

Roadmap for the Medicine and Health Unit Integrated Initiative for Designing Future Society

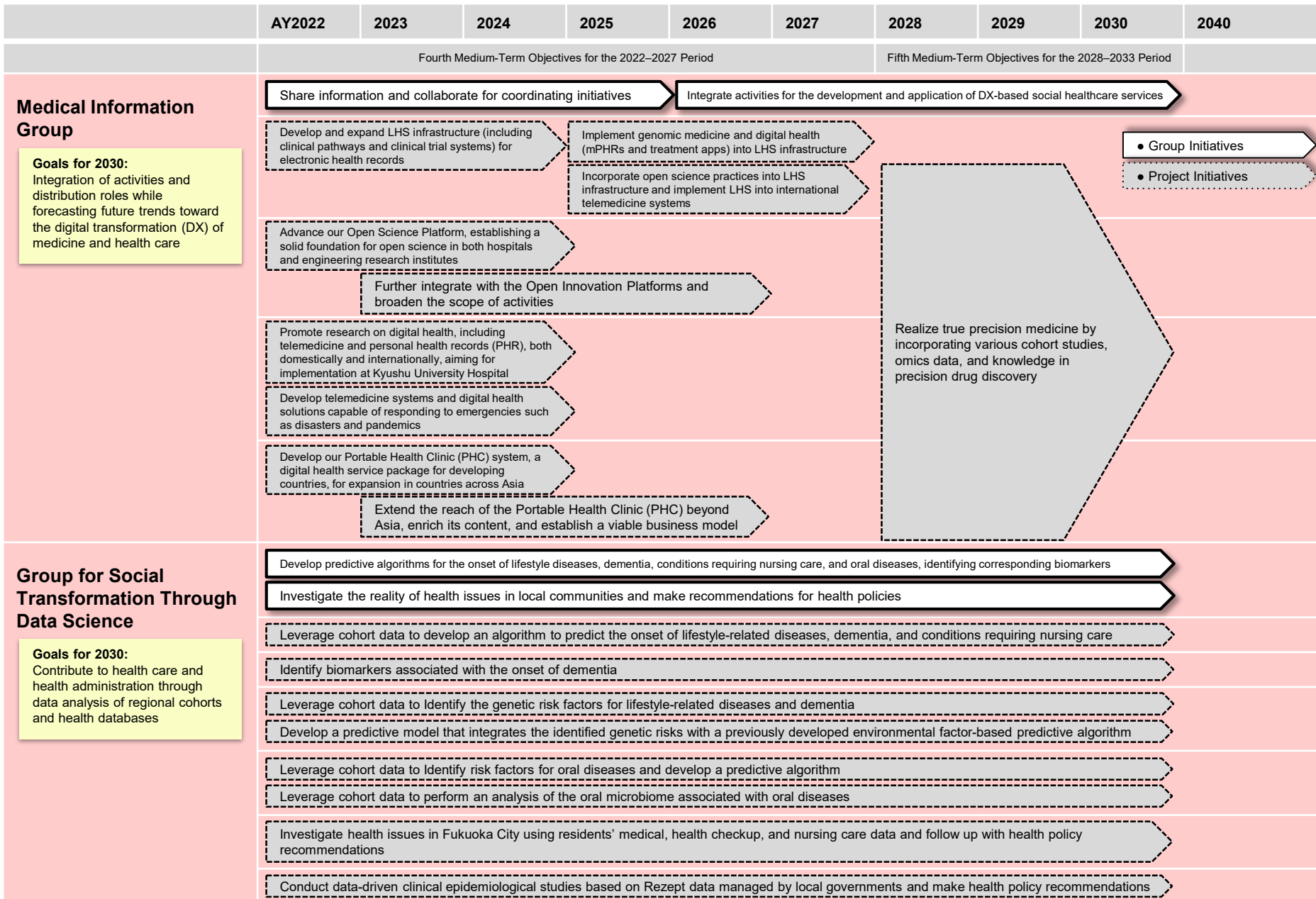
	AY2022	2023	2024	2025	2026	2027	2028	2029	2030	2040
	Fourth Medium-Term Objectives for the 2022–2027 Period						Fifth Medium-Term Objectives for the 2028–2033 Period			
Medicine and Health Unit	<p>Goals and Vision In an aging society with a very low birth rate, the realization of a safe and healthy society—which must include countermeasures against declining birth rates, extending healthy life expectancy, improving labor productivity, and coping with future infectious diseases—requires not only social implementation of individual medical and health research findings but also strategies that take into account how social transformation can be driven through digital transformation (DX). The university's DX strategy will help us execute initiatives for commercialization and social implementation, including the discovery and transfer of medical seed research and the implementation of high-quality clinical research and clinical trials, focusing on the three areas of disease prediction and early detection, maintenance of physical function, telemedicine, and precision medicine and innovative treatment. We will also promote the social implementation of research findings by working closely with Fukuoka City, which has been designated a National Strategic Special Zone to attract global business startups and job creation.</p>									
	<p>Goals for 2030: Accelerate social implementation by collaborating with the humanities and social sciences, leveraging integrative knowledge through digital transformation (DX)</p>									
Precision Drug Discovery Group	<p>Unit meetings held as necessary for goal sharing, strengthening cooperation, sharing issues, progress reports, etc.</p>									
	<p>Develop disease panels</p> <p>Develop innovative drugs that contribute to precision medicine</p> <p>Establish medical infrastructure technology in collaboration with other units</p> <p>Promote green pharma research that contributes to precision medicine</p> <p>Promote eco-pharma drug discovery through collaboration with the fields of pharmaceutical informatics and computational science</p> <p>Develop vaccines and drugs with fewer side effects for the treatment of severe infections and any subsequent effects</p> <p>Develop precision drug discovery technologies that contribute to the One Health initiative</p> <p>Develop disease panels based on the five senses</p> <p>Collect basic data for disease panel development</p> <p>Elucidate the activation mechanism for the sensors of the five senses using molecular dynamics simulations</p> <p>Promote green pharma synthesis research that contributes to precision medicine</p> <p>Social implementation of covalent drug discovery for cancer and infectious diseases</p> <p>Launch covalent drug discovery ventures</p> <p>Identify novel cancer therapeutic targets using functional genomics methods</p> <p>Identify chemical probes through DNA-encoded library (DEL) screenings</p> <p>Develop new highly sensitive blood cancer panel testing</p> <p>Develop new evaluation methods for tumor immunity</p> <p>Discover and develop clinical applications for tumor antigens as T-cell targets</p> <p>Establish biomarker discovery technologies for diseases through advanced analytical techniques targeting oxidized lipids</p> <p>Develop therapeutic technologies for diseases through advanced analytical techniques targeting oxidized lipids</p> <p>Venture commercialization</p>									

- Group Initiatives
- Project Initiatives

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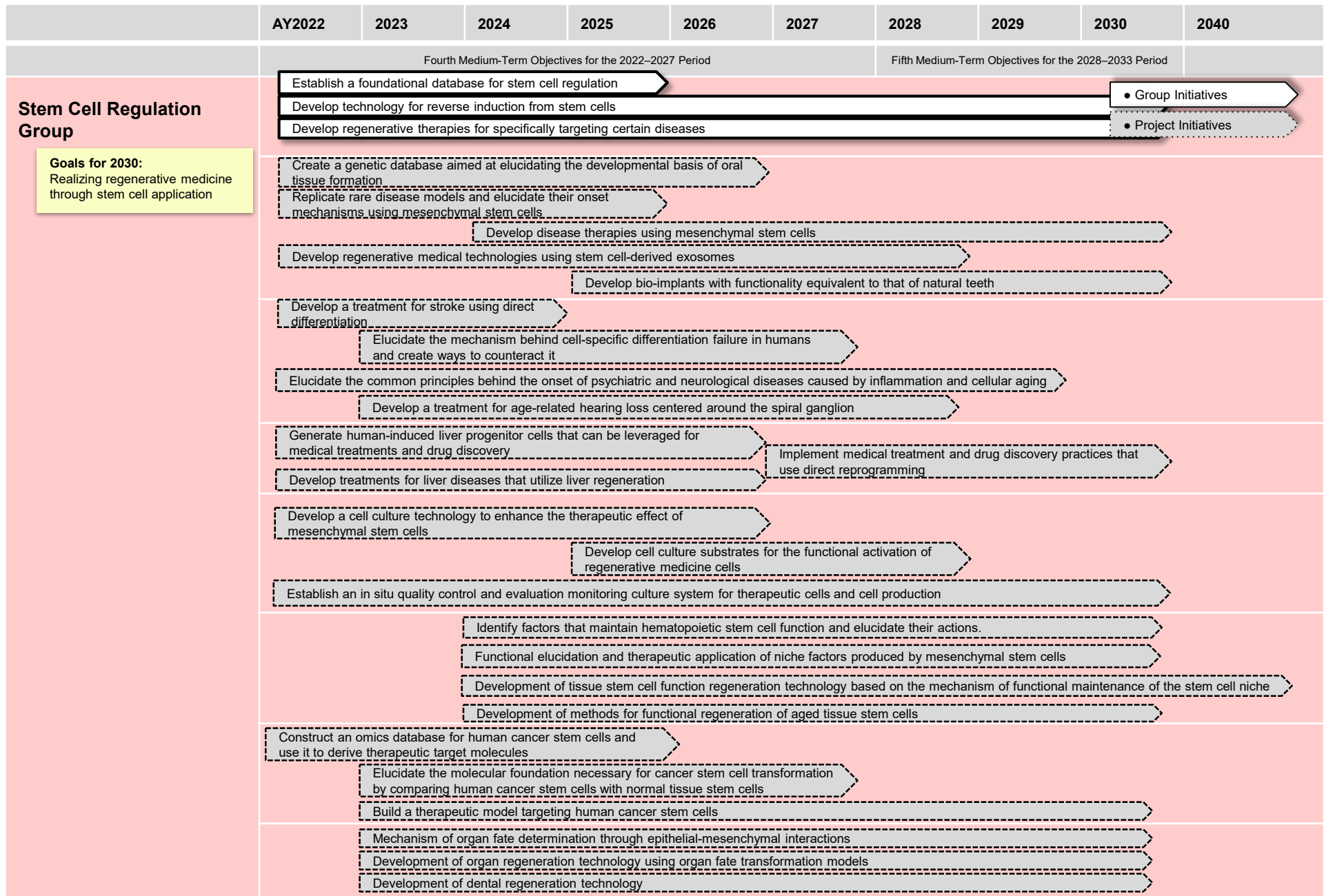
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	Fourth Medium-Term Objectives for the 2022–2027 Period						Fifth Medium-Term Objectives for the 2028–2033 Period				
	● Group Initiatives										
High Depth Omics Group Goals for 2030: Disease prediction and early detection through the development of single-cell multi-omics analysis technology, among other methods	<p>We will transform science, industry, and society by expanding pan-omics, which integrates measurement science, data science, computational science, and mathematical science, across all academic fields.</p> <p>Promote joint collaborative research aimed at elucidating the mechanisms of biological defense systems and diseases triggered by the failure of those systems based on multilevel biological information obtained from omics data.</p> <p>Form a research network between four domestic research centers to realize in-depth omics research that acquires and integrates big data from single-cell omics and single molecular structures.</p> <p>Promote the use of the three cryogenic electron microscopes on Maidashi Campus (one at the Medical Institute of Bioregulation and two at the Faculty of Pharmaceutical Sciences) to researchers both in and outside of Kyushu University for the structural analysis of protein-supramolecular complexes.</p> <p>Support the establishment of essential computational resources and environments for omics data analysis. As part of activity of the Information, Technology Development Research Center, work to promote problem solving in the Medical Biology Research Group.</p> <p>Support single-cell elucidation of disease pathogenesis driven by aberrant gene-expression regulation through a multimodal spatial-omics platform.</p> <p>Support medical research through the development and operation of a multi-omics platform</p> <p>Support the establishment of essential computational resources and environments for omics data analysis, and as part of the activities of the Research Institute for Information Technology, facilitate problem-solving within research groups of the Section of Medical Biology.</p>										

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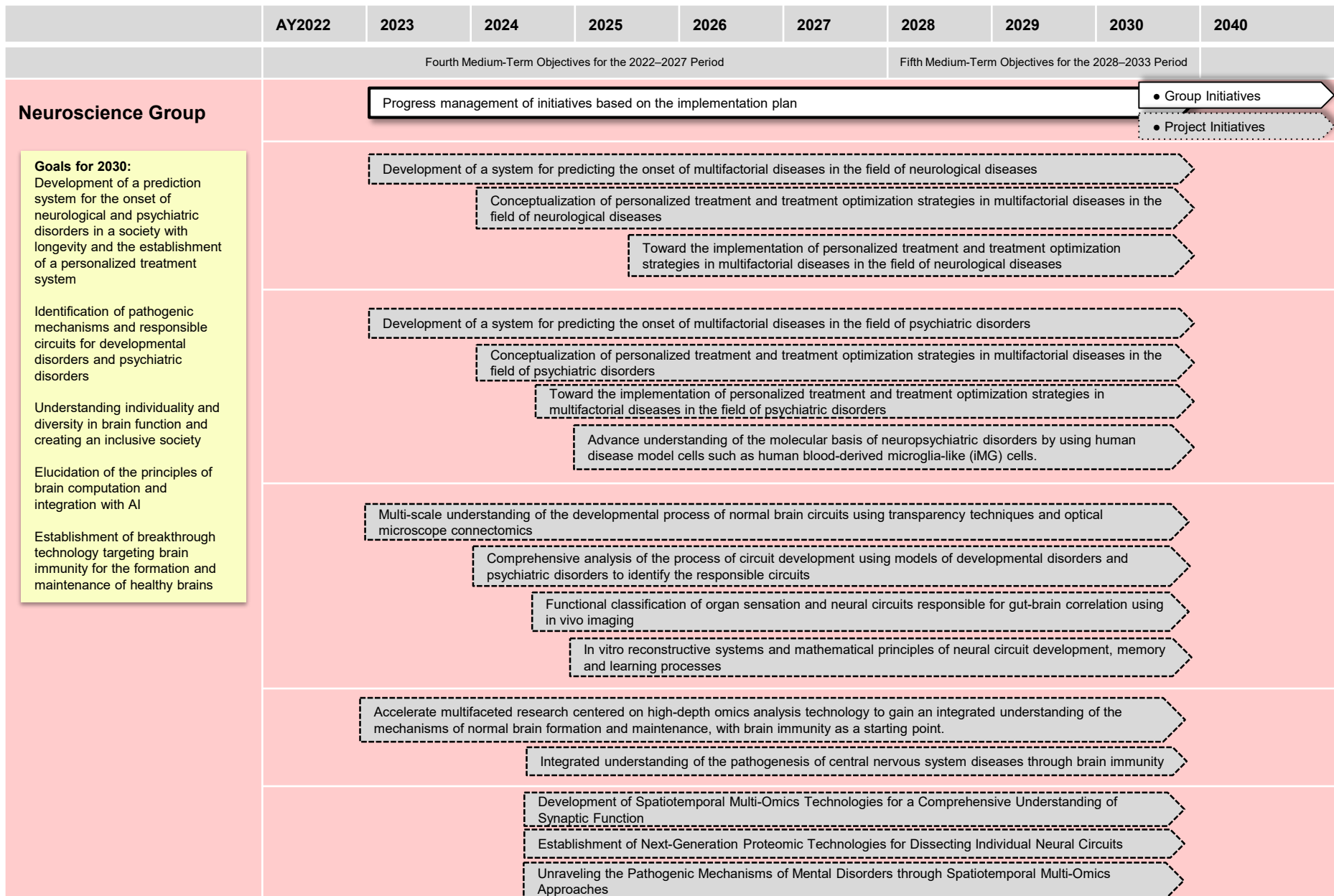


- Group Initiatives
- Project Initiatives

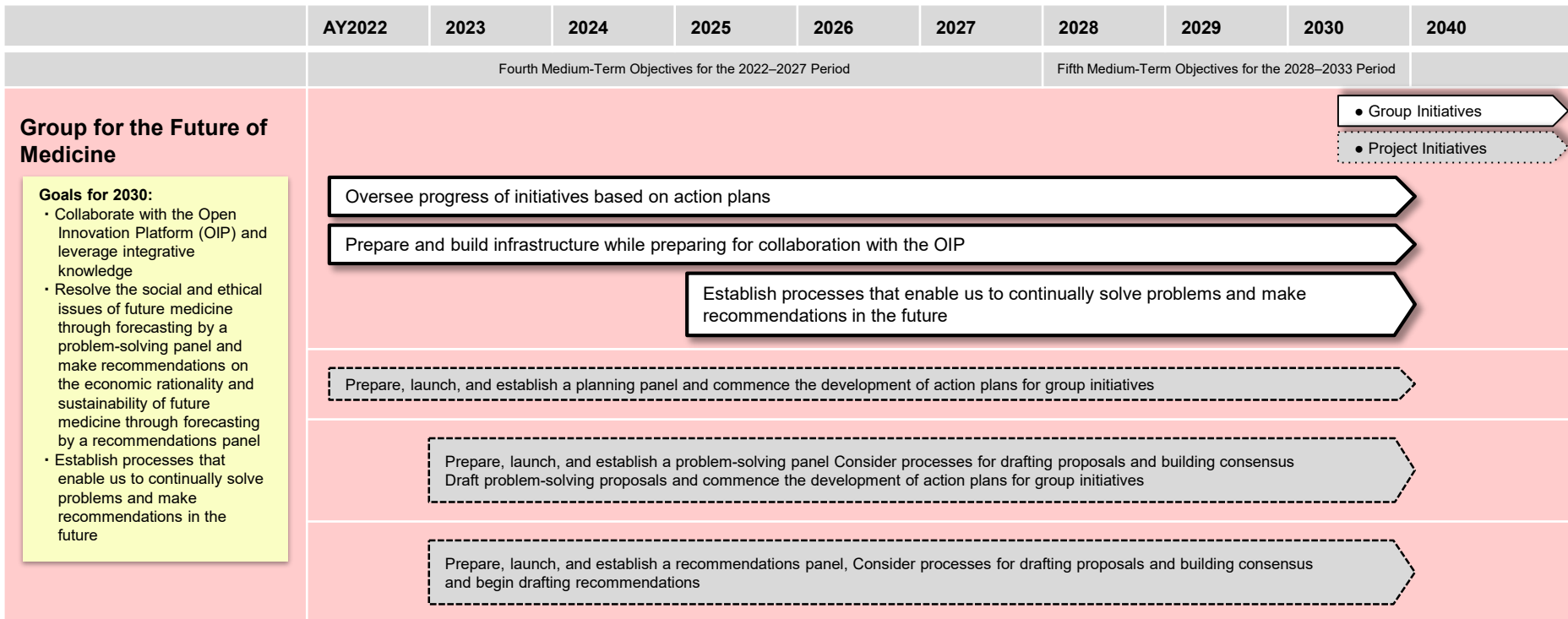
Roadmap for the Medicine and Health Unit Integrated Initiative for Designing Future Society



Roadmap for the Medicine and Health Unit Integrated Initiative for Designing Future Society



Roadmap for the Medicine and Health Unit Integrated Initiative for Designing Future Society



Roadmap for Medical and Health Unit, Design for Future Society Division

	AY2022	AY2023	AY2024	AY2025	AY2026	AY2027	AY2028	AY2029	AY2030	AY2040
	Fourth Medium-Term Objectives and Plans Period (2022-2027)						Fifth mid-term goal and mid-term plan period (2028-2033)			
<p>Medical Engineering Collaboration Group</p> <p>Goals by 2030 :</p> <p>By bringing necessary technologies and people across various fields, the project will (1) identify diverse clinical needs, (2) promote research and development to meet those needs, (3) accelerate their implementation in society, and (4) develop the next generation of highly skilled human resources in the relevant fields.</p>	<ul style="list-style-type: none"> ●Progress management of initiatives based on the implementation plan ●Building an infrastructure for collaboration within the university ●Organizational structure for the continuous development of the infrastructure for building cooperation ●Creation of a mechanism to promote medical-industrial collaboration, construction of a process flow, and human resource development ●Develop the infrastructure for collaboration with relevant overseas institutions and utilize it to promote the development of the Graduate School and its achievements. 									
	<p>【Medical Device Project】</p> <ul style="list-style-type: none"> ● Continuous exchange of information on a regular basis to manage progress on the implementation plan ●Building an infrastructure for collaboration with KU Bioengineering Research Center & Medical engineering collaboration initiative ● Establishment of a more progressive and continuous organizational structure that strengthens social implementation, human resource development, etc. ● Promote practical application and cultivate human resources by clarifying the process, such as showing the path for collaboration with internal and external organizations ● With regard to medical device research and development, the association will deepen cooperation with research institutions and promote joint research, as well as other activities to actively promote the results of such research ●Organize lectures and other events on campus to deepen collaboration with other groups, units, and headquarters 									
	<p>【Tissue and Cell Project】</p> <ul style="list-style-type: none"> ● Continuous exchange of information on a regular basis to manage progress on the implementation plan ●Building an infrastructure for collaboration with KU Bioengineering Research Center & Medical engineering collaboration initiative ● Establishment of a more progressive and continuous organizational structure that strengthens social implementation, human resource development, etc. ● Promote practical application and cultivate human resources by clarifying the process, such as showing the path for collaboration with internal and external organizations. ●Deepen collaboration with other research institutions on tissue and cell research and development, and promote joint research and results. ● Organize lectures and other events on campus to deepen collaboration with other groups, units, and headquarters 									
	<p>【Data and Materials Project】</p> <ul style="list-style-type: none"> ●Continuous exchange of information on a regular basis to manage progress on the implementation plan ●Building an infrastructure for collaboration with KU Bioengineering Research Center & Medical engineering collaboration initiative ● Establishment of a more progressive and continuous organizational structure that strengthens social implementation, human resource development, etc. ● Promote medical-engineering collaboration in the R&D of data and materials, the process of collaboration with internal and external organizations will be clarified to promote practical application and human resource development ●Deepen collaboration with other research institutions on data and materials R&D, promote joint research, and showcase results ● Organize lectures and other events on campus to deepen collaboration with other groups, units, and headquarters 									

Medicine and Health

Precision Medicine Initiative (PMI): Promoting Precision Drug Discovery

Regional collaboration with Kyushu/West Japan PMI centered on research for academic drug discovery and development of disease panel testing at Kyushu University

Collaborate with world-leading centers and pharmaceutical companies

2022

2025

2028

2030

Future Initiatives

Develop Disease Panel Testing



Utilize new information technologies grounded in data analysis

On-site collaboration at Maidashi Hospital Campus

Academic drug discovery



Uniting the university to rapidly bring new therapeutics to market!

Greenpharma research (medicine)

Expand appropriate use of approved drugs

AI-based drug discovery and new drug creation through in silico prediction

Technology development for disease panel testing

Protect intellectual property of research findings and support commercialization

Contribute to precision medicine and innovative treatments

Create center for precision drug discovery

Faculty of Pharmaceutical Sciences



This facility will consolidate drug development technologies at Kyushu University and be able to organically combine and utilize big data and disease panel testing analysis

Apply cancer genome medicine to preventive treatments

Liquid biopsies
Utilize CHIP panel tests, etc.

Promote comprehensive precision drug development

Reverse precision drug discovery using medical big data

Precision drug discovery pharmacists

Train experts in precision drug discovery and the development of disease panel testing

Unit Name: Medicine and Health

Unit Leader Name: Satoru Koyanagi

Group Leader Name: Motohiro Nishida

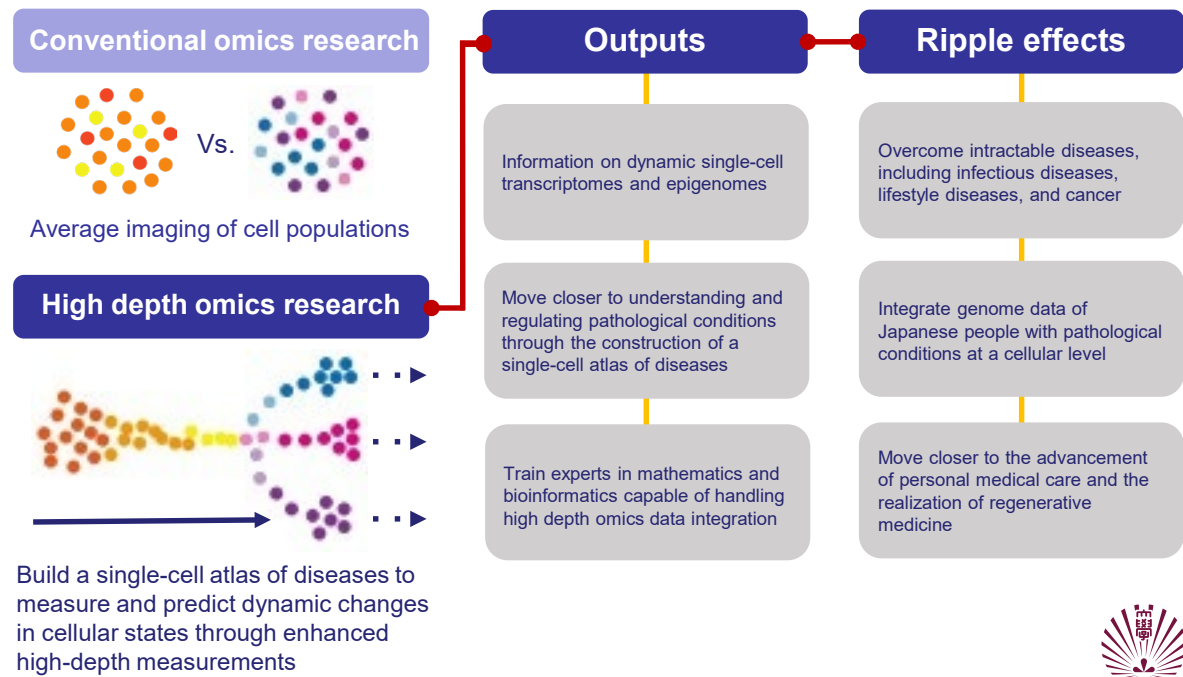
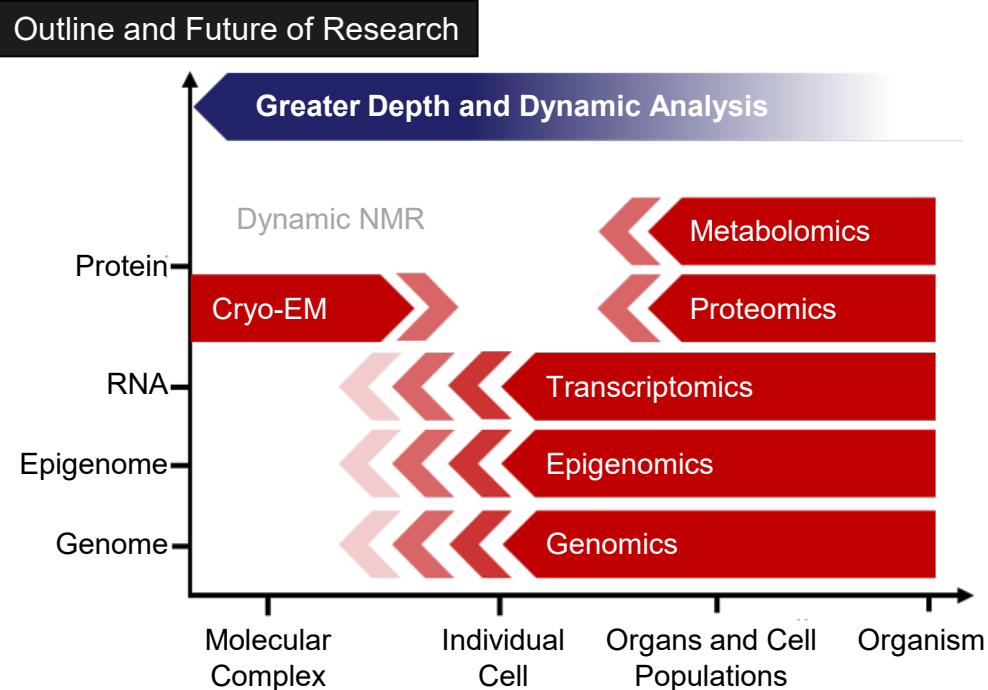
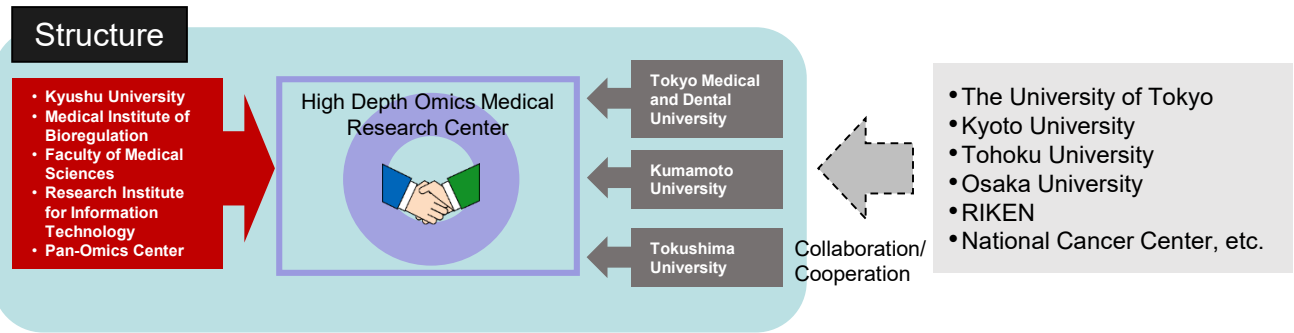
Group Name	Goal	Project Manager			Action Item 1	Action Item 2	Action Item 3	Action Item 4	Action Item 5	Collaborations (e.g., Other groups, other units, DDIn2)	Project URL
		Affiliation	Position	Name							
Precision Drug Discovery	<u>Group-wide:</u> Goal for 2030: Develop disease panel testing technology and innovate drugs that contribute to precision medicine.				Develop disease panels (Initiative Period: 2022–2029)	Develop innovative drugs that contribute to precision medicine (Initiative Period: 2022–2030)	Establish medical infrastructure technology in collaboration with other units (Initiative Period: 2026–2030)	–	–	Collaborate with the OIP to promote intellectual property creation and technology transfers from our research findings	
	<u>Precision Drug Discovery (Evaluation) Project:</u> Goal for 2030: Develop innovative drugs that contribute to precision medicine	<u>Faculty of Pharmaceutical Sciences</u>	<u>Professor</u>	<u>Motohiro Nishida</u>	Promote green pharma research that contributes to precision medicine (Initiative Period: 2022–2028)	Promote eco-pharma drug discovery through collaboration with the fields of pharmaceutical informatics and computational science (Initiative Period: 2023–2030)	Develop vaccines and drugs with fewer side effects for the treatment of severe infections and any subsequent effects (Initiative Period: 2023–2028)	Develop precision drug discovery technologies that contribute to the One Health initiative (Initiative Period: 2024–2030)		Collaborate with the OIP to promote intellectual property creation and technology transfers from our research findings	https://www.phar.kyushu-u.ac.jp/green-pharma/ (Japanese) https://physiology.phar.kyushu-u.ac.jp/ (Japanese) https://bunseki.phar.kyushu-u.ac.jp/index-e.html
	<u>Disease Panel Development Project:</u> Goal for 2030: Develop predictive panels for pre-disease conditions	<u>Faculty of Dental Science</u>	<u>Professor</u>	<u>Noriatsu Shigemura</u>	Develop disease panels based on the five senses (Initiative Period: 2026–2030)	Collect basic data for disease panel development (Initiative Period: 2022–2027)	Elucidate the activation mechanism for the sensors of the five senses using molecular dynamics simulations (Initiative Period: 2022–2030)				https://www.rdctos.kyushu-u.ac.jp/en/ https://www.dent.kyushu-u.ac.jp/sosiki/a06/index(eng).html
	<u>Precision Drug Discovery (Synthesis) Project:</u> Goal for 2030: License covalent drugs to pharmaceutical companies for enabling the treatment of infectious diseases and cancer	<u>Faculty of Pharmaceutical Sciences</u>	<u>Professor</u>	<u>Akio Ojita</u>	Promote green pharma synthesis research that contributes to precision medicine (Initiative Period: 2022–2025)	Social implementation of covalent drug discovery for cancer and infectious diseases (Initiative Period: 2025–2030)	Launch covalent drug discovery ventures (Initiative Period: 2023–2025)			Drive the commercialization of covalent drug discovery in collaboration with Fukuoka Biocommunity	https://bunseki.phar.kyushu-u.ac.jp/index-e.html
	<u>Functional Genomics Drug Discovery Project:</u> Goal for 2030: Establish a pathway for identifying chemical probes from functional genomics	<u>Faculty of Medical Sciences</u>	<u>Professor</u>	<u>Takahiro Maeda</u>	Identify novel cancer therapeutic targets using functional genomics methods (Initiative Period: 2022–2030)	Identify chemical probes through DNA-encoded library (DEL) screenings (Initiative Period: 2023–2030)	Develop new highly sensitive blood cancer panel testing (Initiative Period: 2022–2027)			Implement a blood cancer biobank and genetic panel tests in collaboration with Kyushu University Hospital's Center for Cellular and Molecular Medicine	https://precision.kyushu-u.ac.jp/en/
	<u>Personalized Tumor Immunotherapy Project:</u> Goal for 2030: Develop novel personalized cancer therapies by activating tumor immunity tailored to each type of cancer	<u>Faculty of Medical Sciences</u>	<u>Professor</u>	<u>Shinichi Mizuno</u>	Develop new evaluation methods for tumor immunity (Initiative Period: 2022–2030)	Discover and develop clinical applications for tumor antigens as T-cell targets (Initiative Period: 2022–2030)					https://www.shs.med.kyushu-u.ac.jp/EN/index.html
	<u>Precision Drug Discovery (Lipid Peroxide Analysis and Synthesis) Project</u> Goal for 2030: Identification of endogenous lipid peroxides and their medical applications	<u>Faculty of Pharmaceutical Sciences</u>	<u>Professor</u>	<u>Kenichi Yamada</u>	Establish biomarker discovery technologies for diseases through advanced analytical techniques targeting oxidized lipids (Initiative period: 2025–2030)	Develop therapeutic technologies for diseases through advanced analytical techniques targeting oxidized lipids (Initiative period: 2025–2030)	Venture commercialization (Initiative Period: 2022–2025)			Establishment of the venture company "FELIQS"	https://bukka.phar.kyushu-u.ac.jp/en/

Medicine and Health

Understanding life phenomena and disease onset through high-depth omics research

Objectives This project aims to forge a network of core centers across Japan to develop technologies, train personnel, and create a research platform for world-leading research in high depth omics

- Action Items**
- Develop world-leading single-cell omics analysis technologies, establish a domestic network of research centers, integrate the strengths of each center's research methods, and construct and provide a disease single-cell atlas for a dynamic understanding of life phenomena and disease onset
 - Share acquired technologies among participating centers and establish a research platform for their practical application
 - Utilize the benefits of the network to foster human resources through hosting joint symposiums, exchanging and dispatching researchers, and conducting technical workshops, among other activities. In particular, train researchers at each center who are able to undertake integrated analyses of high depth omics data and strategically promote the development of human resources in the fields of mathematics and bioinformatics
 - As a research center for high depth omics, make globally available the technologies, facilities, and databases that are developed



List of Group Initiatives

April 11, 2025

Unit Name: Medicine and Health

Unit Leader Name: Satoru Koyanagi

Group Leader Name: Yasuyuki Ohkawa

Group Name	Goal	Project Manager			Action Item 1	Action Item 2	Action Item 3	Action Item 4	Action Item 5	Collaborations (e.g., Other groups, other units, DDIn2)	Project URL
		Affiliation	Position	Name							
High Depth Omics	<p><u>Group-wide:</u></p> <p>Goal for 2030: Disease prediction and early detection through the development of single-cell multi-omics analysis technology, among other methods</p>				—	—	—	—	—		
	<p><u>High Depth Omics-Related Project:</u></p> <p>Jointly promote one of the aforementioned projects as a group.</p>	Medical Institute of Bioregulation	Professor	Yasuyuki Ohkawa	<p>We will transform science, industry, and society by expanding pan-omics, which integrates measurement science, data science, computational science, and mathematical science, across all academic fields. In accordance with the general budget request for FY2020, steps have been taken for the organization of the Pan-Omics Data-Driven Research Innovation Center as a universal omics measurement and computational science center.</p> <p>(Initiative Period: 2019–2024)</p>	<p>Promote joint collaborative research aimed at elucidating the mechanisms of biological defense systems and diseases that are triggered by the failure of those systems based on multilevel biological information obtained from omics data. In accordance with the budget request for FY2022, steps have been taken for the organization of the Research Center for the Multi-Stratified Host Defense System.</p> <p>(Initiative Period: 2022–2027)</p>	<p>Form a research network between four domestic research centers to realize in-depth omics research that acquires and integrates big data from single-cell omics and single molecular structures. In accordance with the budget request for FY2022, steps have been taken for the organization of the Research Center for the Multi-Stratified Host Defense System.</p> <p>(Initiative Period: 2022–2027)</p>		<p>Use genome editing technology in collaboration with the Environmental and Food Unit to develop intervention approaches for diseases Drive innovation focused on the commercialization and licensing of our unique omics technology in collaboration with the Think Tank Unit</p>	<p>http://clam.cc.kyushu-u.ac.jp/en/ https://www.bioreg.kyushu-u.ac.jp/mib/activities_collabo_j.html (Japanese) https://www.bioreg.kyushu-u.ac.jp/mib/activities_collabo_HighDepthOmics_j.html (Japanese)</p>	
		Medical Institute of Bioregulation	Professor	Kenji Inaba	<p>Promote the use of the three cryogenic electron microscopes on Maidashi Campus (one at the Medical Institute of Bioregulation and two at the Faculty of Pharmaceutical Sciences) to researchers both in and outside of Kyushu University for the structural analysis of protein-supramolecular complexes.</p> <p>(Initiative Period: 2024–2027)</p>						http://vsb.bmr.kyushu-u.ac.jp/VSB/en/index.html
		Medical Institute of Bioregulation	Professor	Masao Nagasaki	<p>Promote genomics, provide essential computational resources, and support the infrastructure for omics data analysis. Facilitate the resolution of computational challenges in medical and biological research.</p> <p>(Initiative Period: 2023–2027)</p>						https://nagasakilab.csml.org/
		Medical Institute of Bioregulation	Professor	Hiroshi Ochiai	<p>Establish and operate a multimodal spatial-omics platform capable of concurrent DNA, RNA, and protein analysis to support single-cell elucidation of disease pathogenesis driven by aberrant gene-expression regulation</p> <p>(Initiative period: 2025–2027).</p>						https://www.bioreg.kyushu-u.ac.jp/labo/ged/
		Faculty of Medical Sciences	Professor	Akihito Harada	<p>Promote multi-omics and support medical research by establishing spatial and single-cell multi-omics platforms.</p> <p>(Initiative period: 2025-2027).</p>						To be released as soon as ready
		Research Institute for Information Technology	Associate Professor	Takeshi Nanri	<p>Support the establishment of essential computational resources and environments for omics data analysis, and as part of the activities of the Research Institute for Information Technology, facilitate problem-solving within research groups of the Section of Medical Biology.</p> <p>(Initiative Period: 2022–2027)</p>						https://hyoka.ofc.kyushu-u.ac.jp/search/details/K000018/english.html

Open medical science grounded in Learning Health System (LHS)

Implement LHS for data-driven clinical research and education and accumulate knowledge across multiple fields

2022

LHS for electronic health records

- 4 hospitals, 8 diseases
- Decentralized clinical trials (in collaboration with ARO)

• Japanese open science platform

(In collaboration with the University Hospital and School of Engineering)

• Expand telemedicine education, health screening, and medical services primarily in Asia

(TEMDEC, Portable Health Clinic)

2025

Disease-specific LHS infrastructure

- 10 hospitals, 100 diseases
- Link genome medicine infrastructure
- Digital health collaboration

• Integration with open innovation platform

(Collaboration across the university as well as with the private sector and government)

• Expand domestic and international telemedicine and disaster response medical systems

(TEMDEC, Portable Health Clinic, QAOS)

2027

Build infrastructure for integrated LHS

- Integrate phynome, genome, and exposome domains
- Promote open science
- Promote digital transformation by introducing sources for patient information (PHR, remote systems for medical care)

2030

Establish a comprehensive LHS center



Strategically manage and leverage the comprehensive collection of data derived from the health and medical data science initiatives at Kyushu University

Reorganize the four activities of the Medical and Health Unit, with a focus on integration.

Future Initiatives

Health research using next-generation data

- Establishing a university-wide platform for promoting innovation in health and medical care, combining personalized health and medical information, genetic information, and environmental information (including lifestyle habits), with the integration of open data from basic medicine and society
- Realize personalized healthcare services
- Achieve digital transformation utilizing digital health data
- Train experts in ELSI, data science, digital health, and cohort studies

List of Group Initiatives

April 14, 2025

Unit Name: Medicine and Health

Unit Leader Name: Satoru Koyanagi

Group Leader Name: Naoki Nakashima

Group Name	Goal	Project Manager			Action Item 1	Action Item 2	Action Item 3	Action Item 4	Action Item 5	Collaborations (e.g., Other groups, other units, DDIn2)	Project URL
		Affiliation	Position	Name							
Medical Information Group	<p><u>Group-wide:</u></p> <p>Goal for 2030: Integrate activities and distribution roles while forecasting future trends toward the digital transformation (DX) of medicine and health care</p>				Share information and collaborate for coordinating initiatives (Initiative Period: 2022–2025)	Integrate activities for the development and application of DX-based social healthcare services (Initiative Period: 2026–2030)	–	–	–	Collaborate with the Healthcare DX Innovation Division of the Data-Driven Innovation Initiative	
	<p><u>LHS Infrastructure Creation Project:</u></p> <p>Goal by 2030: Expand and develop small-scale LHS infrastructure across the university</p>	<p><u>Faculty of Medical Sciences</u></p>	<p><u>Professor</u></p>	<p><u>Naoki Nakashima</u></p>	<p>Develop and expand LHS infrastructure (including clinical pathways and clinical trial systems) for electronic health records (Initiative Period: 2022–2024)</p>	<p>Implement genomic medicine and digital health (PHRs and treatment apps) into LHS infrastructure (Initiative Period: 2025–2027)</p>	<p>Incorporate open science practices into LHS infrastructure and implement LHS into international telemedicine systems (Initiative Period: 2025–2027)</p>	<p>Realize true precision medicine by incorporating various cohort studies, omics data, and knowledge in precision drug discovery (Initiative Period: 2028–2030)</p>	–	<p>Aim to establish a foundation that considers ELSI (Ethical, Legal, and Social Implications) in collaboration with the Future of Medicine Group (yet to be implemented)</p>	<p>https://e-path.jp (Japanese)</p>
		<p><u>Medical Information Center, Kyushu University Hospital</u></p>	<p><u>Associate Professor</u></p>	<p><u>Takanori Yamashita</u></p>							<p>https://cos3.med.kyushu-u.ac.jp/ (Japanese)</p>
	<p><u>Open Science Project:</u></p> <p>Goal by 2030: Introduce open science practices to efficiently create scientific services tailored to meet specific needs.</p>	<p><u>Department of Applied Chemistry, Faculty of Engineering</u></p>	<p><u>Professor</u></p>	<p><u>Tsuyohiko Fujiyama</u></p>	<p>Advance our Open Science Platform, establishing a solid foundation for open science in both the Kyushu University Hospital and Faculty of Engineering (Initiative Period: 2022–2024)</p>	<p>Further integrate with the Open Innovation Platforms and broaden the scope of activities (Initiative Period: 2023–2026)</p>	<p>Integrate into the aforementioned LHS Infrastructure Creation Project</p>	–	–	<p>Continue to make progress with positioning ourselves as an OIP</p>	<p>https://www.chem.kyushu-u.ac.jp/~cstm/healthtech/</p> <p>https://www.chem.kyushu-u.ac.jp/~cstm/laboratory/laboratory_336.php (Japanese)</p>
	<p><u>Telemedicine DX Project:</u></p> <p>Goal by 2030: Promote digital transformation (DX) using international telemedicine and digital health</p>	<p><u>Telemedicine Development Center of Asia, Kyushu University Hospital</u></p>	<p><u>Associate Professor</u></p>	<p><u>Tomohiko Moriyama</u></p>	<p>Promote research on digital health, including telemedicine and personal health records (PHR), both domestically and internationally, aiming for implementation at Kyushu University Hospital (Initiative Period: 2022–2024)</p>	<p>Develop telemedicine systems and digital health solutions capable of responding to emergencies such as disasters and pandemics (Initiative Period: 2022–2024)</p>	<p>Integrate into the aforementioned LHS Infrastructure Creation Project</p>	–	–	<p>Continue to make progress in collaboration with the Research Institute for Information Technology, the Graduate School of Information Science and Electrical Engineering, and the QAOS</p>	<p>https://www.temdec.med.kyushu-u.ac.jp/eng/</p> <p>https://portablehealth.clinic/</p>
	<p><u>Developing Country Medical DX Project:</u></p> <p>Goal by 2030: Deploy healthcare services globally using digital health to promote digital transformation (DX)</p>	<p><u>Faculty of Information Science and Electrical Engineering</u></p>	<p><u>Associate Professor</u></p>	<p><u>Ashir Ahmed</u></p>	<p>Develop our Portable Health Clinic (PHC) system, a digital health service package for developing countries, for expansion in countries across Asia (Initiative Period: 2022–2024)</p>	<p>Extend the reach of the Portable Health Clinic (PHC) beyond Asia, enrich its content, and establish a viable business model (Initiative Period: 2023–2026)</p>	<p>Integrate into the aforementioned LHS Infrastructure Creation Project</p>	–	–	<p>Continue to make progress in collaboration with Kyushu University Hospital's International Medical Department and the QAOS as well as the Grameen Group of Bangladesh and other partners across Asia and Africa</p>	<p>https://portablehealth.clinic/</p>

Social transformation through data science

Contribute to healthcare and health administration through data analysis utilizing cohorts and databases of medical, health screening, and nursing care information from local governments

2022

2023

2025

2030

Future Initiatives

Planning and data maintenance

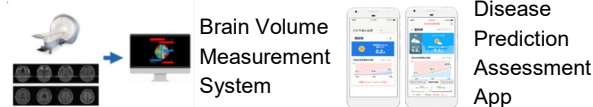
- Research planning
- Consolidate cohort data
- Integrate cohort data with imaging data, omics, etc.
- Acquire and construct databases for medical, health examination, and nursing care data from regional local governments

Promote regional cohort studies

- Explore risk factors for the onset of oral diseases, situations requiring nursing care, dementia, and lifestyle diseases using cohort data, imaging information, and omics
- Identify biomarkers for the onset of dementia
- Analyze oral bacterial flora
- Identify genetic risk factors for lifestyle diseases and dementia

Data analysis utilizing healthcare, health screening, and nursing care databases from local governments and businesses

- Consider the circumstances of health problems in regional communities
- Conduct data-driven research on clinical epidemiology leveraging local government data
- Extend research on healthcare economic evaluation



Develop algorithms to predict the onset of oral diseases, situations requiring nursing care, dementia, and lifestyle diseases

Engage in evidence-based policy making and providing health policy recommendations for local governments and businesses

Social transformation leveraging data science

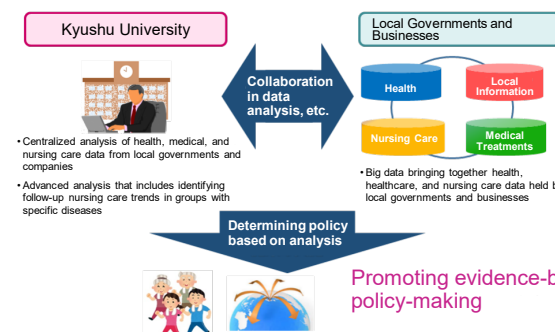
- Develop IT tools for the application of evidence-based preventive medicine in practice
- Conduct personalized medicine
- Achieving healthcare through the utilization of Personal Health Records (PHR) and digital transformation (DX)
- Train experts in data science



Faculty of Medical Sciences
Center for Cohort Studies

Consolidated management of regional, disease, and environmental cohorts within Kyushu University

- Cohort data and clinical information for approx. 70,000 people
- Genome data for approx. 40,000 people
- Dataset comprising approx. 10,000 head MRI imaging scans
- Autopsy data, oral/gut microflora data, etc.



List of Group Initiatives

April 3, 2025

Unit Name: Medicine and Health

Unit Leader Name: Satoru Koyanagi

Group Leader Name: Toshiharu Ninomiya

Group Name	Goal	Project Manager			Action Item 1	Action Item 2	Action Item 3	Action Item 4	Action Item 5	Collaborations (e.g., Other groups, other units, DDIn2)	Project URL
		Affiliation	Position	Name							
Group for Social Transformation Through Data Science	<p><u>Group-wide:</u></p> <p>Goal for 2030: Contribute to health care and health administration through data analysis of regional cohorts and health databases</p>				<p>Develop predictive algorithms for the onset of lifestyle diseases, dementia, conditions requiring nursing care, and oral diseases, identifying corresponding biomarkers</p> <p>(Initiative Period: 2022–2030)</p>	<p>Investigate the reality of health issues in local communities and make recommendations for health policies</p> <p>(Initiative Period: 2022–2030)</p>	–	–	–	<p>Collaborations include the following:</p>	
	<p><u>A: Disease Prediction Algorithm Development Project</u></p> <p>Goal for 2030: Develop algorithms to predict the onset of situations requiring nursing care, dementia, and lifestyle diseases</p>	<p><u>Department of Hygiene and Public Health, Faculty of Medical Sciences</u></p>	<p><u>Professor</u></p>	<p><u>Jun Hata</u></p>	<p>Leverage cohort data to develop an algorithm to predict the onset of lifestyle-related diseases, dementia, and conditions requiring nursing care</p> <p>(Initiative Period: 2022–2030)</p>					<p>We have started analyzing follow-up data of participants in the Hisayama Study and the Japan Prospective Studies Collaboration for Aging and Dementia (JPSC-AD study)</p>	<p>https://www.hisayama.med.kyushu-u.ac.jp/en/</p> <p>https://www.eph.med.kyushu-u.ac.jp/jpsc/en/</p>
	<p><u>B: Dementia Biomarker Discovery Project</u></p> <p>Goal for 2030: Identify biomarkers associated with the onset of dementia</p>	<p><u>Department of Psychiatry, Kyushu University Hospital</u> <u>Department of Neurology, Kyushu University Hospital</u></p>	<p><u>Associate Professor</u></p>	<p><u>Tomoyuki Ohara</u></p>	<p>Identify biomarkers associated with the onset of dementia</p> <p>(Initiative Period: 2022–2030)</p>					<p>We are preparing to measure biomarkers using stored specimens from participants in the Hisayama Study and the Japan Prospective Studies Collaboration for Aging and Dementia (JPSC-AD study)</p>	<p>https://www.hisayama.med.kyushu-u.ac.jp/en/</p> <p>https://www.eph.med.kyushu-u.ac.jp/jpsc/en/</p>
	<p><u>C: Genomic Epidemiology Project</u></p> <p>Goal for 2030: Identify genetic risk factors for lifestyle diseases and dementia</p>	<p><u>Department of Ophthalmic Pathophysiology and Imaging, Graduate School of Medicine</u></p>	<p><u>Associate Professor</u></p>	<p><u>Masato Akiyama</u></p>	<p>Leverage cohort data to identify the genetic risk factors for lifestyle-related diseases and dementia</p> <p>(Initiative Period: 2022–2030)</p>	<p>Develop a predictive model that integrates the identified genetic risks with a previously developed environmental factor-based predictive algorithm</p> <p>(Initiative Period: 2022–2030)</p>				<p>We have performed SNP genotyping using DNA samples from participants in the Japan Prospective Studies Collaboration for Aging and Dementia (JPSC-AD study) and the Hisayama Study</p>	<p>https://www.hisayama.med.kyushu-u.ac.jp/en/</p> <p>https://www.eph.med.kyushu-u.ac.jp/jpsc/en/</p>
	<p><u>D: Oral Disease Prevention Project</u></p> <p>Goal by 2030: Develop an algorithm to predict the onset of oral diseases</p>	<p><u>Section of Preventive and Public Health Dentistry, Faculty of Dental Science</u></p>	<p><u>Professor</u></p>	<p><u>Toru Takeshita</u></p>	<p>Leverage cohort data to identify risk factors for oral diseases and develop a predictive algorithm</p> <p>(Initiative Period: 2022–2030)</p>	<p>Leverage cohort data to perform an analysis of the oral microbiome associated with oral diseases</p> <p>(Initiative Period: 2022–2030)</p>				<p>We have organized cohort data related to oral diseases We have started analyzing oral microbiota</p>	<p>http://www.prevent-dent-kyushu-u.com/course01.html</p> <p>https://kaken.nii.ac.jp/en/grant/KAKE-NHI-PROJECT-22H03303/</p>
	<p><u>F: EBPM Project 2</u></p> <p>Goal by 2030: Practice evidence-based policy making (EBPM), conduct data-driven clinical epidemiological research using health data from local governments</p>	<p><u>School of Healthcare Administration, Faculty of Medical Sciences</u></p>	<p><u>Associate Professor</u></p>	<p><u>Haruhisa Fukuda</u></p>	<p>Conduct data-driven clinical epidemiological studies based on Rezept data managed by local governments and make health policy recommendations</p> <p>(Initiative Period: 2022–2030)</p>					<p>We have launched The Longevity Improvement & Fair Evidence (LIFE) Study, using prescription data from multiple local governments</p>	<p>https://life.hcam.med.kyushu-u.ac.jp/</p>

Medicine and Health

Stem Cell Regulation

- Understand the traits of tissue stem cells needed for regenerative medicine and create methods of regulation
- Clarify pathogenic mechanisms and create disease models needed to develop treatments for specific diseases (rare diseases, etc.)
- Build the technological infrastructure for organ regeneration
- Develop technologies for the stable supply of stem cells used in regenerative medicine and create methods for quality control

2022

Implementation planning



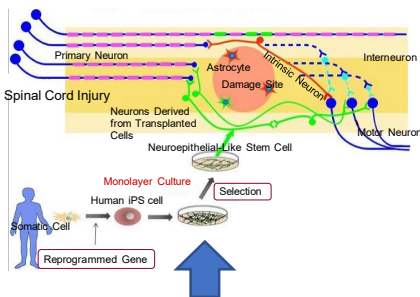
2023

Build databases

Comprehensive genetic screening
Proteome analysis
Understand spatiotemporal molecular expressions

Develop cellular construction technologies for organ regeneration

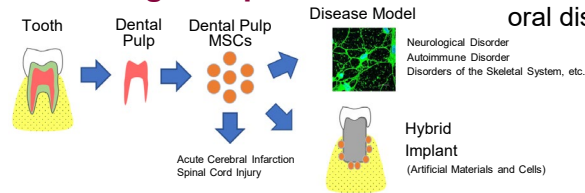
Artificial induction of tissue cells using cellular reprogramming, etc.
Develop technologies for organ regeneration through the three-dimensional construction of tissue cells



Develop technologies for the stable supply of tissue stem cells

2025

Modeling for specific diseases



2030

Develop disease regeneration and treatment technologies

Develop regenerative and restorative technologies through applying the stem cells of specific diseases, etc.

Optimization of cells and application to diseases

Develop technologies for the quality control of tissue stem cells

Future Initiatives

Realize new systems for diagnosis and treatment

Realize treatments for organ regeneration and launch onto the market

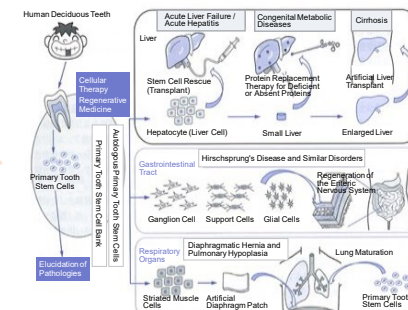


Fig. 11 Development of novel therapeutics using deciduous tooth stem cells

Unit Name: Medicine and Health

Unit Leader Name: Satoru Koyanagi

Group Leader Name: Satoshi Fukumoto

Group Name	Goal	Project Manager			Action Item 1	Action Item 2	Action Item 3	Action Item 4	Action Item 5	Collaborations (e.g., Other groups, other units, DDIn2)	Project URL
		Affiliation	Position	Name							
Stem Cell Regulation	Group-wide: Goal for 2030: Realize regenerative medicine through stem cell application				Establish a foundational database for stem cell regulation (Initiative Period: 2022–2025)	Develop technology for reverse induction from stem cells (Initiative Period: 2022–2030)	Develop regenerative therapies for specifically targeting certain diseases (Initiative Period: 2022–2030)	—	—		
	Oral Tissue Reconstruction Project: Goal by 2030: Develop regenerative technologies for oral tissues	Faculty of Dental Science	Professor	Satoshi Fukumoto	Create a genetic database aimed at elucidating the developmental basis of oral tissue formation (Initiative Period: 2022–2026)	Replicate rare disease models and elucidate their onset mechanisms using mesenchymal stem cells (Initiative Period: 2022–2025)	Develop disease therapies using mesenchymal stem cells (Initiative Period: 2024–2030)	Develop regenerative medical technologies using stem cell-derived exosomes (Initiative Period: 2022–2028)	Develop bio-implants with functionality equivalent to that of natural teeth (Initiative Period: 2025–2030)		
	Neurological Disease Regeneration Project: Goal by 2030: Establish regenerative therapies targeting neurological diseases	Faculty of Medical Sciences	Professor	Kinichi Nakashima	Develop a treatment for stroke using direct differentiation (Initiative Period: 2022–2024)	Elucidate the mechanism behind cell-specific differentiation failure in humans and create ways to counteract it (Initiative Period: 2023–2027)	Elucidate the common principles behind the onset of psychiatric and neurological diseases caused by inflammation and cellular aging (Initiative Period: 2022–2029)	Develop a treatment for age-related hearing loss centered around the spiral ganglion (Initiative Period: 2023–2028)			https://www.iab.med.kyushu-u.ac.jp/scb/ (Japanese)
	Liver Reconstruction Project: Goal by 2030: Establish regenerative technologies targeting the liver	Medical Institute of Bioregulation	Professor	Atsushi Suzuki	Generate human-induced liver progenitor cells that can be leveraged for medical treatments and drug discovery (Initiative Period: 2022–2026)	Develop treatments for liver diseases that utilize liver regeneration (Initiative Period: 2022–2026)	Implement medical treatment and drug discovery practices that use direct reprogramming (Initiative Period: 2027–2030)				https://www.bioreg.kyushu-u.ac.jp/labo/orgreg/top.html (Japanese)
	High-Quality Stem Cell Creation Project: Goal by 2030: Develop quality control and stable supply techniques for stem cells used in regeneration	Institute for Materials Chemistry and Engineering	Professor	Satoru Kidogaki	Develop a cell culture technology to enhance the therapeutic effect of mesenchymal stem cells (Initiative Period: 2013–2026)	Develop cell culture substrates for the functional activation of regenerative medicine cells (Initiative Period: 2025–2028)	Establish an in situ quality control and evaluation monitoring culture system for therapeutic cells and cell production (Initiative Period: 2013–2030)				
	Stem Cell Microenvironment (Niche) Control Project: Goal by 2030: Development of regenerative technologies that target the hematopoietic microenvironment	Faculty of Medical Sciences	Professor	Fumio Arai	Identify factors that maintain hematopoietic stem cell function and elucidate their actions. (Initiative Period: 2024–2030)	Functional elucidation and therapeutic application of niche factors produced by mesenchymal stem cells (Initiative Period: 2024–2030)	Development of technology for functional regeneration of tissue stem cells based on the mechanism of functional maintenance of the stem cell niche (Initiative Period: 2024–2030)	Development of methods for functional regeneration of aged tissue stem cells (Initiative Period: 2024–2030)			
	Cancer Stem Cell Regulation Project: Goal by 2030: Develop novel therapeutic strategies based on the characteristics of human cancer stem cells	Kyushu University Hospital	Lecturer	Yoshikane Kikushige	Construct an omics database for human cancer stem cells and use it to derive therapeutic target molecules (Initiative Period: 2022–2025)	Elucidate the molecular foundation necessary for cancer stem cell transformation by comparing human cancer stem cells with normal tissue stem cells (Initiative Period: 2023–2027)	Build a therapeutic model targeting human cancer stem cells (Initiative Period: 2023–2030)				
	Tooth Regeneration Project: Goal by 2030: Developing tooth regeneration technology	Kyushu University Hospital	Lecturer	Keigo Yoshizaki	Mechanism of organ fate determination through epithelial-mesenchymal interactions (Initiative Period: 2023–2030)	Development of organ regeneration technology using organ fate transformation models (Initiative Period: 2023–2030)	Development of dental regeneration technology (Initiative Period: 2023–2030)				

Medical & Health Neuroscience

- In an aging and increasingly complex society, there is a growing demand to address and elucidate the pathophysiology of neurodegenerative diseases, psychiatric disorders, developmental disorders, and stress-related disorders.
- Aiming to establish innovative technologies and therapies targeting brain immunity, practice personalized medicine, and social implementation in order to maintain a healthy brain.
- Elucidate the process of neural circuit development and circuit development in neurological and psychiatric disorders through AI and mathematical approaches, etc., to further realize an inclusive society.

2023

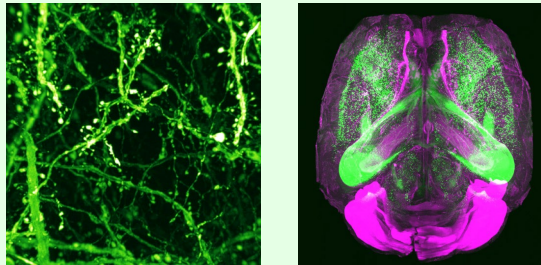
2024

2025

2030

Future Initiatives

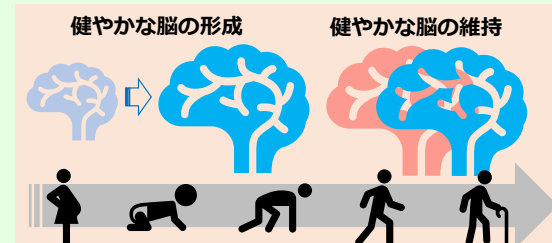
Elucidating Circuit Changes and Their Underlying Basis in Normal Brain Development and Mental Disorders Through Multi-Scale Analysis of Brain Circuits



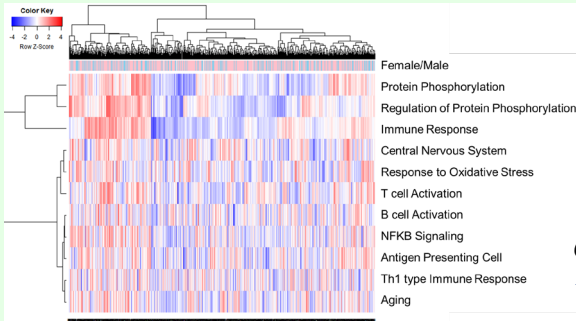
Prepare for starting projects

- Planning
- Kick-off and start-up

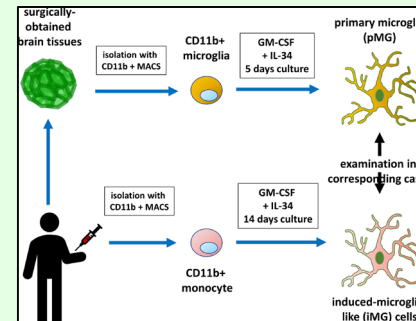
Comprehensive Understanding of Normal Brain Formation and Maintenance Mechanisms, as well as Central Nervous System Disorders, through High-Depth Omics Analysis



Establishing Individualized Treatment Approaches Utilizing Polygenic Risk Score (PRS)



Pathophysiological Understanding and Therapeutic Innovation for Psychoneurological Disorders Using Human Model Cells Such as iMG



- Establishment of groundbreaking technologies focused on brain immunity for the formation and maintenance of a healthy brain
- Practice and social implementation of personalized medicine in multifactorial diseases in the field of psychiatric and neurological disorders
- Understanding the individuality and diversity of brain function
- Realization of an inclusive society

List of Group Initiatives

May 15, 2025

Unit Name: Medicine and Health

Unit Leader Name: Satoru Koyanagi

Group Leader's Name: Noriko Isobe

Group Name	Goal	Project Manager			Action Item 1	Action Item 2	Action Item 3	Action Item 4	Action Item 5	Collaborations (e.g., Other groups, other units, DDIn2)	Project URL
		Affiliation	Position	Name							
Neuroscience	<p><u>Group-wide:</u></p> <p>Goal by 2030: Establishment of a prediction system for the onset of neurological and psychiatric diseases in a society with a long life expectancy and establishment of a personalized treatment system Establishment of innovative technologies targeting brain immunity for the formation and maintenance of a healthy brain Identification of pathogenic mechanisms and responsible circuits for developmental disorders and psychiatric diseases Understanding of individuality and diversity of brain functions and realization of an inclusive society Elucidation of the principles of brain computation and integration with AI</p>				Progress management of initiatives based on the implementation plan (Initiative period: 2023-2030)						
	<p><u>Project for the Promotion of Personalized Therapy (Neurological Diseases):</u></p> <p>Goal by 2030: Establishment of a prediction system for the onset of neurological diseases in a society with a long life expectancy and the foundation for a personalized treatment system</p>	Faculty of Medical Sciences Neurology	Professor	Noriko Isobe	Development of a system for predicting the onset of multifactorial diseases in the field of neurological diseases (Initiative period: 2023 - 2030)	Conceptualization of personalized treatment and treatment optimization strategies for multifactorial diseases in the field of neurological diseases (Initiative period: 2024 - 2030)	Toward the implementation of personalized treatment and treatment optimization strategies in multifactorial diseases in the field of neurological diseases (Initiative period: 2025-2030)			Collaborate with the Precision Medicine Initiative G and the Social Transformation Data Science G as appropriate.	
	<p><u>Project for Promotion of Personalized Therapy (Stress-Related Diseases):</u></p> <p>Goal by 2030: Establishment of a prediction system for the onset of neurological and psychiatric disorders in a society with a long life expectancy and the establishment of a foundation for personalized treatment systems</p>	Faculty of Medical Sciences Psychosomatic Medicine	Professor	Nobuyuki Sudo	Development of a system for predicting the onset of multifactorial diseases in the field of stress-related diseases (Initiative period: 2023 - 2030)	Conceptualization of personalized treatment and treatment optimization strategies in multifactorial diseases in the field of stress-related diseases (Initiative period: 2024 - 2030)	Toward implementation of personalized treatment and treatment optimization strategies in multifactorial diseases in the field of stress-related diseases (Initiative period: 2024 - 2030)			Collaborate with the Precision Medicine Initiative G and the Social Transformation Data Science G as appropriate.	
	<p><u>Neural Circuit Elucidation Project:</u></p> <p>Goal by 2030: Elucidation of brain circuit development and its disruption</p>	Faculty of Medical Sciences Department of Disease Informatics	Professor	Takeru Imai	Multi-scale understanding of the developmental process of normal brain circuits using transparency techniques and optical microscope connectomics (Initiative period: 2023-2030)	Comprehensive analysis of the process of circuit development using models of developmental disorders and psychiatric disorders to identify the responsible circuits (Initiative period: 2024 - 2030)	Functional classification of organ sensation using in vivo imaging and elucidation of neural circuits responsible for gut-brain correlation (Initiative period: 2024 - 2030)	Elucidation of in vitro reconstructive systems and mathematical principles of neural circuit development and memory and learning processes (Initiative period: 2025 - 2030)			
	<p><u>High Depth Omics & Brain Immunity Project:</u></p> <p>Goal by 2030: Establishment of breakthrough technology targeting brain immunity for the formation and maintenance of a healthy brain</p>	Institute of Bioregulatory Medicine	Professor	Takahiro Masuda	Accelerate multifaceted research centered on high depth omics analysis technology to gain an integrated understanding of the mechanisms of normal brain formation and maintenance with brain immunity as a starting point. (Initiative period: 2023 - 2030)	Integrated understanding of the pathogenic mechanism of central nervous system diseases with brain immunity as a starting point (Initiative period: 2024 - 2030)					
	<p><u>Deciphering Synaptic Regulation via Spatiotemporal Multi-Omics Approaches:</u></p> <p>Goal by 2030: Understanding Synaptic Molecular Diversity Underlying Brain Function and Uncovering the Pathophysiological Mechanisms of Mental Disorders</p>	Institute for Advanced Study Institute of Bioregulatory Medicine	Associate Professor	Tetsuya Takano	Development of Spatiotemporal Multi-Omics Technologies for a Comprehensive Understanding of Synaptic Function (Initiative period: 2025 - 2030)	Establishment of Next-Generation Proteomic Technologies for Dissecting Individual Neural Circuits (Initiative period: 2025 - 2030)	Unraveling the Pathogenic Mechanisms of Mental Disorders through Spatiotemporal Multi-Omics Approaches (Initiative period: 2025 - 2030)				

Medicine and Health

Future medicine

- Ongoing collaboration with the Open Innovation Platform (OIP) and the aggregation of integrative knowledge
- Utilization of forecast-oriented problem-solving panels for the purpose of addressing societal and ethical challenges in future healthcare and recommendations on economic rationality and sustainability in future healthcare through backcast-based proposition panels
- Establish processes that enable us to continually solve problems and make recommendations in the futureZ

2022

Implementation planning

- Kick-off and launch of planning panel

2023

Laying the groundwork

- Prepare for collaboration with OIP
- Prepare and launch problem-solving panel
- Prepare and launch recommendations panel

2025

Further development

- Enhance collaboration with OIP
- Develop problem-solving panel
- Develop recommendations panel
- Evaluate the process of issue resolution, offering recommendations, and consensus-building
- ➔ **Identify problems and draft solutions**
- **Draft recommendations**

2030

Problem solving and recommendations

Future Initiatives

- On-going collaboration with OIP
- Accumulate integrative knowledge

Construct processes to enable on-going problem solving and recommendations

- Timely solutions for various issues
- Recommendations that meet the needs of the times

Realizing an ideal society

Medical Campus Collaborative Platform

Kyushu University Collaborative Platform for Medicine, Humanities, and Social Sciences

Kyushu University Regional Collaboration Platform

Open Innovation Platform

Planning Panel

Problem-Solving Panel

Recommendation Panel

Integrated Initiative for Designing Future Society

Data-Driven Innovation Initiative

Collaboration

Problem solving recommendations

List of Group Initiatives

April 1, 2026

Unit Name: Medicine and Health

Unit Leader Name: Satoru Koyanagi

Group Leader Name: Junko Ayuzawa

Group Name	Goal	Project Manager			Action Item 1	Action Item 2	Action Item 3	Action Item 4	Action Item 5	Collaborations (e.g., Other groups, other units, DDIn2)	Project URL
		Affiliation	Position	Name							
Future of Medicine	<u>Group-wide:</u> Goal for 2030: ★ Collaborate with the Open Innovation Platform (OIP) and leverage integrative knowledge ★ Resolve the social and ethical issues of future medicine through forecasting by a problem-solving panel and make recommendations on the economic rationality and sustainability of future medicine through forecasting by a recommendations panel ★ Establish processes that enable us to continually solve problems and make recommendations in the future				Oversee progress of initiatives based on action plans (Initiative Period: 2022–2030)	• Prepare and build infrastructure while preparing for collaboration with the OIP (Initiative Period: 2022–2030)	Establish processes that enable us to continually solve problems and make recommendations in the future (Initiative Period: 2025–2030)	—	—	Promote collaboration between each of the groups within this unit, the Integrated Initiative for Designing Future Society, and the Data-Driven Innovation Initiative, as well as with collaborative platforms and the OIP.	
	<u>A Planning Panel Project:</u> Goal for 2030: Develop an action plan	Faculty of Medical Sciences School of Healthcare Administration	Research Associate Professor	Junko Ayuzawa	• Prepare, launch, and establish a planning panel • Commence the development of action plans for group initiatives (Initiative Period: 2022–2030)					Promote collaboration between each of the groups within this unit, the Integrated Initiative for Designing Future Society, and the Data-Driven Innovation Initiative, as well as with collaborative platforms and the OIP.	
		Faculty of Medical Sciences	Professor	Hiroaki Niino	• Prepare, launch, and establish a planning panel • Commence the development of action plans for group initiatives (Initiative Period: 2022–2030)					Promote collaboration between each of the groups within this unit, the Integrated Initiative for Designing Future Society, and the Data-Driven Innovation Initiative, as well as with collaborative platforms and the OIP.	
		Kyushu University Hospital	Lecturer	Kuriko Kudo	• Prepare, launch, and establish a planning panel • Commence the development of action plans for group initiatives (Initiative Period: 2022–2030)					Promote collaboration between each of the groups within this unit, the Integrated Initiative for Designing Future Society, and the Data-Driven Innovation Initiative, as well as with collaborative platforms and the OIP.	
		<u>B Problem-Solving Panel Project:</u> Goal for 2030: Construct processes to enable ongoing problem solving	Faculty of Medical Sciences School of Healthcare Administration	Research Associate Professor	Junko Ayuzawa	• Prepare, launch, and establish a problem-solving panel • Consider processes for drafting proposals and building consensus • Draft problem-solving proposals • Commence the development of action plans for group initiatives (Initiative Period: 2023–2030)			—	—	Promote collaboration between each of the groups within this unit, the Integrated Initiative for Designing Future Society, and the Data-Driven Innovation Initiative, as well as with collaborative platforms and the OIP.
	<u>C Recommendations Panel Project:</u> Goal for 2030: Construct processes to enable ongoing recommendations	Department of Design, Graduate School of Design Design Futures Course	Professor	Yoshito Ogata	• Prepare, launch, and establish a recommendations panel • Consider processes for drafting proposals and building consensus • Begin drafting recommendations (Initiative Period: 2026–2030)					Promote collaboration between each of the groups within this unit, the Integrated Initiative for Designing Future Society, and the Data-Driven Innovation Initiative, as well as with collaborative platforms and the OIP.	

Medicine and Health

Clinical development of medical-engineering fusion technology

Business Objectives

By bringing necessary technologies and people across various fields, the project will (1) identify diverse clinical needs, (2) promote research and development to meet those needs, (3) accelerate their implementation in society, and (4) develop the next generation of highly skilled human resources in the relevant fields.

Details of Initiatives

- ◆ Researchers from different fields, mainly medical and engineering, collaborate to identify and clarify unresolved medical issues.
- ◆ As an initiative to accelerate the social implementation of advanced medical technologies, the project aims to provide support for the development of devices and clinical technologies, and to establish an application scheme.
- ◆ In collaboration with government and industry organizations, promote medical innovation originating from the University through fostering and supporting local companies and university start-ups.
- ◆ To promote research and development by fostering personnel who understand diverse engineering disciplines and can apply them to clinical issues.

2024

2025

2030

Future initiatives

Applications Cross-disciplinary technologies Aiming at Medical

- Bionics
- Applied Chemical Technology
- Device Technology
- Measurement Technology
- Robotics
- AI
- Mechanical technology
- Materials Technology
- etc.



Clinical areas expected to make great strides with the introduction of the technologies

- Orthopedics
- Dentistry
- Urological Surgery
- Neurosurgery
- Digestive Surgery
- Medical Images
- Pediatric surgery
- etc.

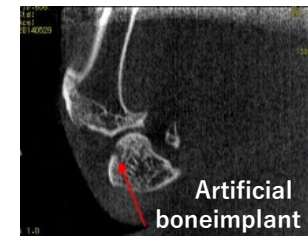
- (1) Identification of needs
- (2) Promotion of research
- (3) Social implementation
- (4) Human resource development



Bringing together technology and people to meet new clinical challenges

Collaboration with Biomedical Engineering Research Center, Open Innovation Center for Advanced Medicine, Kyushu University Medical Engineering Collaboration Initiative, ARO, etc.

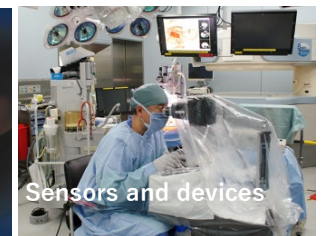
Establish a scheme for diagnostic and therapeutic applications



Artificial boneimplant

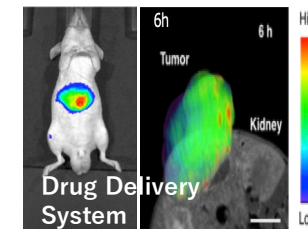


auto-diagnosis



Sensors and devices

etc.



Drug Delivery System



Rehabilitation and welfare engineering

Unit Name: Medicine and Health

Unit Leader Name: Satoru Koyanaqi

Group Leader Name: Jumpei Arata

Group Name	Goal	Project Manager			Action Item 1	Action Item 2	Action Item 3	Action Item 4	Action Item 5	Collaborations (e.g., Other groups, other units, DDIn2)	Project URL
		Affiliation	Position	Name							
医工連携	<p>Group-wide :</p> <p>Goal for 2030: : By bringing necessary technologies and people across various fields, the project will (1) identify diverse clinical needs, (2) promote research and development to meet those needs, (3) accelerate their implementation in society, and (4) develop the next generation of highly skilled human resources in the relevant fields.</p>				Progress management of initiatives based on the implementation plan.(Initiative Period: 2024-2030)	Building an infrastructure for collaboration within the university (Initiative Period: 2024-2026)	Organizational structure for continuous development.(Initiative Period: 2027-2030)	Creation of a mechanism for promoting medical-industrial collaboration and human resource development.(Initiative Period: 2026-2030)	Develop the infrastructure for collaboration with relevant overseas institutions and utilize it to promote the development of the Graduate School and its achievements.(Initiative Period: 2024-2030)		
	<p>A Planning Panel Project :</p>	Faculty of Engineering	Professor	Jumpei Arata	Continuously exchange information by planning and participating in regular campus lecture meetings, etc., and manage the progress of the implementation plan. (Initiative Period: 2024-2030)	Continuously exchange information by planning and participating in regular campus lecture meetings, etc., and manage the progress of the implementation plan. (Initiative Period: 2024-2026)	Aim to build a more developed and continuous organizational structure that strengthens social implementation, human resource development, and other aspects of the collaboration infrastructure that has been established. (Initiative Period: 2027-2030)	As a mechanism for promoting medical-engineering collaboration in medical device research and development, the process of collaboration with internal and external organizations should be clearly defined to promote practical application and human resource development.(Initiative Period: 2026-2030)	With regard to medical device research and development, the association will deepen cooperation with research institutions and promote joint research, as well as other activities to actively promote the results of such research.(Initiative Period: 2024-2030)	Organize lectures and other events on campus to deepen collaboration with other groups, units, and headquarters.	
	<p>Goal for 2030: Establishment of a medical-engineering fusion research system for research and development based on medical devices, as well as practical application and human resource development.</p>	Faculty of Medical Sciences	Professor	Masatoshi Eto	Continuously exchange information by planning and participating in regular campus lecture meetings, etc., and manage the progress of the implementation plan. (Initiative Period: 2024-2030)	Continuously exchange information by planning and participating in regular campus lecture meetings, etc., and manage the progress of the implementation plan. (Initiative Period: 2024-2026)	Aim to build a more developed and continuous organizational structure that strengthens social implementation, human resource development, and other aspects of the collaboration infrastructure that has been established. (Initiative Period: 2027-2030)	As a mechanism for promoting medical-engineering collaboration in medical device research and development, the process of collaboration with internal and external organizations should be clearly defined to promote practical application and human resource development.(Initiative Period: 2026-2030)	With regard to medical device research and development, the association will deepen cooperation with research institutions and promote joint research, as well as other activities to actively promote the results of such research.(Initiative Period: 2024-2030)	same as above	
		Faculty of Medical Sciences	Professor	Koji Yoshimoto	Continuously exchange information by planning and participating in regular campus lecture meetings, etc., and manage the progress of the implementation plan. (Initiative Period: 2024-2030)	Continuously exchange information by planning and participating in regular campus lecture meetings, etc., and manage the progress of the implementation plan. (Initiative Period: 2024-2026)	Aim to build a more developed and continuous organizational structure that strengthens social implementation, human resource development, and other aspects of the collaboration infrastructure that has been established. (Initiative Period: 2027-2030)	As a mechanism for promoting medical-engineering collaboration in medical device research and development, the process of collaboration with internal and external organizations should be clearly defined to promote practical application and human resource development.(Initiative Period: 2026-2030)	With regard to medical device research and development, the association will deepen cooperation with research institutions and promote joint research, as well as other activities to actively promote the results of such research.(Initiative Period: 2024-2030)	same as above	
		Faculty of Engineering	Professor	Susumu Kudo	Continuously exchange information by planning and participating in regular campus lecture meetings, etc., and manage the progress of the implementation plan. (Initiative Period: 2024-2030)	Continuously exchange information by planning and participating in regular campus lecture meetings, etc., and manage the progress of the implementation plan. (Initiative Period: 2024-2026)	Aim to build a more developed and continuous organizational structure that strengthens social implementation, human resource development, and other aspects of the collaboration infrastructure that has been established. (Initiative Period: 2027-2030)	As a mechanism for promoting medical-engineering collaboration in tissue and cell research and development, the process of collaboration with internal and external organizations will be clarified to promote practical application and human resource development.(Initiative Period: 2026-2030)	With regard to tissue and cell research and development, in addition to activities such as the Society's deepening of ties with research institutions and promotion of joint research, the Society will actively promote the results of its research.(Initiative Period: 2024-2030)	same as above	
		Center for Advanced Medical Innovation	Professor	Masaharu Murata	Continuously exchange information by planning and participating in regular campus lecture meetings, etc., and manage the progress of the implementation plan. (Initiative Period: 2024-2030)	Continuously exchange information by planning and participating in regular campus lecture meetings, etc., and manage the progress of the implementation plan. (Initiative Period: 2024-2026)	Aim to build a more developed and continuous organizational structure that strengthens social implementation, human resource development, and other aspects of the collaboration infrastructure that has been established. (Initiative Period: 2027-2030)	As a mechanism for promoting medical-engineering collaboration in tissue and cell research and development, the process of collaboration with internal and external organizations will be clarified to promote practical application and human resource development.(Initiative Period: 2026-2030)	With regard to tissue and cell research and development, in addition to activities such as the Society's deepening of ties with research institutions and promotion of joint research, the Society will actively promote the results of its research.(Initiative Period: 2024-2030)	same as above	
	<p>Goal for 2030: Establishment and practical application of a medical-engineering fusion research system for practical application of tissue- and cell-based research and development, and human resource development.</p>	Faculty of Medical Sciences	Professor	Yasuharu Nakashima	Continuously exchange information by planning and participating in regular campus lecture meetings, etc., and manage the progress of the implementation plan. (Initiative Period: 2024-2030)	Continuously exchange information by planning and participating in regular campus lecture meetings, etc., and manage the progress of the implementation plan. (Initiative Period: 2024-2026)	Aim to build a more developed and continuous organizational structure that strengthens social implementation, human resource development, and other aspects of the collaboration infrastructure that has been established. (Initiative Period: 2027-2030)	As a mechanism for promoting medical-engineering collaboration in tissue and cell research and development, the process of collaboration with internal and external organizations will be clarified to promote practical application and human resource development.(Initiative Period: 2026-2030)	With regard to tissue and cell research and development, in addition to activities such as the Society's deepening of ties with research institutions and promotion of joint research, the Society will actively promote the results of its research.(Initiative Period: 2024-2030)	same as above	
		Institute for Materials Chemistry and Engineering	Professor	Satoru Kidoaki	Continuously exchange information by planning and participating in regular campus lecture meetings, etc., and manage the progress of the implementation plan. (Initiative Period: 2024-2030)	Continuously exchange information by planning and participating in regular campus lecture meetings, etc., and manage the progress of the implementation plan. (Initiative Period: 2024-2026)	Aim to build a more developed and continuous organizational structure that strengthens social implementation, human resource development, and other aspects of the collaboration infrastructure that has been established. (Initiative Period: 2027-2030)	As a mechanism for promoting medical-engineering collaboration in tissue and cell research and development, the process of collaboration with internal and external organizations will be clarified to promote practical application and human resource development.(Initiative Period: 2026-2030)	With regard to tissue and cell research and development, in addition to activities such as the Society's deepening of ties with research institutions and promotion of joint research, the Society will actively promote the results of its research.(Initiative Period: 2024-2030)	same as above	
	<p>Data and Materials Project :</p>	Faculty of Engineering	Professor	Takeshi Mori	Continuously exchange information by planning and participating in regular campus lecture meetings, etc., and manage the progress of the implementation plan. (Initiative Period: 2024-2030)	Continuously exchange information by planning and participating in regular campus lecture meetings, etc., and manage the progress of the implementation plan. (Initiative Period: 2024-2026)	Aim to build a more developed and continuous organizational structure that strengthens social implementation, human resource development, and other aspects of the collaboration infrastructure that has been established. (Initiative Period: 2027-2030)	As a mechanism for promoting medical-engineering collaboration in the R&D of data and materials, the process of collaboration with internal and external organizations will be clarified to promote practical application and human resource development.(Initiative Period: 2026-2030)	With regard to data/materials R&D, the association will deepen cooperation with research institutions and promote joint research, as well as other activities to actively promote the results of such research.(Initiative Period: 2024-2030)	same as above	
	<p>Goal for 2030: : Establishment and practical application of a medical-engineering fusion research system for practical application of R&D based on data and materials, and development of human resources.</p>	Faculty of Dental Science	Professor	Yasunori Ayukawa	Continuously exchange information by planning and participating in regular campus lecture meetings, etc., and manage the progress of the implementation plan. (Initiative Period: 2024-2030)	Continuously exchange information by planning and participating in regular campus lecture meetings, etc., and manage the progress of the implementation plan. (Initiative Period: 2024-2026)	Aim to build a more developed and continuous organizational structure that strengthens social implementation, human resource development, and other aspects of the collaboration infrastructure that has been established. (Initiative Period: 2027-2030)	As a mechanism for promoting medical-engineering collaboration in the R&D of data and materials, the process of collaboration with internal and external organizations will be clarified to promote practical application and human resource development.(Initiative Period: 2026-2030)	With regard to data/materials R&D, the association will deepen cooperation with research institutions and promote joint research, as well as other activities to actively promote the results of such research.(Initiative Period: 2024-2030)	same as above	
	Faculty of Engineering	Professor	Hiroyuki Iijima	Continuously exchange information by planning and participating in regular campus lecture meetings, etc., and manage the progress of the implementation plan. (Initiative Period: 2024-2030)	Continuously exchange information by planning and participating in regular campus lecture meetings, etc., and manage the progress of the implementation plan. (Initiative Period: 2024-2026)	Aim to build a more developed and continuous organizational structure that strengthens social implementation, human resource development, and other aspects of the collaboration infrastructure that has been established. (Initiative Period: 2027-2030)	As a mechanism for promoting medical-engineering collaboration in the R&D of data and materials, the process of collaboration with internal and external organizations will be clarified to promote practical application and human resource development.(Initiative Period: 2026-2030)	With regard to data/materials R&D, the association will deepen cooperation with research institutions and promote joint research, as well as other activities to actively promote the results of such research.(Initiative Period: 2024-2030)	same as above		
	Faculty of Information Sciences and Electrical Engineering	Professor	Haruichi Kanava	Continuously exchange information by planning and participating in regular campus lecture meetings, etc., and manage the progress of the implementation plan. (Initiative Period: 2024-2030)	Continuously exchange information by planning and participating in regular campus lecture meetings, etc., and manage the progress of the implementation plan. (Initiative Period: 2024-2026)	Aim to build a more developed and continuous organizational structure that strengthens social implementation, human resource development, and other aspects of the collaboration infrastructure that has been established. (Initiative Period: 2027-2030)	As a mechanism for promoting medical-engineering collaboration in the R&D of data and materials, the process of collaboration with internal and external organizations will be clarified to promote practical application and human resource development.(Initiative Period: 2026-2030)	With regard to data/materials R&D, the association will deepen cooperation with research institutions and promote joint research, as well as other activities to actively promote the results of such research.(Initiative Period: 2024-2030)	same as above		