THE 4TH NAGASAKI-LUMC JOINT SYMPOSIUM 2026

Converging Knowledge and Technology: The Challenge to Next-Generation Medicine

1-2 October 2026

Ryojun Hall,

Nagasaki University School of Medicine

Hosts:
Nagasaki University School of Medicine
Nagasaki University Graduate School of Biomedical Sciences

Support:
AMED Medical Research Support Program: “Integrating AI-Driven Immune Dynamics Cohort Studies for Intractable Diseases with Physician-Scientist Training and Capacity Building"

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THE 4th NAGASAKI- LUMC JOINT SYMPOSIUM

"Converging Knowledge and Technology: The Challenge to next-generation medicine"
1–2 October 2026 | Ryojun Hall, Nagasaki University School of Medicine

1st Oct.		Day 1: 2F Bauduin Hall	Day 1: 1F Sensai Hall
13:30-13:35	Opening Remarks (Dr. Nagayasu, President NU)		
13:35-14:00	Special lecture (Prof. Reinders, Dean LUMC)		
14:00-14:10	Photo session		
	Moderator	Prof. Izumikawa (Infectious Disease)	Prof. Ikematsu (Forensic Medicine)
14:10-14:35	Session 1	Prof. Yazdanbakhsh (cellular immunology) "Real life immunology to improve responses to vaccines"	Dr. Hamasaki &Dr. Sonobe "Development of a Handwritten Text Recognition System for Dutch Lecture Notes"
14:35-15:00	Session 2	Dr. Takazono (Infectious Disease) "The Importance of Polymicrobial Interactions in Respiratory Infections"	Prof. Rasch (Radiation Oncology) "How to select candidate patients for Proton Radiation Therapy?"
15:00-15:20	Break		
	Moderator	Prof. O. Kaneko (Protozoology)	Prof. Ashizawa (Clinical Oncology)
15:20-15:45	Session 3	Prof. Geluk (infectious diseases) "Immunodiagnostics for Mycobacterial diseases in Global settings"	Prof. Toya (Radiation Oncology) "Palliative Radiotherapy for Head and Neck Cancer: Current Evidence and Practice"
15:45-16:10	Session 4	Dr. Izumida (Infectious Diseases) "From Host–Pathogen Interactions to Infectious Disease Preparedness: Linking Biological and Ecological Transitions"	Prof. Heemskerk (Cancer Immunotherapy) "Advanced cellular therapies for hematological malignancies, autoimmune diseases and sensitized transplant patients"
16:10-16:35	Session 5	Dr. Miyazaki (Protozoology) "Interplay between *Plasmodium falciparum* and Bone Marrow Mesenchymal Stem Cells"	Prof. Ikeda (Oncology) "T cell therapy that overcomes tumor heterogeneity"
	Moderator	Prof. Toya (Radiation Oncology)	Dr. Bakker (Research Internship coordinator)
16:35-17:00	Session 6	Prof. Eguchi (Abdominal and Transplant/ Regenerative Surgery) "Development and Clinical Validation of AI Diagnosis Software for Preventing Retained Surgical Sponges"	Prof. Nagata (Community Medicine) "From Cohort Research to Community Well-being: Lessons from Nagasaki Islands Study (NaIS), Japan"
18:00-20:00	Welcome Dinner @ Luke Plaza Hotel		

2nd Oct.
Day 2

THE 4th NAGASAKI- LUMC JOINT SYMPOSIUM

"Converging Knowledge and Technology: The Challenge to next-generation medicine"
1–2 October 2026 | Ryojun Hall, Nagasaki University School of Medicine

2nd Oct.		Day 2: 2F Bauduin Hall	Day 2: 1F Sensai Hall
	Moderator	Prof. Kawakami (Rheumatology)	Prof. Matsumoto (Thoracic and Pelvic Surgery)
09:30-09:55	Session 1	Prof. Yanagihara (Clinical Laboratory Medicine) "Artificial Intelligence and Automation for Rapid Detection of Antimicrobial Resistance in Clinical Microbiology"	Prof. Vahrmeijer (Molecular Guided Precision Surgery) "Image-Guided Surgery Using Fluorescence"
09:55-10:20	Session 2	Dr. Koga (Rheumatology) "Stratification of Immune-Mediated Rheumatic Diseases by Clinical, Imaging and Omics Information: Toward Precision Medicine"	Dr. Doi (Thoracic and Pelvic Surgery) "From Lung Regeneration to Patient-Derived Lung Cancer Models: Evolving Research in Surgical Oncology"
10:20-10:35	Break		
	Moderator	Prof. Arima (Public Health)	Prof. Miyaaki (Gastroenterology)
10:35-11:00	Session 3	Prof. Huizinga (Rheumatology) "Epidemiology and Biological Consequences of Fab-glycosylation of Anti-Citrullinated-Peptide Antibodies in Rheumatoid Arthritis"	Prof. Coenraad (Gastroenterology & Hepatology) "Decompensated cirrhosis and acute-on-chronic liver failure: insights from Europe"
11:00-11:25	Session 4	Prof. Kawakami (Rheumatology) "IL-18 and interstitial lung disease associated with idiopathic inflammatory myopathy (IIM-ILD, so-called polymyositis/dermatomyositis-ILD; PM/DM-ILD)"	Dr. Nakao (Gastroenterology) "Toward multimodal AI in gastroenterology: integrating precision oncology, radiographic sarcopenia assessment, and noninvasive biological monitoring"
11:25-11:30	Closing Remarks (Prof. Hara, Dean NU)		
11:40-12:10	Horizon Europe Meeting @Comprehensive Infectious Diseases Research Building (in front of Nekken building) Liaison Meeting Room		
12:10-13:10	Lunchon with Students @Comprehensive Infectious Diseases Research Building (in front of Nekken building) Lounge		

Greetings

It is my great pleasure to welcome you to the 4th Nagasaki-LUMC Joint Symposium, jointly organized by Nagasaki University and Leiden University Medical Center (LUMC).

Since the first symposium, this academic partnership has continued to strengthen through active exchanges in research, education, and clinical practice. The symposium has become an important platform where researchers, educators, clinicians, and students from both institutions can share knowledge, explore new ideas, and develop collaborative initiatives that extend beyond disciplinary and national boundaries.

The theme of this year's symposium, “Converging Knowledge and Technology: The Challenge to Next-Generation Medicine,” reflects the rapidly evolving landscape of biomedical science and healthcare. Advances in digital technologies, artificial intelligence, precision medicine, immunology, infectious diseases, oncology, and many other fields are transforming how we understand, prevent, and treat disease. Addressing these complex challenges requires not only scientific excellence within individual fields but also the integration of diverse expertise and international collaboration.

Nagasaki University is committed to advancing its vision of Planetary Health, which seeks to address global challenges affecting both human health and the health of our planet through interdisciplinary research, education, and international partnerships. Our long-standing collaboration with LUMC exemplifies this commitment and demonstrates how universities can work together to generate knowledge and innovation for the benefit of society.

I am confident that the presentations and discussions over these two days will stimulate new perspectives, inspire future collaborations, and strengthen the bonds between our institutions. I would like to express my sincere appreciation to all speakers, organizers, participants, and supporters who have contributed to making this symposium possible.

I wish you a productive and inspiring symposium and look forward to the continued development of our partnership with LUMC.

Takeshi Nagayasu, M.D., Ph.D.
President
Nagasaki University

Leids Universitair Medisch Centrum

DELEGATION BIOGRAPHIES

LUMC GLOBAL

1& 2 October 2026

AUTHOR: IRMA BAARS

Prof. dr. Marlies Reinders, Professor of Internal Medicine, Member of the Executive Board of LUMC, and Dean of the Faculty of Medicine at Leiden University (LUMC)

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Prof. dr. Marlies Reinders is responsible for research, education and valorization within the LUMC and is member of different (Governance) Committees including Leiden Bio Science Park (LBSP), Medical Delta, Oncode, Renew and LUMC foundation.

Her background is in kidney transplantation and regenerative medicine, with expertise spanning clinical care, research, management and educational innovation.

Her doctoral research on kidney transplantation was conducted at Harvard Medical School (2000-2002), culminating in a PhD from Leiden University in 2004. She has pioneered educational projects such as MOOCs on transplantation and virtual reality applications to improve medical training.

Dr. Maartje Huijbers, Associate Professor Human Genetics, Vice Dean of Research at Leiden University (LUMC)

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Dr. Maartje Huijbers leads the LUMC NeuroImmunology group, which has a special interest in autoimmune disorders of the neuromuscular synapse. This includes myasthenia gravis and Lambert-Eaton myasthenic syndrome. Their translational research, in close collaboration with clinicians, ranges from identifying new autoantigens for these autoimmune diseases, to developing new in vitro and in vivo models to study these disorders and their pathomechanisms.

The NeuroImmunology group recently has developed a particular interest in understanding the role and characteristics of IgG4 autoantibodies and B cells in autoimmunity and testing new therapeutics in the aforementioned preclinical models.

As a vice dean of research she supports and advices the dean in optimizing the research organization. She has a particular focus on research support, open science, policy development (for example on new academic career paths) and strategic research collaborations.

Prof. dr. Alexandra Langers, Professor of
Gastroenterology & Hepatology and
Vice-Dean of Education at Leiden University
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Prof. Langers focuses on innovation in gastroenterology, hepatology, and medical education, contributing extensively to curriculum development and assessment at a national and European level, including participation in the Exam Board of the European Specialty Exam in Gastroenterology and Hepatology (ESEGH).

After conducting research at INSERM in Paris, she specialized clinically at Alrijne Hospital and LUMC. She leads faculty development initiatives and holds roles in international educational consortia, including the United European Gastroenterology (UEG) and the European Society and Board of Gastroenterology and Hepatology (ESBGH). Her research focusses on innovations in teaching, assessment and faculty development. Furthermore, she is engaged in research on hereditary gastrointestinal cancer and polyposis. Through LUMC Global, she actively engages in partnerships with universities across the globe, advancing medical education.

Drs. Guido de Wilde, MSc.,
Lead LUMC Global Education

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Guido joined LUMC in October 2025 as Lead Global Education, where he bridges strategic policy with innovative mobility programmes and sustainable international partnerships. In this role, he oversees incoming and outgoing mobility, advises on internationalisation strategies, coordinates global education collaborations, and represents LUMC in national and international networks.

Guido holds a Master's degree in Communication Science, is a trainer in intercultural competence and other transition-maker skills.

Drs. Suze Kruisheer, Lead LUMC Global,

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LUMC Global enables international institutional collaboration that accelerates innovation in research, education, valorisation, and societal impact, contributing to LUMC's mission of improving health worldwide. It does so by building high-impact, sustainable, and responsible international institutional partnerships that create lasting value for science, education, and society.

With her background and expertise in International Relations,Suze coordinates this program and connects researchers, clinicians, educators and external partners. She advises the Executive Board on international engagement and ensures alignment with LUMC's strategic priorities, knowledge security and academic values.

Dr. Carla Bakker, Research Internship Coordinator of Master's Programme Health, Ageing & Society

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After studying Biomedical Sciences at Leiden University, Dr. Bakker obtained her PhD at Maastricht University, focusing on outcome assessment in rheumatic diseases and utility measurements in health technology assessment.

She subsequently worked in health research policy as a Scientific Officer at the Dutch Health Research Council, advising the Ministry of Health, Welfare and Sports on research priorities and infrastructure needs from a societal perspective. Later, as Cluster Manager at The Netherlands Organisation for Health Research and Development (ZonMw), she was responsible for national and international ageing research programmes and their funding. In this role, she focused on shaping the strategic direction of ageing research and promoted the active involvement of older people in research.

Since 2006, Dr. Bakker has been affiliated with Leiden University's Master's programme in Health, Ageing and Society (HAS), serving in various roles, including Senior Staff Member, Research Internship Coordinator and Recruitment. Throughout her career, she has been committed to connecting education, research, policy and practice, fostering collaboration with healthcare and community partners, and encouraging students to consider the societal impact of their research. She remains passionate about creating societal impact, promoting student well-being, and empowering students to shape their future careers and contribute meaningfully to society.

Dr.mr. Yvonne Drewes, Associate Professor and
Director of Master Programme
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Dr. Yvonne Drewes is an Associate Professor and Director of the Master's programme Health, Ageing and Society at Leiden University Medical Center. She studied Medicine and Law in Amsterdam. After obtaining her medical degree, she trained as a Public Health Physician. She earned her PhD at Leiden University Medical Center, where her research focused on strategies in preventive care for older adults. Her current research interests are in ageing, with a particular focus on person-centered care.

She is a lecturer and Director of the Master's programme Health, Ageing and Society. This programme trains students to become academic professionals capable of improving the care and well-being of older people in an ageing society. Students develop competencies in research and innovation while taking the perspectives and needs of older people into account. The programme offers an international and interdisciplinary learning environment.

Prof.dr. Alexander Vahrmeijer, Professor of Surgery with learning assignment Molecular targeted Precision Surgery.
Surgical Oncologist and Gastrointestinal Surgeon and
Head of Green-Light Leiden research

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As the principal investigator of the Image-Guided Surgery group (Greenlight.nu) I focus on preclinical and clinical studies on intraoperative near-infrared (NIR) fluorescence imaging. The goal of our research is to validate image-guided surgery using clinically available tracers and to clinically translate novel agents in close collaboration with industry or academia to improve patient care.

To facilitate clinical translation of novel developed probes, my group has a very strong collaboration with the Center for Human Drug Research (www.chrd.nl). Successful clinical translation using the unique resources (including GMP facility (KFT-IGFL) and Division of Image Processing) available at LUMC has already been achieved for various novel fluorescent imaging agents.

In addition, we aim at disseminating this technique to collaborating hospitals all over the world. To promote valorization of the developed technology at LUMC, I am a founding member and past chairperson of the Study Group "Intra-Operative Imaging" from the European Society of Molecular Imaging (ESMI) and the current president of the International Society for Fluorescence-Guided Surgery (ISFGS).

Prof. Dr. Annemieke Geluk, Professor of Immunodiagnostics of Mycobacterial Diseases at the Leiden University Center of Infectious Diseases (LUCID), LUMC, with expertise in immunology of leprosy and tuberculosis.

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After studying chemistry at Leiden University and the University of Virginia, she obtained her PhD at LUMC and Cytel corporation (USA) and completed postdoctoral training at the Mayo Clinic.

Her research group focusses on translation of basic immunological science to field-applicable diagnostic tools. She has contributed to numerous international consortia and WHO expert groups on infectious diseases. Geluk leads multicenter Global Health as well as One Health research projects focused on tuberculosis and leprosy control. She combines research on diagnostics and epidemiology with capacity strengthening, through various collaborations with and advisory roles at international partner institutes worldwide.

Pieter de Koning, PhD
Head of Grants Office & Advisor European Research Grants
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Pieter is employed as advisor EU research grants at Leiden University Medical Center (LUMC) since 2015. In this position, he actively promotes (EU) funding opportunities and advice to researchers on grant applications (primarily Horizon Europe - ERC, MSCA and cluster Health). More recently, he also serves as head of the LUMC grants team and became a member of the Management Team of the Directorate of Research & Valorisation at LUMC.

He has a biomedical background and obtains his PhD in the field of tumorimmunology at Utrecht University. Pieter is active in research management since 2009, at UMC Utrecht (NL), Karolinska Institutet (Sweden) and Leiden UMC (NL). Besides pre-award grant advice, he also has experience with topics like international collaborations (e.g. LUMC-representative in the Eurolife network), nominations for prizes/awards and organisation of research support. In addition, he is a member of the European Assocation of Research Managers and Administrators (EARMA) and chair of the EARMA Awards Expert Group.

Dr. Fuminari Miura, Assistant Professor in Biomedical Data Sciences at Leiden University Medical Center (LUMC), jointly affiliated with School of Tropical Medicine and Global Health, Nagasaki University. Senior Researcher at the National Institute for Public Health and the Environment (RIVM), with expertise in mathematical epidemiology, infectious disease modelling, and public-health decision support.

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After training in engineering and mathematical modelling at the University of Tokyo, he has worked at the interface of infectious disease epidemiology, statistical modelling, and public health in Japan and the Netherlands. His research focuses on understanding how host susceptibility, immunity, behaviour, and contact structure shape epidemic dynamics.

Miura combines mechanistic models, statistical inference, and empirical data to support infectious disease control, and contributes to research collaborations and capacity strengthening between RIVM, LUMC, Nagasaki University, and Japanese public-health institutions.

Prof.dr. Mirjam Heemskerk, Professor of Cancer Immunotherapy and head of the Laboratory for Experimental Hematology

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She leads a translational research group focused on developing novel cellular immunotherapies for patients with cancer. In 2013, partly under her leadership, the first phase I/II TCR gene therapy study for hematological malignancies after allogeneic stem cell transplantation was started (EudraCT number 2010-024625-20). Two new phase I/II TCR studies are currently running within the Hematology department, one for patients with acute myeloid leukemia (NPM1-TCR), the other for patients with B-cell malignancies (BOB1-TCR).

In 2011, Mirjam Heemskerk received the Jan Swammerdam prize for the most talented young researcher from the Dutch Association for Hematology. She is treasurer of the Dutch Society for Immunology. She is also a member of the scientific advisory board of KIKA. In 2022, Heemskerk was appointed professor at the faculty of medicine with the teaching assignment "Immunotherapy of cancer, in particular the development of cell therapy".

Dr. Joost van der Vorst, Sr. Medical Specialist of Vascular Surgery

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Joost van der Vorst, MD, PhD, is a vascular and endovascular surgeon at Leiden University Medical Center (LUMC) in the Netherlands. He specializes in complex aortic surgery, including both open and endovascular interventions for aortic aneurysms and dissections. His clinical work focuses on the treatment of patients with complex vascular disease and on the development and implementation of innovative image-guided techniques.

Dr van der Vorst is a board member of the Dutch Society for Vascular Surgery and holds board positions within Dutch, European and international societies dedicated to fluorescence-guided surgery. Through these roles, he contributes to the advancement of vascular surgery, surgical innovation, research collaboration and professional education.

His research interests include optical imaging, fluorescence-guided surgery, perfusion assessment, big-data analysis and complex aortic interventions. He leads and participates in multidisciplinary and international research projects aimed at improving intraoperative decision-making, patient selection and clinical outcomes. By combining advanced imaging technologies with clinical data and vascular expertise, his work seeks to support more precise, personalized and evidence-based vascular care.

Prof.dr. Coen Rasch, Professor Head of the Radiotherapy Department

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Coen Rasch is Professor of Radiotherapy at Leiden University and Department Head of Radiotherapy at LUMC and the Reinier de Graaf Gasthuis in Delft and Hagaziekenhuis the Hague. The departments of Radiotherapy of the LUMC and the Reinier de Graaf and Hagaziekenhuis together form one integrated department.

The professorship Radiation Oncology contains the development of Radiation Oncology in it full depth. De vast majority of the oncological patients receive somewhere in their treatment radiotherapy. Radiation Oncology is therefore one of the main pillars of oncological treatment. My focus of research and development is at the common field of technique / physics and patient care. Main focus of research and development is now on eye melanoma treatment with protons which in The Netherlands is now started in the year of my appointment at Leiden University.

Due to its relatively rare application, proton irradiation is an area where many innovations are still possible; HollandPTC and the collaboration in the triangle LUMC/TU Delft/Erasmus MC have created an opportunity for innovative demand-driven development and improvement of knowledge and outcomes of cancer treatment.

Prof.dr. Maria Yazdanbakhsh, Professor in cellular immunology of parasitic infections, Chair
LUMC Global Board

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My interdisciplinary group of basic and clinical scientists has been working on understanding immune responses involved in host-parasite interactions at the molecular, cellular and population level. Through this work we are now focusing on variation in the immune system across populations and geographies and the impact on vaccination outcomes. We use high dimensional and multi-omics approaches to identify innate and adaptive immune signatures that can be targeted to improve vaccine responses. Through decades of work in low to middle income countries, my group has developed technology platforms that in a minimally invasive manner can generate large datasets on how intense exposure to microorganisms and parasites can alter the functioning of the immune system. Our field studies, in collaboration with colleagues in Indonesia, Gabon, Senegal and Tanzania are revealing differences in immune set points that open up new possibilities to control immunity.

Through securing seed funding, my group has initiated the establishment of the controlled human parasitic infection models in my department, as well as in endemic areas. This provides unique opportunities to track the impact of infections on the immune system, in great depth, during acute and chronic phases and to test vaccines in a relatively short period of time. In parallel with the research activities, it has been an honour to contribute to the development of scientists from diverse backgrounds who have gone on to contribute to science though research, education, and clinical care in different parts of the globe.

Prof.dr. Minneke Coenraad, Professor of Gastroenterology and Hepatology

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Minneke is Professor of Gastroenterology and Hepatology, with a focus on liver failure and liver transplantation. She is a hepatologist, medical director of the Liver Transplant Program and chair of the multidisciplinary Center for Liver Tumors Leiden of the Leiden University Medical Center (LUMC). Coenraad receives grants from the Netherlands Cancer Institute (2017), Johanna Zaaijer Fund (2018), Gastrostart (2023), PPP (2024,2024) and Horizon2020/HorizonEurope.

She participates in leading positions in several Horizon2020-HorizonEurope funded European research projects focused on complications of end-stage liver cirrhosis and liver transplantation (funded 2016, 2018, 2020, 2023). Coenraad is chairman of the Netherlands Association for the Study of the Liver (2022-2026). board member of the Dutch Hepatocellular Carcinoma Group (DHCG) since 2019, chairman of the Dutch Cancer Society-funded DHCG biobank (2019) and member of the European Foundation for the study of Chronic Liver Failure (EFClif) consortium since 2012.

Coenraad is steering committee member of the European Association for the Study of the Liver (EASL) core curriculum.

Prof.dr. Thomas Huizinga, Professor of
rheumatology, head of the department of
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Tom is chairman of the 'Meteor' foundation, an international registry of disease activity and medication use of RA patients of more than 20 countries. Moreover he is chairman of the national postgraduate educational committee of Dutch rheumatology. He is PI/coordinator of the ERC-Synergy grant Glycanswitch 2023-2029.

NAGASAKI UNIVERSITY

BIOGRAPHIES

NAGASAKI UNIVERSITY

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Takeshi Nagayasu, M.D., Ph.D.
President of Nagasaki University

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Takeshi Nagayasu graduated from Nagasaki University School of Medicine and earned his Ph.D. from Nagasaki University. He pursued a career as a thoracic surgeon and researcher, specializing in respiratory surgery, lung transplantation, thoracic oncology, lung and tracheal regeneration, and medical engineering. He also conducted research at Duke University and the Mayo Clinic in the United States.

From 2003 to 2023, he served as Professor and Chair of Surgical Oncology at Nagasaki University. He subsequently held several leadership positions, including Dean of the School of Medicine, Trustee, and Vice President for Research and Global Affairs, before becoming President.

As President, Professor Nagayasu is advancing Nagasaki University's Planetary Health vision through three interconnected pillars: Global Health, Global Risk, and Global Ecology. Building on the university's distinctive strengths and history, this vision addresses major global challenges, including human health, peace and security, climate change, marine environments, and sustainable ener

Atsuko Yasutake,
Trustee for Student and International Affairs
Professor, architectural planning and housing at Nagasaki University.

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Atsuko Yasutake is a professor of architectural planning and housing at Nagasaki University. Her research explores how buildings, living environments, and cities can be planned by carefully understanding their local context. Her approach considers climate and landscape, traditional building techniques, people's ways of life, local history, and community organizations rooted in each place.

Her research ranges from individual houses to residential environments and cities. Her main interests include housing and community planning, urban and landscape management, the evaluation of architectural design, and the conservation and adaptive use of historic buildings. Combining historical records, statistical data, and fieldwork, she examines how living environments can respond to social challenges such as population decline and changes in local communities.

She also studies temporary housing and living environments after disasters. Through research and field-based activities in disaster-affected areas, she seeks practical ways to improve housing and community conditions for affected people.

After serving as Vice President for Diversity and Student Affairs, she became Trustee for Student and International Affairs in October 2025.

Kazuya Ikematsu, M.D., Ph.D.
Dean, Institute of Biomedical Sciences / Professor and Chair, Department of Forensic Medicine, Graduate School of Biomedical Sciences, Nagasaki University

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Kazuya Ikematsu graduated from Nagasaki University School of Medicine and earned his Ph.D. from Nagasaki University. He has dedicated his career to forensic medicine, specializing in forensic pathology, forensic genetics, sudden unexpected death, age estimation, wound analysis, and postmortem diagnostics.

He also conducted research as a Postdoctoral Fellow and Assistant Research Instructor at the University of Bristol (U.K.). He joined the Department of Forensic Medicine at Nagasaki University, serving as Assistant Professor, Associate Professor, and subsequently Professor and Chair of the Department.

From October 2022 to March 2026, he served as Dean of the School of Medicine. His recent research focuses on molecular and genetic applications in forensic medicine, including age estimation, wound age determination, prion detection, and the genetic analysis of sudden unexpected death. Through these efforts, he continues to advance forensic science, medical education, and research leadership at Nagasaki University.

Tetsuya Hara M.D., Ph.D.
Dean, Nagasaki University School of Medicine Professor, Department of Anesthesiology and Intensive Care Medicine, Nagasaki University Graduate School of Biomedical Sciences Director, Department of Anesthesiology, Operative Unit, Intensive Care Unit, Medical Engineering Equipment Center, and Supply Center, Nagasaki University Hospital

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Tetsuya Hara graduated from Nagasaki University School of Medicine and earned his Ph.D. from Nagasaki University. He has devoted his career to anesthesiology, intensive care medicine, and perioperative management, specializing in cardiovascular protection, circulation control, critical care, and patient safety. He currently serves as Dean of the School of Medicine and Professor of Anesthesiology and Intensive Care Medicine at Nagasaki University.

Professor Hara has held numerous leadership positions at Nagasaki University Hospital, including Director of the Intensive Care Unit, Director of the Operating Theater, Vice Director of the Hospital, and Director of the Medical Engineering Equipment Center. He is also a prominent leader in academic medicine, serving as President of the Japanese Society of Circulation Control in Medicine and holding executive positions in national anesthesiology societies. Through his clinical, educational, and research activities, he continues to advance anesthesiology, critical care, and medical education in Japan and internationally.

Hiroaki Ikeda, M.D., Ph.D.
Dean, Graduate School of Biomedical Sciences / Professor, Department of Oncology, School of Medicine, Nagasaki University

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Hiroaki Ikeda graduated from Nagasaki University School of Medicine and earned his Ph.D. from Nagasaki University. He pursued a career as an internal medicine physician and researcher, specializing in hematology, cancer immunology, T cell biology, cell therapy, gene therapy, and immunotherapy. He also conducted research at Washington University School of Medicine in St. Louis in the United States.

From 2016 to present, he served as Professor of Department of Oncology at Nagasaki University. He subsequently served as Dean of the Graduate School of Biomedical Sciences at Nagasaki University.

Professor Ikeda focuses his research to develop novel cancer immunotherapy including adoptive cell therapy such as TCR-T cells and CAR-T cells. Professor Ikeda also address the tumor heterogeneity where escape variant tumor clones are targeted by the novel approaches that synergize with immune reaction to cancer cells.

Satoshi Kaneko, M.D., Ph.D.
Dean, Institute of Tropical Medicine / Professor, Department of Ecoepidemiology / Special Assistant to the President, Nagasaki University

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Prof. Satoshi Kaneko is the Dean of the Institute of Tropical Medicine and a Professor in the Department of Ecoepidemiology at Nagasaki University. He also serves as Special Assistant to the President of Nagasaki University. A leading expert in global health, he holds key leadership roles including Director of the Center for Neglected Tropical Diseases Innovation, Secretariat Director for the Japan Alliance on Global NTDs, and Division Director for the DEJIMA Infectious Disease Research Alliance.

Prof. Kaneko earned his M.D. from the National Defense Medical College, an M.P.H. from the Harvard School of Public Health, and a Ph.D. from the University of Occupational and Environmental Health, Japan. His extensive research focuses on epidemiological studies and diagnostic tool development for neglected tropical diseases, such as mycetoma, alongside clinical epidemiology platforms and vaccine development initiatives.

An active leader in the scientific community, Prof. Kaneko is the Vice-Chairperson of the Japanese Society of Tropical Medicine and an Associate Member of the Science Council of Japan. Recently, he served as Conference President for the joint meeting of the 36th Annual Meeting of the Japan Epidemiological Association and the 3rd International Epidemiological Association Western Pacific Region Regional Scientific Meeting in January 2026.

Osamu Kaneko, M.D., Ph.D.
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Osamu Kaneko, graduated from Osaka City University Medical School, Japan in 1990 and then trained as an Orthopedic Surgeon for 2 years. Following that, he decided to spend 4 years studying malaria mentored by the late Prof. Kazuyuki Tanabe in Osaka City University's Graduate School of Medicine.

After he received PhD, he worked in the Laboratory of Parasitic Diseases (Louis H. Miller Lab), NIAID, NIH, USA from 1997 to 1999. In 2000, he became a faculty member in the Department of Molecular Parasitology (Prof. Motomi Torii Lab), Ehime University School of Medicine, Japan and joined the Institute of Tropical Medicine, Nagasaki University as a full time professor in 2007.

His team is investigating some fundamental aspects of the parasite's life cycle, such as the mechanisms behind red blood cell (RBC) invasion and the phenomenon of cytoadherence of parasite-infected RBCs using human malaria parasite Plasmodium falciparum, zoonotic malaria parasite P. knowlesi and rodent malaria parasite P. yoelii.

He is also engaged in the field studies conducted in Malaysia to understand the P. knowlesi biology and epidemiology and P. falciparum drug resistance studies in Kenya and Democratic Republic of the Congo. They are also developing diagnostics and vaccines against P. falciparum and P. knowlesi.

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Koichi Izumikawa graduated from Nagasaki University School of Medicine and earned his Ph.D. from Nagasaki University. He conducted research at the National Institutes of Health (NIH) in the United States and has developed an international career in infectious diseases and medical mycology.

His research focuses on invasive fungal infections, antimicrobial resistance, infection control, and clinical infectious diseases, particularly aspergillosis. He serves as Professor of Department of Infectious Diseases at Nagasaki University Graduate School of Biomedical Sciences. Also, as Chair of Department of Infectious Diseases and Infection Control and Education Center at Nagasaki University Hospital.

From 2020 to 2023, he also served as Vice President of Nagasaki University, leading the university's response to the COVID-19 pandemic and strengthening collaboration with healthcare institutions and public health authorities. Having authored more than 300 scientific publications, he continues to contribute to infectious disease research, global health preparedness, and international academic collaboration.

He is the current president of the EU-Chapter of the international society of fluorescent guided surgery and will be the next global president.

Katsunori Yanagihara, M.D., Ph.D.
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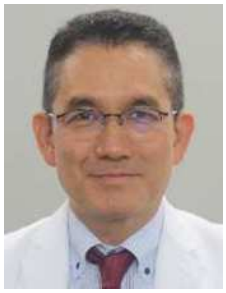

Katsunori Yanagihara graduated from Nagasaki University School of Medicine and earned his Ph.D. from Nagasaki University. He conducted research at the University of Nebraska in the United States and has developed an international career in infectious diseases, clinical microbiology, and laboratory medicine. His research focuses on clinical laboratory medicine, infectious diseases, antimicrobial stewardship, antimicrobial resistance, and diagnostic technologies for infectious diseases. He currently serves as Professor and Head of Laboratory Medicine at Nagasaki University Hospital and Vice Dean of the School of Medicine at Nagasaki University.

Professor Yanagihara has played leading roles in numerous academic societies and national guideline committees, including the Japanese Society of Infectious Diseases, the Japanese Society for Chemotherapy, and the Japanese Society for Laboratory Medicine. During the COVID-19 pandemic, he chaired the Japanese Society for Laboratory Medicine's Ad Hoc Committee on New Coronaviruses. Through his clinical, research, and educational activities, he continues to contribute to the advancement of infectious disease management, laboratory diagnostics, and international academic collaboration.

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Yasuhiro Nagata is a Professor of Community Medicine at Nagasaki University, Japan, with a particular focus on community-based medical education, population health, healthy ageing, and healthcare innovation in rural and island communities facing demographic decline and geographic isolation.

After graduating from Nagasaki University School of Medicine, he gained broad clinical, research, and educational experience in Japan and abroad, including research fellow at Memorial Sloan Kettering Cancer Center in US. His academic background includes community medicine, medical education, gastrointestinal surgery, and cancer immunology.

In recent years, he has led population-based research in the Goto Islands and other communities in Nagasaki Prefecture, exploring medical, social, and community factors associated with healthy ageing and well-being. He is also actively engaged in multidisciplinary and international collaboration with the aim of strengthening community health systems, advancing medical education, and promoting healthy ageing in diverse populations.

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Susumu Eguchi graduated from Nagasaki University School of Medicine and earned his Ph.D. from Nagasaki University. He trained as a hepatobiliary and transplant surgeon, with expertise in liver transplantation, hepatobiliary surgery, and minimally invasive surgery. From 1994 to 1997, he conducted research at Cedars-Sinai Medical Center in Los Angeles, focusing on experimental liver support and hepatocyte-based therapies. From 2003 to 2005, he served as a Clinical Fellow in Liver Transplantation and Hepatobiliary Surgery at Groningen University Hospital, the Netherlands.

Professor Eguchi has served as Professor and Chair of Surgery at Nagasaki University since 2012. His research focuses on liver transplantation, minimally invasive surgery, regenerative medicine, and surgical innovation. His group has advanced chemically induced liver progenitor (CLiP) cells toward clinical application and developed AI-based diagnostic technology to improve surgical safety, including software for detecting retained surgical sponges. He is actively involved in national and international surgical and transplantation societies.I

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Keitaro Matsumoto, M.D., Ph.D. is Professor of Thoracic and Pelvic Surgery at Nagasaki University and Director of the Hybrid Medical Professional Training Program. He specializes in thoracic surgery, lung transplantation, regenerative medicine, tissue engineering, and minimally invasive surgical techniques.

Following graduation from Kumamoto University School of Medicine, he pursued research and clinical training in Japan, the United States, Canada, and Australia, including work at Duke University and Toronto University Hospital.

Professor Matsumoto's research focuses on regenerative medicine, artificial organs, bioengineering, and innovative approaches to airway and lung reconstruction. His work bridges engineering and medicine to develop next-generation therapies for respiratory diseases. He remains actively involved in education, research, and international collaboration while advancing the field of thoracic surgery and translational regenerative medicine.
I

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Ryo Toya, M.D., Ph.D., is Professor and Chair of the Department of Radiological Sciences, Graduate School of Biomedical Sciences, Nagasaki University, and Director of the Department of Radiology at Nagasaki University Hospital. Board-certified in radiation oncology, he leads a department that covers the full spectrum of radiation medicine, including diagnostic radiology, nuclear medicine, interventional radiology, and radiation oncology.

He graduated from Kumamoto University School of Medicine in 2003. He was appointed Assistant Professor at Kumamoto University Hospital in 2011 and Senior Assistant Professor in the Department of Radiation Oncology in 2014, and from 2015 to 2016 he was a researcher at the Department of Human Oncology, University of Wisconsin–Madison. He became Associate Professor of Radiation Oncology at Kumamoto University in 2017, and has held his current position at Nagasaki University since 2023.

His research focuses on head and neck cancer, palliative radiotherapy, functional and molecular imaging for treatment planning, MRI-guided radiotherapy, and the application of artificial intelligence to automated planning, aiming to enhance treatment precision, reduce adverse effects, and preserve patients' quality of life. He serves as a study coordinator of the Japan Radiation Oncology Study Group (JROSG) and on committees of the Japanese Society for Radiation Oncology (JASTRO), and is a member of the Japan Radiological Society (JRS), the Japanese Society of Nuclear Medicine (JSNM), the Japan Society for Head and Neck Cancer (JSHNC), and the European Society for Radiotherapy and Oncology (ESTRO).

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Kazuto Ashizawa graduated from the Nagasaki University School of Medicine in 1987 and pursued graduate studies and obtained a Ph.D. in Medicine in 1993. From 1996 to 1997, he conducted research on Computer-Aided Diagnosis (CAD) as a visiting researcher at the Kurt Rossmann Laboratories for Radiologic Image Research (Department of Radiology, University of Chicago) before returning to Nagasaki University as a faculty member in 1997. In 2004, he was appointed Assistant Professor in the Department of Radiology at Nagasaki University Hospital, where he served as the section chief responsible for thoracic diagnostic imaging.

He became the Director of the Clinical Oncology Center at Nagasaki University Hospital in 2007, and since 2012, he have served as Professor of Clinical Oncology at the Nagasaki University Graduate School of Biomedical Sciences.

He is a board-certified radiologist (certified by the Japanese Radiological Society) and a board-certified cancer treatment specialist (certified by the Japanese Board of Cancer Therapy). I am a member of numerous medical societies, including the International Association for the Study of Lung Cancer (IASLC) and the Radiological Society of North America (RSNA). Additionally, I serve as the President of the Japanese Society of CT Screening.

Hisamitsu Miyaaki, MD, PhD.
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He graduated from Nagasaki University School of Medicine in 1997 and received clinical training in internal medicine, gastroenterology, and hepatology at Nagasaki University Hospital and its affiliated hospitals. He also conducted pathology research at Kurume University and completed overseas research fellowships at the University of Bologna in 2011 and the Mayo Clinic in 2013. He was appointed Professor at Nagasaki University in 2025.

His main research interests include liver pathology, steatotic liver disease, liver cirrhosis, hepatocellular carcinoma, and the medical management of liver transplantation. His research focuses on the mechanisms of liver disease progression and hepatocarcinogenesis and the development of clinically applicable biomarkers and diagnostic methods.

He is a board-certified specialist in internal medicine, gastroenterology, gastrointestinal endoscopy, and hepatology. He serves as a councilor in several Japanese medical societies and is a member of the European Association for the Study of the Liver.

Kazuhiko Arima, M.D., Ph.D.
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Prof. Arima is a newly appointed Professor of the Department of Public Health at the Graduate School of Biomedical Sciences, Nagasaki University, Japan. He obtained his Ph.D. in Medical Sciences from Nagasaki University.

As an expert in epidemiology driving the advancement of advanced preventive medicine, a significant milestone in his career includes serving as a Research Fellow supported by the Japan Rheumatism Foundation from April 2007 to the summer of 2008. During this period, he conducted advanced research at the Center of Experimental Rheumatology and World Health Organization (WHO) Collaborating Center at the University of Zurich, Switzerland.

His current research primarily focuses on chronic inflammation affecting bone mass, specifically analyzing the complex interactions between genetic factors, such as gene polymorphisms, and environmental factors, including lifestyle habits.

While this marks his first time participating in this event series, he is highly enthusiastic about strengthening the historic academic bonds between Nagasaki University and Leiden University. He is deeply honored to serve as a session chair for the 4th Nagasaki-Leiden Joint Symposium and looks forward to facilitating lively scientific discussions with colleagues from the Leiden University Medical Center (LUMC).

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Takahiro Takazono, M.D., Ph.D. is an Associate Professor of Clinical Infectious Diseases at Nagasaki University. He is recognized for his contributions to the diagnosis, treatment, and research of fungal infections, respiratory infections, and emerging infectious diseases.

His research focuses on aspergillosis, non-tuberculous mycobacterial disease, antimicrobial resistance, biofilm-associated infections, and novel therapeutic strategies based on host-pathogen interactions.

Associate Professor Takazono has contributed to national and international clinical guidelines on fungal and infectious diseases and serves in editorial and academic leadership roles across multiple scientific organizations. Through translational research and clinical practice, he aims to improve the management of difficult-to-treat infectious diseases and strengthen global infectious disease preparedness.

Tomohiro Koga, MD, PhD.
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Tomohiro Koga is a Lecturer in the Department of Immunology and Rheumatology, Nagasaki University Hospital and Graduate School of Biomedical Sciences. He graduated from Oita University School of Medicine and completed his clinical training at Nagasaki Medical Center before joining the rheumatology service at Nagasaki University Hospital.

From 2011 to 2014 he was a research fellow in the Division of Rheumatology and Clinical Immunology at Beth Israel Deaconess Medical Center, Harvard Medical School, in the laboratory of Professor George C. Tsokos, where he studied calcium/calmodulin-dependent protein kinase IV (CaMK4) in T-cell signalling in autoimmunity.

He returned to Nagasaki as an Assistant Professor and, supported by the Leading Initiative for Excellent Young Researchers, established a translational research programme at the Center for Bioinformatics and Molecular Medicine.

He is a board-certified internist, rheumatologist and clinical geneticist. His current work integrates clinical and imaging phenotyping with cytokine profiling, plasma proteomics and single-cell transcriptomics to define molecular endotypes of rheumatoid arthritis, familial Mediterranean fever and idiopathic multicentric Castleman disease, with the aim of translating unmet clinical needs in rare immune-mediated diseases into precision-medicine strategies.

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Ryoichiro Doi, M.D., Ph.D. is a Lecturer of Division of Thoracic and Pelvic Surgery, Department of Surgery at Nagasaki University. His research interests include respiratory tissue engineering, three-dimensional culture systems, and patient-derived models for lung cancer research.

After graduating from Nagasaki University School of Medicine, he developed extensive experience in respiratory surgery through appointments at major medical centers and research training, including work in immunology at Columbia University. Dr. Doi has contributed to the development of innovative therapeutic strategies involving lung organoids, stem cell therapies, tissue engineering, and organ regeneration.

His research explores mechanisms of lung repair and the creation of novel in vitro disease models, with the goal of advancing regenerative medicine and improving outcomes for patients with severe pulmonary disorders. He has authored numerous peer-reviewed publications and has participated in national research projects supported by competitive grants. Through the integration of clinical practice and laboratory science, Dr. Doi seeks to advance the field of thoracic surgery and accelerate the translation of regenerative technologies into patient care.

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Yasuhiko Nakao, M.D., Ph.D., is an Assistant Professor in the Department of Gastroenterology and Hepatology at Nagasaki University Hospital, Japan. He received his M.D. from Nagasaki University School of Medicine in 2012 and his Ph.D. from the Department of Gastroenterology and Hepatology, Nagasaki University, in 2022.

From 2018 to 2021, he worked as a Research Fellow in the Department of Gastroenterology and Hepatology at Mayo Clinic, Rochester, Minnesota, USA, supported by the Kanae Foundation Foreign Study Grant. His research centers on applying artificial intelligence and deep learning to clinical gastroenterology and hepatology, spanning imaging-based prediction of treatment response in hepatocellular carcinoma, radiograph-derived assessment of nutrition and sarcopenia, and noninvasive biomarker monitoring.

He has authored more than ten peer-reviewed papers in journals including Gastroenterology, Hepatology, Scientific Reports, and Modern Pathology, and has presented at international meetings such as the AASLD Liver Meeting and APASL, receiving a Young Investigator Award at APASL STC 2017.

He is a member of the Japanese Society of Gastroenterology, the Japan Society of Hepatology, the Japan Gastroenterological Endoscopy Society, and the Japanese Society of Internal Medicine.

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Mai Izumida is an infectious diseases physician-scientist at Nagasaki University, Japan. Her research focuses on tuberculosis immunology and host–pathogen interactions, particularly the mechanisms underlying progression from Mycobacterium tuberculosis infection to active disease. Following her PhD, she conducted postdoctoral research at the MRC Unit The Gambia at the London School of Hygiene & Tropical Medicine, studying antigen-specific and longitudinal immune responses associated with TB progression.

She is currently developing collaborative TB studies with the University of the Philippines Manila, integrating longitudinal cohorts, M. tuberculosis lineage analysis, immunological profiling, and single-cell transcriptomics. A major focus is understanding how host population background and bacterial lineage shape protective and disease-associated immunity.

She also serves as an affiliated faculty member of the Nagasaki University Pandemic Research Center, where she investigates how climate change and environmental disturbances, including floods and typhoons in Asia, affect the emergence and transmission of infectious diseases.

Her long-term goal is to establish a collaborative Asian TB cohort network for comparative studies of TB progression, immunity, and population-tailored prediction and prevention, while developing broader approaches to infectious disease prediction by integrating host immunity with environmental and ecological perspectives.

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Shinya Miyazaki, Ph.D. is an Assistant Professor in the Department of Protozoology at the Institute of Tropical Medicine, Nagasaki University. His research centers on malaria parasite biology, molecular parasitology, and the development of innovative tools for infectious disease research.

Following doctoral training in pharmaceutical sciences at the University of Tokyo, he conducted research at Nagasaki University and Leiden University Medical Center, where he investigated the molecular mechanisms underlying Plasmodium falciparum infection and transmission. Dr. Miyazaki is widely recognized for developing genetically engineered reporter parasite lines that enable sensitive analyses of parasite behavior, drug responses, and host-pathogen interactions.

His current studies focus on malaria transmission stages, parasite adhesion mechanisms, and interactions between infected erythrocytes and bone marrow cells. He has received several academic awards for his contributions to parasitology and continues to collaborate internationally on malaria control and drug discovery efforts. Through his work, he aims to contribute to the global fight against malaria and other tropical infectious diseases.

Keiko Hamasaki, M.D., Ph.D.
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Keiko Hamasaki is an Assistant Professor at Nagasaki University whose research focuses on the history of medicine, historical medical education, and the transmission of Western medical knowledge in nineteenth-century Japan.

Her current work examines Pompe van Meerdervoort's lecture notes and the formation of modern surgical education during the late Edo period. Utilizing digital humanities approaches, including handwritten text recognition and historical document analysis, she explores how Western medical concepts were translated, interpreted, and incorporated into Japanese medical practice.

Her research contributes to a deeper understanding of the international exchange of medical knowledge and the historical foundations of modern medical education in Japan.

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Yohei Sonobe, Ph.D., is a technical staff member at Nagasaki University, where he supports education and research through technical development and research infrastructure.

He is a core member of the Pompe Medical Heritage Digital Archive Project, a collaborative initiative involving Nagasaki University and Leiden University. Since 2025, he has played a central technical role in developing AI-based technologies for the digital preservation and analysis of historical Dutch lecture notebooks associated with Dr. J. L. C. Pompe van Meerdervoort.

His work focuses on handwritten text recognition (HTR), image preprocessing, machine learning, and system optimization to improve transcription accuracy. He has also contributed to digital archive infrastructure, transcription correction tools, and multilingual research tools, supporting interdisciplinary collaboration across medicine, engineering, and the humanities. Through these efforts, he contributes to the preservation and international dissemination of historical materials related to the development of modern Western medicine in Japan.

His engineering research focuses on fracture mechanics and computational mechanics, with the aim of improving the reliability and safety of mechanical structures and manufacturing processes.

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Brett Hos received his doctorate in Leiden for his onco-immunological research at the LUMC where he explored molecular techniques to enhance the discovery and immunogenicity of cancer T cell antigens. Since then, he has developed an interest in employing targeted protein degraders for immune modulation in cancer.

Last year's delegation visit from Nagasaki to Leiden led Brett Hos to discover a mutual scientific interest with Prof. Dr. Hiroaki Ikeda. Fortunately, Prof. Dr. Hiroaki Ikeda offered him an assistant professor position through Nagasaki University's Planetary Health initiative.

In November, Brett Hos moved with his Japanese family from Leiden to Nagasaki. At Nagasaki University, he spends his days in the laboratory, continuing his preclinical research. Grateful to both institutions, he was the perfect candidate to assist with the student exchange agreement between them. Currently, he coordinates Nagasaki medical students' visits to the LUMC and aspires to facilitate opportunities for Leiden students to visit Nagasaki.

Real life immunology to improve responses to vaccines

Maria YAZDANBAKHSH[1]

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Prevention of infectious diseases through vaccination is one of the greatest achievements of medicine, yet there is growing realisation that vaccine immunogenicity and efficacy varies greatly across populations in high- versus low/middle- income countries (LMIC) and in urban- versus rural areas within one country. For example, whereas vaccination of volunteers in Europe with attenuated malaria vaccine can result in 100% protection, the efficacy drops to only 29% when tested in Africa, where it is needed most. Other vaccines, such as rotavirus, BCG, yellow fever and Ebola show similar trends in either immunogenicity or efficacy. In parallel, using technologies for in depth characterization of the immune system, shows strong variation in immunological profiles across geographical areas. In particular, the expansion of highly activated immune cell subsets, along with increased regulatory cell frequencies, and skewing towards Th2, characterize the immune profiles of populations residing in rural areas of LMIC; areas where vaccine performance is poor. Identification of immunological pathways and response to perturbations in different environmental setting is needed to improve vaccine responses.

Content of the Talk: Through high dimensional immunological data, it has been possible to showcase immune variation, response to vaccines, and dynamic immunological changes to controlled human infection in different geographical areas. This is helping to discover how distinct arms of the immune system might be involved in immunity depending on immunological set points of populations studied.

Development of a Handwritten Text Recognition System for Dutch Lecture Notes

Keiko HAMASAKI[1]

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In 1857, Western medicine was introduced to Japan by Johannes Lydius Catherinus Pompe van Meerdervoort, a Dutch military surgeon who came to Japan as an instructor for the Second Naval Training Program. Pompe emphasized to Japanese physicians the need to systematically study Western medicine. Over the course of five years, he taught everything from anatomy to bedside teaching, graduating 61 students. Lecture notes in Dutch, compiled by Pompe for every subject, still exist; it is said that during lectures, he would read from them while adding explanations as needed to deepen the students' understanding. The Japanese students transcribed these lecture notes and also created Japanese translations for those who did not understand Dutch. Although the Dutch lecture notes transcribed by the Japanese students still exist today, deciphering their contents has proven difficult not only due to the linguistic challenge of reading Middle Dutch but also because of the difficulty in recognizing handwritten characters.

In this project, we collaborated with our university's Faculty of Engineering, the Faculty of Multicultural Society, and Leiden University to develop a Handwritten Text Recognition (HTR) system for the surgical lecture notes. We are digitizing these notes (Digital Archive, DA) to enable not only medical historians but also medical students to decipher and translate them, and are currently developing the system as a new tool for medical history education.

In building the HTR system, we processed image files of the lecture notes and selected the platform combination with the lowest character error rate (CER). With the cooperation of Japanese language researchers—native Dutch speakers from the Faculty of Multicultural Society—and Leiden University, we created "Ground Truth" (true data), used it to train the AI, and digitized the lecture notes. Furthermore, we developed a correction-support editor to improve the accuracy of the HTR system.

Moving forward, we aim to identify the medical concepts, pathologies, diseases, and techniques that Pompe emphasized in Japan and to elucidate the surgical education system in modern medicine. This research offers a new interdisciplinary perspective that spans the history of medicine, the history of education, translation studies, and the development of digitization tools. We also aim to introduce this tool into medical education as a means for students to experience firsthand the evolution of medicine and education while still in school.

The Importance of Polymicrobial Interactions in Respiratory Infections

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Respiratory infections are often investigated by focusing on a single causative pathogen. In reality, however, multiple microorganisms may interact and collectively shape disease pathogenesis. Well-known examples include invasive pneumococcal disease and pulmonary aspergillosis following influenza, as well as COVID-19-associated pulmonary aspergillosis.

Our department investigates polymicrobial interactions in both acute and chronic respiratory infections. We have focused on coinfection involving the anaerobic bacterium *Prevotella intermedia* and *Streptococcus anginosus*, the interaction between *P. intermedia* and nontuberculous mycobacteria (NTM), and the relationship between NTM and *Aspergillus* species.

Using in vitro studies and murine infection models, we demonstrated that factors produced by *P. intermedia* impair neutrophil function and exacerbate *S. anginosus* infection. *P. intermedia* also induces macrophage dysfunction, thereby promoting NTM infection. Furthermore, NTM-derived factors enhance *Aspergillus* growth and biofilm formation. NTM and *Aspergillus* may also reciprocally suppress macrophage-mediated host defense, facilitating persistent or progressive coinfection.

These findings indicate that respiratory infection pathogenesis cannot always be explained by a single pathogen. Elucidating microbial–microbial and microbial–host interactions may improve our understanding of disease progression and contribute to the development of novel therapeutic strategies targeting polymicrobial respiratory infections.

How to select candidate patients for Proton Radiation Therapy?

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Proton Radiation Therapy is available in The Netherlands (18M inhabitants) since 2018 in three centers with a total maximum capacity of 1600 treatments per year (of 53000 treatments with photons per year). Proton Radiation Therapy has the advantage over conventional Photon Radiotherapy that the radiation beams start and stop at a predefined depths in the patient protecting the normal tissue posterior and anterior of the target area. However, not all patients will benefit from proton radiation therapy. Upon introduction the question rose what the indications for use of proton therapy should be. As the benefit is highly dependent on the local anatomy and not the primary tumor or stage perse, the concept of model based calculation was introduced. With this method a computerized pre-calculation of the expected delta (benefit of proton radiation compared to photon radiation) with a threshold of 5% established.

Now, nearly 8 years further ahead along the line results emerge on the benefit of protons with the aforementioned method applied but are not mature. With a boot-strap controlled trial toxicity of each proton patient is compared to him/herself with the photon established Normal Tissue Complication Probability.

Results discussion on this method versus a randomized trial are still ongoing. Japan has many particle centers, not only protons but also Hadron particles. Is the Model-based selection method applicable in Japan?

Immunodiagnostics for Mycobacterial diseases in Global settings

Anouk van Hooij[1], Danielle de Jong[2], Paul Corstjens[2], and **Annemieke GELUK[1]**

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The development of accurate, rapid, and accessible immunodiagnostic tests remains a critical component in the global fight against tuberculosis (TB) and leprosy, two infectious diseases caused by mycobacteria that continue to pose significant public health challenges. While advances in molecular diagnostics have improved diagnosis of disease, immunodiagnostic approaches offer complementary advantages, including simplicity, cost-effectiveness, and suitability for decentralized and resource-limited settings.

This presentation will provide an overview of LUMC's strategies for the development of immunodiagnostic assays targeting (early) diagnosis of TB and leprosy. It will discuss the identification of host biomarkers, assay optimization, and test evaluation for different use cases involving Population health and One health at a Global level.

Palliative Radiotherapy for Head and Neck Cancer: Current Evidence and Practice

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Head and neck cancer is often superficial, and as it progresses it causes pain, bleeding, dysphagia, airway obstruction, ulceration, and malodour, all of which markedly impair quality of life (QOL). Definitive radiotherapy delivering 60 Gy or more in conventional fractionation remains the standard of care, but it is not always appropriate for patients with extensive local progression, advanced age, poor performance status, substantial comorbidity, prior irradiation of the head and neck, or refusal of curative treatment. For such patients, palliative radiotherapy is a valuable option. Recent advances in systemic therapy, including molecular targeted agents and immune checkpoint inhibitors, have prolonged survival in head and neck cancer, and longer survival with cancer, together with an ageing population, is expected to increase the demand for palliative radiotherapy.

The treatment of malignant tumours has two aims, prolonging survival and maintaining or improving QOL, and the balance between them must guide decision-making. Unlike palliative radiotherapy for painful bone metastases, which is an absolute indication, palliative radiotherapy for head and neck cancer is a relative indication, and it should be chosen only after careful comparison with curative options. Conversely, it can benefit patients who would otherwise be offered best supportive care alone.

The NCCN guidelines list five recommended palliative regimens. Among them, the QUAD shot regimen, in which 14.8 Gy is delivered in four fractions over two days per cycle for a total of three cycles, has attracted attention because of its low toxicity and its applicability to re-irradiation. In a multicentre prospective observational study conducted by the Japanese Radiation Oncology Study Group (JROSG 18-2), we evaluated the efficacy, safety, and QOL outcomes of the QUAD shot regimen delivered with three-dimensional conformal or intensity-modulated radiotherapy. Remaining issues include the wider application of re-irradiation, the role of stereotactic body radiotherapy, and the search for optimal regimens.

This presentation outlines the current position of palliative radiotherapy for head and neck cancer, recent evidence, and how it is delivered in daily practice.

From Host–Pathogen Interactions to Infectious Disease Preparedness: Linking Biological and Ecological Transitions

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My research focuses on how host–pathogen interactions determine infection outcomes. Using tuberculosis (TB) as a model, we have investigated antigen-specific host immune responses and are extending this work to longitudinal studies of immune changes preceding clinical disease. Single-cell transcriptomic and immunological analyses of a longitudinal cohort in The Gambia are being used to explore how host immune states change during progression toward active TB.

We are further expanding this framework to incorporate pathogen diversity. In collaboration with the University of the Philippines Manila (UPM), longitudinal clinical samples, *Mycobacterium tuberculosis* genomics, and host immune profiling are being integrated to examine how locally circulating bacterial lineages interact with host immunity and influence disease outcome. Our longer-term goal is to establish an international longitudinal TB platform linking Asia, Africa, and Europe, including UPM in Asia, MRC Unit The Gambia in Africa, and Leiden University and other European partners. Harmonized clinical, pathogen genomic, and host multi-omics data could support population- and lineage-informed risk stratification and prediction of TB progression.

In parallel, we are extending the concept of pre-disease transitions from individuals to ecosystems. Environmental DNA and metagenomic surveillance following floods and other environmental disturbances will be integrated with animal/vector, meteorological, environmental, and human disease data to identify ecological changes preceding infectious disease emergence.

Together, these approaches aim to shift infectious disease research from retrospective detection toward anticipation and preparedness, providing an international framework for earlier risk detection, prediction, and prevention.

Advanced cellular therapies for hematological malignancies, autoimmune diseases and sensitized transplant patients

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Cellular immunotherapy has transformed the treatment of cancer and is increasingly being explored for applications beyond oncology. Our research focuses on the development of next-generation engineered T-cell therapies that selectively target disease-causing cells while preserving healthy tissues. By designing novel receptor technologies, we aim to improve treatment efficacy, overcome mechanisms of immune escape, and expand the use of cellular therapies to transplantation and autoimmune diseases.

To broaden the spectrum of targetable tumor antigens, we have identified and developed a library of tumor-specific T-cell receptors (TCRs). Building on this work, two Phase I/II clinical studies are currently underway at LUMC: one evaluating NPM1-specific TCR therapy for patients with acute myeloid leukemia and another assessing BOB1-specific TCR therapy for patients with B-cell malignancies. In addition, we have demonstrated that combining HLA-independent CAR-mediated targeting with HLA-dependent TCR-mediated recognition can enhance tumor control and reduce the emergence of therapy-resistant tumor variants.

Beyond oncology, we developed Chimeric HLA Antibody Receptor (CHAR) T cells to selectively eliminate HLA-specific B cells responsible for sensitization in kidney transplant candidates. HLA class I and II CHAR T cells efficiently eradicated pathogenic anti-HLA reactive B cells in vitro and in vivo, offering a promising strategy to facilitate transplantation.

More recently, we introduced Chimeric HLA Epitope Receptor (CHER) T cells for celiac disease. Unlike current treatment with a lifelong gluten-free diet, CHER T cells specifically target and eliminate pathogenic gliadin-reactive CD4 T cells while sparing unrelated immune cells.

Together, these studies demonstrate the potential of precision-engineered cellular therapies to address unmet clinical needs across cancer, transplantation, and autoimmune disease.

Interplay between *Plasmodium falciparum* and Bone Marrow Mesenchymal Stem Cells

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Plasmodium falciparum sequestration in host tissues contributes to malaria pathogenesis, while the bone marrow is increasingly recognized as a key niche for parasite persistence and transmission. To investigate host–parasite interplays in these environments, we established an in vitro platform using immortalized human brain microvascular endothelial cells (HBMECs) and human bone marrow mesenchymal stem cells (HBMMSCs).

Using cytoadhesion assays, we generated parasite lines that selectively adhered to either HBMECs or HBMMSCs. These lines exhibited distinct transcriptional profiles, including increased expression of variant surface antigens, suggesting cell type–specific cytoadhesion mechanisms. The platform also enabled quantitative evaluation of cytoadhesion inhibitors, including brefeldin A.

We further found that co-culture of *P. falciparum*-infected erythrocytes with HBMMSCs altered both host cell and parasite biology. Infected erythrocytes induced inflammatory responses and altered the expression of genes involved in osteogenic differentiation pathways in HBMMSCs. Conversely, HBMMSCs significantly enhanced gametocyte conversion and upregulated the sexual commitment regulator *ap2-g* in *P. falciparum*.

These findings identify HBMMSCs as an active bone marrow niche that supports parasite adaptation and transmission. Our platform provides a valuable and robust tool for studying cytoadhesion mechanisms and host–parasite interplays underlying malaria pathogenesis and transmission.

T cell therapy that overcomes tumor heterogeneity

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Recent advancements in cancer Immunotherapy have ushered in a new era of cancer treatment. However, despite their potential, the efficacy of cancer immunotherapy is often compromised by the tumor heterogeneity that allows the emergence of antigen loss escape variants that evade recognition and elimination by antigen-specific T cells. To address this challenge, we have developed several effective adoptive T cell therapy (ACT) strategies targeting escape variant-containing tumors using our unique heterogeneous murine and human tumor models.

We aimed to enhance 'bystander tumor cell death' associated with cytokines produced by T cells that recognizes antigen-positive tumor cell clones. We found that ferroptosis inducers and IFN-γ derived from MART-1-specific TCR-T cells that reacted to antigen-positive melanoma cells synergistically enhanced the death of antigen-negative melanoma cells. As a result, the combination therapy of ferroptosis inducers and ACT efficiently eradicated heterogenous tumor model that consists of antigen positive and negative tumor cells in NOG mice model.

We also identified several compounds that can induce efficient tumor cell death when combined with TNF-α. Utilizing mesothelin-specific CAR-T cells, these compounds could induce cell death in malignant mesothelioma cells that lack the expression of mesothelin created by CRISPR/Cas9 knock out. Heterogenous tumor model that consists of antigen positive and negative tumor cells in NOG mice regressed when treated by the combination therapy of the compounds and CAR-T cells.

Development and Clinical Validation of AI Diagnosis Software for Preventing Retained Surgical Sponges

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Retained surgical items are serious but preventable adverse events, and surgical sponges account for approximately 70% of such incidents. To establish a more reliable system for preventing retained surgical sponges, we developed computer-aided diagnosis (CAD) software based on deep learning and subsequently evaluated its performance in a clinical setting. For software development, a deep-learning model was trained using composite radiographs generated from normal postoperative images and radiographs containing surgical sponges. Its diagnostic performance was validated using composite images, phantom models, cadavers, and normal postoperative radiographs. The software demonstrated 97.7% sensitivity and 83.8% specificity for composite radiographs, while both sensitivity and specificity exceeded 90% in cadaveric radiographs. We subsequently implemented the CAD software into a portable radiographic system used in the operating room and prospectively evaluated 1,053 postoperative radiographs obtained from adult surgical patients. The CAD system identified possible retained surgical items in 150 images and achieved a specificity of 85.8%, comparable to that observed during software development. These findings demonstrate that an AI-based diagnostic system developed using simulated and experimental imaging data can maintain its diagnostic performance after implementation in the real-world clinical environment. Integration of this technology into perioperative safety protocols may provide an additional safeguard against retained surgical sponges and contribute to reducing preventable surgical errors.

From Cohort Research to Community Well-being: Lessons from Nagasaki Islands Study (NaIS), Japan

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The Nagasaki Islands Study (NaIS) is a population-based cohort study conducted in the Goto Islands, a rapidly ageing community in Nagasaki Prefecture, Japan. Since 2014, NaIS has investigated a wide range of age-related health conditions through community-based health examinations and longitudinal follow-up. More recently, the cohort has been linked with medical, prescription, and long-term care data, enabling us to explore the relationships between health conditions, healthcare utilization, medication use, and subsequent care needs.

Healthy ageing, however, is influenced not only by diseases and physical function but also by social relationships, community participation, culture, and the environment in which people live. Building on the epidemiological foundation of NaIS, we are now considering how this research can be extended toward a broader concept of “Community Well-being Science,” integrating biomedical, social, and community perspectives.

In this presentation, I will introduce the development and selected findings of the Goto cohort research and discuss its future directions. As a potential next step, approaches such as social and cultural prescribing may provide new opportunities to explore how community resources, social connections, and cultural activities can contribute to healthy ageing and well-being. Collaboration between Nagasaki University and Leiden University may further facilitate interdisciplinary approaches to healthy ageing and sustainable communities.

Artificial Intelligence and Automation for Rapid Detection of Antimicrobial Resistance in Clinical Microbiology

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The global spread of antimicrobial-resistant (AMR) pathogens has become one of the greatest challenges in modern medicine, demanding rapid and accurate microbiological diagnosis to guide appropriate antimicrobial therapy and infection control. In recent years, rapid advances in artificial intelligence (AI) and laboratory automation have transformed infectious disease diagnostics by improving both diagnostic accuracy and turnaround time while reducing dependence on highly skilled manual interpretation.

AI-based image analysis using deep convolutional neural networks (CNNs) has demonstrated excellent performance in the automated interpretation of Gram-stained specimens from positive blood cultures following training on more than 25,000 images. This technology enables rapid differentiation of Gram-positive cocci and Gram-negative bacilli, facilitating earlier clinical decision-making. AI-integrated automated staining and digital imaging systems further standardize specimen processing, automate image acquisition and field selection, archive microscopic images, and improve workflow efficiency and quality assurance.

Recent advances in machine learning combined with MALDI-TOF mass spectrometry have expanded its application beyond microbial identification to rapid prediction of antimicrobial resistance. These approaches enable rapid detection of methicillin-resistant *Staphylococcus aureus* (MRSA), SCCmec typing, prediction of resistance mechanisms, and Panton-Valentine leukocidin (PVL) detection. AI-driven analysis of large-scale mass spectrometry data provides diagnostic performance approaching molecular methods while substantially shortening reporting time, thereby supporting antimicrobial stewardship programs and infection prevention measures.

In addition, AI-assisted culture plate interpretation automates screening of negative cultures and recognition of mixed bacterial growth, markedly improving laboratory productivity. AI-based influenza diagnostic systems, already implemented in Japan, further illustrate the expanding role of AI across infectious disease diagnostics.

The integration of AI, automation, and advanced microbiological technologies represents a paradigm shift in laboratory medicine. These innovations will play a pivotal role in combating AMR by enabling earlier pathogen identification, rapid detection of resistance, optimized antimicrobial therapy, and strengthened global surveillance of antimicrobial-resistant organisms.

Image-Guided Surgery Using Fluorescence

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Real time identification of tumors and surrounding critical structures during surgery is extremely important to improve patient outcomes. At present, these agents are becoming increasingly available for clinical testing. Clinical translation of various near-infrared imaging agents (ZW800-1, ICG, cRGD-ZW800-1, 6QC-ICG, OTL-38) for real time identification of tumors and vital structures will be presented. Clinical trial design, including first in human studies in healthy volunteers will be discussed as well as the path to FDA and EMA controlled (pivotal) Phase III clinical trials. In this overview the key regulations for first-in-human studies with these fluorescent agents will be presented to provide insight in different strategies for swift clinical translation and discuss how clinical introduction of these fluorescent agents was achieved. Current clinical practice at LUMC will be discussed for various indications (e.g. tumor imaging, perfusion assessment, ureter identification). Also, the need for standardization of the procedures and quantification of the fluorescent signals will be presented.

Stratification of Immune-Mediated Rheumatic Diseases by Clinical, Imaging and Omics Information: Toward Precision Medicine

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Purpose. Immune-mediated rheumatic diseases are clinically heterogeneous, and structural outcome and treatment response are poorly predicted by conventional clinical indices. We propose a three-step framework — stratification by clinical and imaging information, identification of molecular endotypes by omics profiling, and prediction of prognosis and treatment response — and present Nagasaki cohort data supporting each step.

Materials and Methods. (1) Imaging: 224 patients with rheumatoid arthritis (RA) starting biological or targeted synthetic DMARDs in a Kyushu prospective ultrasound cohort were assessed by grey-scale (GS) and power Doppler (PD) scores of 22 joints at baseline and 3 months, and by the modified total Sharp score (mTSS) over 12 months. (2) Cytokine networks: mature and total interleukin-18 (IL-18) plus 42 multiplex cytokines were measured in familial Mediterranean fever (FMF; attack n = 18, remission n = 34, healthy controls n = 36). (3) Multi-layer omics: idiopathic multicentric Castleman disease (iMCD; TAFRO-positive n = 12, TAFRO-negative n = 13) was profiled by intracellular flow cytometry, Olink plasma proteomics and single-cell RNA sequencing (108,369 cells).

Results. Baseline GS and PD correlated with ΔmTSS but were not independent predictors, whereas 3-month GS and PD independently predicted 12-month radiographic progression ($\beta = 0.068$ and 0.094, both $p < 0.001$), more strongly in DMARD-experienced patients ($\beta = 0.137$) and under IL-6 inhibition ($\beta = 0.223$). In FMF, mature IL-18 rose during attacks (1306 vs 930 pg/mL, $p = 0.043$) and its associations with IL-1β, FGF-2, IFN-α2 and TGF-α persisted after adjustment for IL-6, defining an IL-6-independent signature (random-forest AUC 0.870). In iMCD, CaMK4 protein was elevated in TAFRO-positive disease ($p = 0.006$) without a rise in CAMK4 transcript, and correlated with severity (CHAP $\rho = 0.74$) and a CXCL13-related inflammatory signature.

Conclusions. Residual imaging inflammation, cytokine-network topology and protein–transcript dissociation each define endotypes that conventional clinical variables do not capture. Integrating these layers offers a practical route from clinical phenotype to molecular endotype and to prognosis- and response-based precision medicine. We propose reciprocal validation of these endotypes in the Nagasaki and Leiden clinical cohorts and development of this framework into a joint Horizon Europe programme.

From Lung Regeneration to Patient-Derived Lung Cancer Models: Evolving Research in Surgical Oncology

Ryoichiro DOI[1], Koichiro SHIMOYAMA, Daisuke TANIGUCHI, Tomohiro OBATA, Takaaki. NAKATSUKASA, Takuro MIYAZAKI, Megumi MATSUMOTO, Ryota OTSUBO, Takashi NONAKA, Keitaro MATSUMOTO

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Lung transplantation remains the definitive treatment for selected end-stage lung diseases, but its impact is constrained by a persistent donor-organ shortage. Our division initially addressed this unmet need through regenerative-medicine strategies aimed at generating or reconstructing functional respiratory tissues. We developed decellularization protocols that balance antigen removal with preservation of extracellular-matrix architecture, and investigated recellularization with epithelial, endothelial, and mesenchymal cells. In parallel, we explored three-dimensional bioprinting and engineered airway constructs. These studies established technical foundations for reproducing complex respiratory microenvironments, while also clarifying key barriers, including multicellular organization, vascularization, maturation, and scale-up. Building on this platform, our research is now expanding toward cancer biology using clinical specimens. We are developing patient-derived primary cultures, spheroids, and ex vivo lung cancer models to retain tumor architecture and interactions with the surrounding microenvironment. These models enable histopathological assessment and drug-response studies, including differential responses to gefitinib in EGFR-mutant and wild-type lung cancer cells. We are currently accumulating resected tissues and derived cells to connect model phenotypes with clinical and genomic information. Thus, our program has evolved from regenerative approaches to organ shortage toward clinically grounded cancer models, with the long-term goal of advancing precision medicine in thoracic oncology.

Epidemiology and Biological Consequences of Fab-glycosylation of Anti-Citrullinated-Peptide Antibodies in Rheumatoid Arthritis

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Rheumatoid Arthritis (RA) is a chronic inflammatory and destructive disease. During the last decades insight in pathogenesis and subsequent development of targeted therapies (especially monoclonal antibodies against cytokines and surface receptor on white blood cells) have dramatically improved outcomes for patients, the major developments will be reviewed. The phases of RA development are now well defined ranging from the mere presence of genetic risk factors to clinical suspect arthralgia to full-blown persistent RA. The most specific auto-antibody response in RA is the autoantibody response to anti- citrullinated antigens.

This autoantibody response has been studied in great detail which revealed that the antigen-biding site of these antibodies is glycosylated and this Fab-glycosylation is predictive of RA development. The Fab glycans of ACPA reduce antigen binding, enhance the activation of B-cells, reduce the internalization of the B-cell receptor after antigenic stimulation and diminish complement activation. We created ACPA-bearing mouse strain with and without Fab-glycosylation and observed that the mice with sugars had more circulating B-cells suggesting that Fab glycosylation of the B cell receptor is a key molecular switch promoting the selection, activation and proliferation of autoreactive B cells.

Moreover, the first studies which focus on prevention of RA development have been published. These studies showed that prevention studies are possible and that RA development can be postponed but not prevented but the secondary endpoints (patient reported outcomes) showing clear suggestions of persistent disease modification. Interventional studies in undifferentiated arthritis and early RA patients aiming to reach clinical remission as defined by the absence of signs and symptoms, already showed that drug free remission can be achieved if patients are treated very early. The development of specific autoantibody profiles and the selection of B-cells specific for citrullinated antigens and subsequent specific mutations from germline sequences are now identified, opening the possibilities for more specific interventions in early disease. An ideal intervention would be one that prevents the expression of the clinical entity we recognise as full-blown RA. Such intervention will halt the disease process in individuals from the ‘phases’ from the pre-clinical status [an individual with genetic risk factors & environmental risk factors that develops systemic autoimmunity] through the clinical phases [an individual will develop symptoms e.g. joint pain and stiffness, then arthritis finally to a disease to classified as RA.

Decompensated cirrhosis and acute-on-chronic liver failure: insights from Europe

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Cirrhosis is the end-stage of chronic liver diseases. Patients with cirrhosis differ substantially in disease trajectory, prognosis, and response to therapy. Due to this heterogeneity, there is need for improved patient stratification and personalized treatment strategies instead of the current one-size fits all approach.

Portal hypertension, caused by structural and functional changes of liver tissue in end-stage liver disease, illustrates this challenge. Although non-selective beta-blockers (NSBB) are widely used to prevent gastroesophageal variceal bleeding and the first decompensation event in patients with cirrhosis, only approximately half of patients achieve a clinically relevant hemodynamic response. Biomarkers predicting NSBB treatment response and alternative therapeutic strategies are warranted. Biomarkers may also improve prediction of disease progression and mortality. Copeptin, a surrogate marker of arginine vasopressin, reflecting circulatory dysfunction, is associated with the development of acute-on-chronic liver failure and short-term mortality. Copeptin may improve prognostic models beyond conventional scores. Moreover, simple biomarkers such as urinary chloride may provide additional information on circulatory and renal dysfunction and help identify patients at increased risk of decompensation. The MICROB-PREDICT program and ALB-TRIAL exemplify a personalized medicine approach by using biomarker signatures to stratify patients according to their expected response to long-term albumin therapy.

An additional challenge is the geographical heterogeneity of cirrhosis. Patients in different continents may differ e.g., in etiology of underlying liver disease, genetic background, diet, microbiome, environmental exposures and patterns of disease progression, while definitions of the disease trajectory also differ between continents. Biomarkers and treatment algorithms developed in European cohorts therefore require validation across Asian populations. Future research should aim to integrate multidimensional information to define biologically and clinically meaningful patient subgroups. The goal is to move from treating complications towards preventing decompensation and selecting the right treatment for the right patient at the right time.

IL-18 and interstitial lung disease associated with idiopathic inflammatory myopathy (IIM-ILD, so-called polymyositis/dermatomyositis-ILD; PM/DM-ILD)

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Mature interleukin-18 (IL-18), the biologically active caspase-cleaved form of IL-18, plays a central role in the pathogenesis of IIM-associated interstitial lung disease (IIM-ILD). However, previous studies primarily assessed full-length precursor IL-18 rather than its biologically active mature form. We have elucidated the pathogenic role of mature IL-18 in patients with IIM-ILD, leading to the development of a monoclonal antibody specifically targeting mature IL-18 for clinical translation.

Serum and **bronchoalveolar lavage fluid** mature IL-18 were elevated in IIM-ILD versus healthy controls and correlated. Cytokine network analyses revealed divergent patterns: anti-synthetase antibodies + (ARS+) patients showed broad integration of mature IL-18 within a systemic inflammatory network, whereas anti-melanoma differentiation-associated gene 5 + (MDA5+) patients showed near-isolated elevation. Mature IL-18 correlated with ferritin in rapidly progressive ILD patients, suggesting macrophage activation. Anti-mature IL-18 mAb significantly reduced lung hydroxyproline versus control IgG and anti-full-length IL-18 antibody, with ^{89}Zr-PET confirming specific pulmonary retention in mice treated with intratracheal bleomycin; anti-full-length IL-18 Ab was ineffective and IL-18 binding protein showed a non-significant trend. NanoString nCounter transcriptomics revealed coordinated suppression of extracellular matrix, myofibroblast, and pro-fibrotic gene programs, with upregulation of fibrolytic matrix metalloproteinase 13.

These findings indicate that mature IL-18 plays mechanistically distinct, subgroup-specific roles in IIM-ILD and acts as a key driver of pulmonary fibrosis, particularly progressive pulmonary fibrosis, a major clinical challenge in patients with IIM-ILD. Selective blockade with anti-mature IL-18 mAb outperforms anti-full-length antibody and IL-18 binding protein, establishing mature IL-18 as a precision therapeutic target in progressive IIM-ILD.

With support from AMED and JST, we have developed a humanized monoclonal antibody that specifically targets mature human IL-18. Preclinical efficacy and safety studies in cynomolgus monkeys are progressing well, and preparations are underway to initiate a Phase 1 clinical trial within the next two years.

Toward multimodal AI in gastroenterology: integrating precision oncology, radiographic sarcopenia assessment, and noninvasive biological monitoring

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Background: Expert gastroenterologists integrate heterogeneous information, including tumor imaging, nutrition and sarcopenia, and metabolic status, to make high-stakes clinical decisions, yet most AI systems remain single-modal and task-specific. We developed three high-performing, vision-based modules toward a multimodal framework reflecting expert reasoning. Methods and Results: (1) Precision Oncology (HCC-YOLO): a YOLOv7-based model using contrast-enhanced CT predicted response to atezolizumab plus bevacizumab in 43 patients with unresectable hepatocellular carcinoma, achieving mAP@0.5 of 99.5% for progressive-disease detection with lesion-aligned interpretability. (2) Nutrition and Sarcopenia (X-ray NST): using more than 14,000 chest radiographs, models estimated height (R=0.855) and weight (R=0.86) in patients with limited mobility; an X-ray-derived skeletal muscle index (X-SMI) correlated with reference SMI (r=0.765) and discriminated severe malnutrition (GLIM criteria, AUC 0.83 in males), while also predicting albumin (R=0.71) and hemoglobin (R=0.74). (3) Noninvasive Biological Monitoring (Scleral Bilirubin): scleral photograph color analysis via a hospital-deployed mobile device showed the CIELAB b* channel correlated with serum bilirubin (r=0.77), achieving AUC 0.984 for overt jaundice (3.0 mg/dL or higher). Conclusion: Each module captures a distinct facet of the same patient. Integrating imaging-based oncology, nutrition, and biological monitoring from routine data (CT, chest X-ray, mobile photographs) offers a holistic, clinically actionable, and scalable path toward accessible precision medicine in gastroenterology.

THE 4TH NAGASAKI-LUMC JOINT SYMPOSIUM

Welcome Dinner

Date: Thursday, 1 October 2026, 18:00-20:00
Venue: THE SCANDIA, 4th Floor, Luke Plaza Hotel
Master of Ceremonies: Prof. Koichi Izumikawa (Department of Infectious Diseases)

Time	Program
18:00	Opening Remarks: Prof. dr. Hiroaki Ikeda, Dean, Graduate School of Biomedical Sciences, Nagasaki University Greeting Remarks: Prof. dr. Alexandra Langers, Vice Dean of Education, Leiden University Medical Center
18:10	Toast: Prof. dr. Satoshi Kaneko, Dean of Institute of Tropical Medicine, Nagasaki University
19:45	Closing Remarks: Dr. Maartje Huijbers, Vice Dean of Research, Leiden University Medical Center
19:50	Group Photo
20:00	Close

Transportation Information

Participants who travel to the venue by the chartered bus are kindly requested to use the same bus for the return journey. The chartered bus will stop at Hotel Global View Nagasaki and Nagasaki University School of Medicine.

Participants who do not use the chartered bus are kindly requested to share the taxis arranged by the organizers. Taxi fares will be paid directly by the organizers. Please disembark either at Nagasaki Station or Nagasaki University School of Medicine.

As the dinner will conclude promptly at 20:00, we would greatly appreciate your cooperation in departing the venue in a timely manner.

長崎大学 大学院
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いしやっこちゃん

'Ishiyakko-chan'

The Mascot of Nagasaki University Graduate School of Biomedical Sciences

'Ishiyakko-chan' is named after the Graduate School of Biomedical Sciences called 'Ishiyaku' in Japanese. The cute design contains a motif 'Yakko' as well as 'Tofu*' that is associated with the name above.

*Tofu is a soft white custard like substance made from bean curd often used for cooking, and well-known as a healthy food in Japan.