Ê#Ô#. Plant molecular function, Stress response, Metabolism and molecular physiology
MF. 5 Professor F. ? F. M Shin-ichi TATE	zFøFçFô>ù>ù>ð" #YFÔFi 3) ð ôGMG•G _G=2AFp µ+ Fp0Ž ÂH 3) ð ô8• æG" ÔFçFi(ý+ /EGWG(GQGGeGzGG & µ SFp0Ž ÂH > /EG=G(GIGOG•Fp'g / S4 OŽ Ô Exploring functional mechanisms of intrinsically disordered proteins mainly with NMR. Studies on protein droplet formation within cells. Three-dimensional structure analysis of chromatin inside the cell nucleus.	>ù>ù>ðH 3) ð ôGMG•G _G=2AH G(GIGOG•g / S4 NMR, Intrinsically disordered proteins, The three-dimensional structure of chromatin in a cell nucleus
MF. 5 Professor p#ãF.*½ Satoshi NAKATA	ì Û ú . o ÂH GxGHGnG%G _GMGŠG• g BH +- k))É iH #1ßH †G% (±G% ð T'¼H H +- k9Q . /¼H 8 '1@ WF '56è\$Í ŽFéG #1ßFú6ôFéG %É'2 Research on phenomena which exhibit spatio-temporal development under nonequilibrium conditions, e.g., chemical oscillation, rhythm and pattern formation, self-organization, nonlinear phenomena (synchronization, bifurcation, hysteresis), and self-propulsion.	+- k))É iH G _GMGŠG• g BH ú . #1ß Self-organization, Pattern formation, Oscillation
M> > 5 Professor , (•F. î M Koichi Fujimoto	4 iFéG #Õ è /Fp#. 1=%É'2H X#. GpGUGyFø GUGŠGM zFú P1ßFy>ø>ì(ý+ >Û "(ý+ >Û b >Û ¶ />Û&k Fp "7u T FIG . Û" @G%# #0" @Fp\$î#ÔG%04 iG% ' ÑFp X#.>Û> GTGnG"#.0ŽFç £ FéG X#. &É Û>Û Theoretical study (mathematical modeling and data analysis) of evolving multi-level dynamics (gene expression, shape, and behaviors) in plants, animals, and microbes.	#. 1=#0" @ ÛF. 0 7§(ÔF.#0" @" @ ÛF. 4 iF. "] ôF. "7u™ Theoretical Biology, Complex systems, Biophysics, Evolution, Diversity, Multi-scales
MF. 5 Professor •#ãF.%\$ ž Naoki HONDA	JF»Fú#0" è#1ßG" P1ßFøFçFíH GUGŠGM9Q . \$x X#. G G>H µ " Û*fH)+0£\$x Û*f#. 1=H FúG G GUGŠGM0Ž Ô ; \$îH 4G É\$î#G%(ý+ 9µ AG% \$?G%\$î#ÔG%&, G2" G% _ ->Û-1.(Data-driven mathematical modeling of various biological phenomena. Development of data analysis methods based on machine learning (statistical learning theory). Gene expression, cytoskeleton, immune systems, embryonic development, neural circuits, decision making, emotion/conflict.	GUGŠGM9Q . #0" @ ÛH #. 1=#0" X#. GpGUGxG•G>H µ " Û*f Data-driven biology, Theoretical biology, Mathematical modeling, Machine learning
MF. 5 Professor £•F. Takashi YAMAMOTO	JF»Fú#0" @Fú <#Y •+ FúG @G\Gn)...7Y •/jFp6ã\$! \$L HGpGUGy 80 •/j6ã\$! (ý.48@F:FpG^G2G8!P q6ã\$ÍF' . " @ \$î#ÔFp (Ê µ SFp Ô Development of genome editing technology for various organisms. Generation of disease model cells and animals. Development of biofuel using microalgae. Analysis of molecular mechanisms during animal development.	G @G\Gn)...7YH \$L HGpGUGyH Genome editing, Disease model, Animal development
"i ô M 5 Professor (Sp.Appt.) "3°F.&½žž Hidemasa BONO	G @G\Gn)...7Y GUGŠGM0Ž Ô ô% •/jF6ã\$ÍFøG^G2G8 GTG1G=GGFúG G 4G Ê µ+ OŽ Ô Development of database technologies for genome editing and functional genomics by bioinformatic approach.	G @G\Gn)...7YH G^G2G8G2G•G GGH 4G Ê µ+ OŽ Ô Genome editing, Bioinformatics, Functional genomics
(M 5 Visiting Professor û4SF. x™ Tomonobu M WATANABE	#Õ è#1ßG" 5 FéG œ Ú0£ •/jFp6ã\$ÍFøFíG G G"#YFç Fi ç(ý+ %É'2FÚG G ÛG%#ø Â#Y Stem cell researches with development of optical measurement technologies to quantify biological phenomena, and medical/industrial applications of them	œ Ú8§ #6-H (œ ÛH #0" @" @# ÛH ç(ý+ Optical spetctroscopy, quantitative biology, biophysics, stem cell

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F. \F. MF. (Academic Staff	%EF.F.'2F.F. ÆF.F. Research Fields	G;GSG;GSGW Keywords
ø M 5 Associate Professor (- `F. ! (Ö Akinori AWAZU	(ÊG%o(ý+ Fp#.1=#Õ" @ ÛH G@G\Gn · ÁFø4G Ê D šH g Á g BFp#.1=G%o 9,%É'2 Theoretical molecular and cell biology : Theoretical and experimental studies of genome dynamics, gene regulation, and morphogenesis.	#1ß1=\$x X#.GpGUGxG•G>H 9, GUGŠGM9Q · °GpGUGxG•G>H (G> z ¥ ° 9, Phenomenal mathematical modeling, Experiment data driver modeling, Experiments for
ø M 5 Associate Professor ±0YF. ¬ Isamu OHNISHI	&%Fp%Ê'2 F÷Fÿ>Ø>ìAÿ ÈFÔ – áFp X ÛAÿFøFçFöFp X pF÷G F,8)z g#Õ è X#. ÛFp%Ê'2 FøFçFöF #Õ è#1ßG 4 Fb8)z g#1ßFúFöFöF, X#.&É ÛFp'g FÚG F, ÛG F '2FéG F' ÈFÔ – áFp X ÛFøFÿF,Aÿ" @ !Fp . \$xFú X#.Gp G>G"/œFöFöF,FIG G" –Fú X#.\$xFú1Ý1=H zFúF,GEG Fp X#.&É Û\$xFú S4 Fø µ+ Fb6ø €Fú @% FçF, X#.\$xF 9G" °G G H G"/œFÖFáFøF÷F, –Fp !" @G Fp0Z5 G 1 Á FÿF,G_GwGWG;GEG9GyFú) 1=G" _FßG FÖFú q .G" µ8)z g#Õ è X#. Û In my laboratory, we study and research mathematical science of Life phenomena and, moreover, nonlinear phenomena related to Life activity as a laboratory of Nonlinear mathematical Science related to Life, which is among mathematical science as ``mathematics in a broad sense. We focus on dynamical mathematical modeling of phenomena, and based on that, mathematical discussions (mainly focusing on the relationship between the mathematical scientific structure and their functions of systems. It includes activities that lead to interpretations and explanations of the original things, sometimes paradoxical conclusions.	Nonlinear mathematical Science related to Life
ø M 5 Associate Professor "& F. ž µ Katsuo KATAYANAGI	.@ŠN2A'g / S4 Fp)Y*6\$×0Z ÒH G_GSG;G•GKG•\$SG *ð 6ø4 Fp.@ŠN2AH >ð>ú>ì Ý Ý4Y(òH ;ä, GdGWG4#+,æ#ä (ò.@ŠN2AH Û" @#ä ¶.@ŠN2AH >ð>ð? q ðFp .4#ä ¶G G•FúFúH H FÚG G Ç d.@ŠN2A'p?)z S4 ÒZ ÒFúG G ìFp0Z Á Three dimensional structure and function of Protein by protein X-ray-crystallography, and, Molecular evolution of protein derived from X-ray structure of artificial proteins.	GMG•G_G=2A'g / S4 H ?)z ÛH : U œ 3D structure of protein, X-ray crystallography, Synchrotron radiation
ø M 5 Associate Professor g.(F.&ñ Nen Saito	(ý+ ÆGNG2GXGmG=GGG 4 ìGNG2GXGmG=GGFúF G" P1ßFúH X#.GpGUGy0Z ÒG ±0d • X Í0£'iH µ" Û*f 0Z ÒFúFúG"/œFÖH #Õ" @" @#.G%o X#.#Õ" @ ÛFúFúFp 1=\$xFú%Ê'2G"/œFÖF¹ From the viewpoints of biophysics and mathematical biology, we aim to understand various biological phenomena by performing mathematical modeling , large scale numerical computation and machine learning analysis etc.	X#.GpGUGxG•G>H #Õ" @" @#. Û #Õ" @ Û mathematical modeling, biophysical theoretical biology
ø M 5 Associate Professor ••F. f Û Naoaki SAKAMOTO	G4GYFp\$ì#ÖG"GpGUGyFøFçFöH g Á g B4G ÊFp3? \$ì#Ö4#&ìFúFúFáG 4G ÊG%oG=G{GIGOG•G%o , /Fp .GGGzGŠGMŠFp 8#Ý µ SFúFöFöFö%Ê'2 Research for transcriptional regulation of morphogenetic genes, nuclear dynamics of gene, chromatin and chromosome during development, and mechanism of insulator activity, using the sea urchin development as a model.	G4GYFp\$ì#ÖH 3? xH > Æ . Á Sea urchin development, Transcription, Nuclear dynamics
MF. 5 Professor , 6èF. 4 • Tetsushi SAKUMA	7™ ." @ ò8ð(ý+ G"#ÝFÖFíG@G\Gn)...7ÝFp .0d •/ì6ä\$ G@G\Gn)...7ÝG" Á#ÝFçFí Ç d3? x1*(FúG G FúG6Gb G@G\Gn)...7ÝH G6GbG@G\Gn) GnG@G\Gn&É Û Development of new technology of genome editing using mammalian cultured cells; Development and application of artificial transcriptional control and epigenome editing systems repurposed from genome editing.	Genome editing, Epigenome editing, Systems genomics
ø M 5 Associate Professor â#ãF.-ñ ^ Hiroshi SHIMADA	œ œ B µ+ Fp0Z ÒFøH 4G Ê 5 šG%G?GmG9GyG^Gz G œ œ B "á ¥ V •/ìFp6ä\$ì (-%)s /G^G2G8GFG5G[GEGGFp%Ê'2 Analysis of photosynthesis, and improving photosynthetic efficiency for greater yield by gene modification and chemical biology. Analysis of chloroplast biogenesis.	œ œ BH -%)s /H G?GmG9GyG^ GFGŠ Photosynthesis, Chloroplast, Chemical biology

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Research Fields

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Keywords

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Professor	>í? ? !? ? ? ? F->ō>ŷ>ō>B&H	2AFp#Ō ì Ū\$×%Ê'2 Biochemistry on enzymes and proteins which mediate protein phosphorylation and dephosphorylation.	_ 4)H 4Ý(òH &,,) H/HEHCHJH=HHF·HPHNH=HJH Neuron
M 5	%¼ NF· ā ù	G>GxG0(ŷ+ FŪ%T% FçFi&,,) . #. ŪG%oo&,,) ~ ö Ū%Ê'2H	
Professor	Yasuhiro ISHIHARA	"@2AH #" C ì Ū"@2AG >ù>ù>P>Ū>āFŪFŪH Z7āFŪG C G>GxG0(ŷ+ H w ì Ū"@2AH &,,) Fp Ÿ8íFø Y8i ô+!*ë4ßH >ð>ð>ìH Fp7€ š D Ý 1α	Neuropharmacology and neurotoxicology on glial cells:

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	F. \F. MF. (Academic Staff	%EF.F.2F.F. ZEF.F. Research Fields	G;GSG;GSGW Keywords
(M 5 Visiting Professor	û4SF. x TM Tomonobu M WATANABE	#Ō è# '1ßG" 5 FéG œ Ū0£ •/iFp6ä\$îFøFIG G G"#YFŌ Fi ζ(ý+ %É'2FUG G ŪG%#Ø Á#Ý Stem cell researches with development of optical measurement technologies to quantify biological phenomena, and medical/industrial applications of them.	œ Ū8§ æ6-H (œ ŪH #Ō"@#@# ŪH ζ(ý+ Optical spctroscopy, quantitative biology, biophysics, stem cell
ø M 5 Associate Professor	-]F. J ? ? ? ? ? ? F.>ð>ó>í? >	g#Ō8@Fp' (iFø#" C4: ÁFú6ðG G G@G\Gn4 ì Ū\$×%É Genome evolution underlying speciation and environmental adaptation of amphibians.	2j#Ō8@H 4: Á4 ìH G @G\GmG=C Amphibians, Adaptive evolution, Genomics
ø M 5 Associate Professor	V5 F. ¼ Masaru UENO	%? >#Ō"@FpGTG{GoG0}T â μ SG%>ð>ú>í Ý Ý μ SFp Fb *iG% \$'6ð4 ì. G Fp Á#Ý%É'2 Study on molecular mechanisms of telomere maintenance and DNA repair and their applications for development of anti-cancer and anti-ageing agents.	GTG{GoG0H FUG#H *i Telomere, Cancer, Aging
ø M 5 Associate Professor	ß \$F.*>(ê Ê Misako OKUMURA	œ %±GoG9GYGHGnFp0Ž Á>Ū>ì/2#' ° • (òFp (Ê ò% Á Molecular mechanism of phototransduction. Molecular mechanism of phenotypic plasticity.	Fp0Ž)z.x>ð>ì œ w />ð>ì/2#' ° • (ò Nematode, Photoreceptor, Phenotypic plasticity
ø M 5 Associate Professor	, (F. M0d Kazunori KUME	(ý+ Fp μ+ G" -0ÉFéG (ý+ S4 H G8GyG:G[GwG (ý+ ò FùH Fp D š μ SFú6ðFéG %É'2 Study on the control mechanisms of cell structure (organelles and cell polarity etc.) which ensures cellular functions.	(ý+ S4 H G8GyG:G[GwH (ý+ ò Cell structure, Organelle, Cell polarity
ø M 5 Associate Professor	••F. f Ū Naoaki SAKAMOTO	G4GYFp\$î#ŌG"GpGUGyFøFçFøH g Á g B4G ÊFp3? \$î#Ō4#&iFúFúFáG 4G ÊG%G=G{GIGOG•G% , /Fp GGGzGŠGMGŠFp 8#Ý μ SFúFðFðFø%É'2 Research for transcriptional regulation of morphogenetic genes, nuclear dynamics of gene, chromatin and chromosome during development, and mechanism of insulator activity, using the sea urchin development as a model.	G4GYFp\$î#ŌH 3? xH > AE · Á Sea urchin development, Transcription, Nuclear dynamics
ø M 5 Associate Professor	iF. Á&; Takuma SUGI	¶Fø7Ý KFp/œ .G" -4ÁFéG "@#. NFp%É'2>ð>ì&,,) G[G G=*i μ SFp%É'2 Behavioral systems biology and neural network aging.	/œ .->ð>ì&,,) G[GQGVG}GŠG=*i •/j6ä\$ì>ð Behavior, Imaging, Neural network aging
ø M 5 Associate Professor	! #ŌF.FäFêFø Kozue HAMAO	."@(ý+ Fp(ý+ 9μ A D šFø(ý+ (/äFp (Ê μ SFú6ðFéG %É'2 Molecular mechanisms of cytoskeletal regulation and cell division in animal cells.	(ý+ 9μ AH (ý+ (/äH (ý+ 2A (/ä Cytoskeleton, Mitosis, Cytokinesis
ø M 5 Associate Professor	•#äF. W ... Masayuki YOSHIDA	FäFäG Fp#Ō"@ Ū\$× ò% Fú6ðFéG %É'2 Biological basis of emotion, learning, and mind in animals.	."@ °#H _ .H &,,) &É Ū Animal psychology, Emotion, Neuroscience

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F. \F. MF. (Academic Staff		%EF.F.²F.F. ÆF.F. Research Fields	G;GSG;GSGW Keywords
"F. M Assistant	9x «F.F. Ê Haruko TAKAHASHI	#Ō / ¥>Ō? ? >ì"? ? ? ? >Ō>ß - \$x FÜG#))ÉGpGUGyF G=GGGUGŠGMG"#YFŌF)+ œ\$×0Ž ŌFûG G H FÜG# GnFp0Ž ÁFø \$ª ø% Á#Ý Analysis of the malignant mechanism of cancer and its therapeutic application by integrated analysis using 3D in vitro cancer tissue models, images and omics data.	>ß -? ? >ì"? ? ? ? GpGUGy>Ø C>Ø>ì FÜG# Ý 3D in vitro model, Tumor microenvironment, Anti-cancer
"F. M Assistant	.]F. A • Masashi YUKAWA	G@G\GnFp ó ö – âFû ²8rFú π `ö g B μ SFû6öFéG %Ê '2Fø w#Y#Ō#. q ö"@2AFp6ä\$Í Our research focuses on the molecular mechanisms to establish and maintain a bipolar spindle structure, which is essential for proper chromosome segregation. We also aim to implement our findings towards the development of novel drugs and therapeutic technologies by which to build and sustain healthy aging society.	(ý+ Ø †H , / (4ÄH >ì(ý+ 9μ A Cell cycle, Chromosome segregation, Cytoskeleton