UNITED ARAB EMIRATES
MINISTRY OF HEALTH & PREVENTION

METI
Ministry of Economy, Trade and Industry

JAPAN HEALTHCARE UPDATE CONFERENCE

4-6 March, 2021

VIRTUAL CONFERENCE
Abu Dhabi, UAE

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CONFERENCE BOOK

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WELCOME MESSAGE

Dear Colleagues,

On behalf of the scientific committee, it gives me immense pleasure to welcome you at **"Japan Healthcare Update Conference"** being held on **4-6 March, 2021 Virtually** in Abu Dhabi, UAE.

The conference aims at presenting to participants cutting edge developments in healthcare in Japan.

The program will comprise an exciting combination of lectures, presenting the latest in innovative techniques in fields ranging from regenerative medicine, oncology, robotics, AI, and gene therapy.

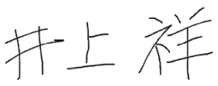
Japan is known as one of the leading in the world in this field especially in utilizing iPS cells and notably, Prof. Yamanaka of Kyoto University received Nobel Prize for this. More than 10 professors will speak on the latest developments in regenerative medicine, especially iPS cells at this conference.

Notable lecture on Regulation in tele-surgery, AI usage in ICU, ultrasound therapy for dementia will also be discussed and very timely topics such as T-cells from iPS that could be used for COVID and MERS

Endoscopy demo showing the development of AI in diagnostics, and other notable topics relevant to Cell therapy such as Stem Cell Sheet Therapy among others will be part of the scientific program as well.

The meeting will offer a superb opportunity for physicians, medical specialists and all healthcare professionals to attend expert updates and to share and exchange best practices, knowledge and experiences and to network with new and established colleagues, creating and strengthening clinical collaborations to improve the well-being of patients in the UAE and the region.

I wish you a very productive and successful conference and look forward to seeing the results of your deliberations put into practice.



Dr. Sho Inoue M.D., Ph.D.,
Conference Chairman
Co-Founder | Representative Director, MedicalNote, Inc.

SCIENTIFIC COMMITTEE

Dr. Sho Inoue
M.D., Ph.D., Co-Founder,
Representative Director,
MedicalNote, Inc.

Dr. Peter Shane
Assoc. Prof. of International Medicine
Chief of International Development
Section of the Clinical Research and
Medical Innovation Center, Hokkaido
University Hospital

Dr. Yuki Kobayashi
Chief Operating Officer,
MedicalNote Inc.

ORGANIZING COMMITTEE

Ms. Atsuko Uchida
Partner, Opus Consulting Co., Ltd.

Ms. Ayano Takechi
Public Affairs, MedicalNote, Inc.

LEARNING OBJECTIVES

Upon Completion of this educational activity, participants should be able to:

- Discuss direct reprogramming of fibroblasts into cardiomyocytes
- Explain the mechanism of cell therapy for spinal cord injury
- Describe iPSC technology-based regenerative therapy for diabetes, Generation of hepato-biliary-pancreatic organoid from human pluripotent stem cells.
- Discuss Generation of cytotoxic T lymphocytes from iPS cells
- Discuss Quality and Quantity-Cultured Human Mononuclear Cells
- Explore on the recent advances Recent advances in cellular therapy for hematologic malignancies
- Discuss Cell Therapy for Spinal Cord Injury using Induced Pluripotent Stem Cells
- Evaluate Real-time endoscopic diagnosis using deep learning technology and ESD for lower GI neoplasms
- Describe developments and future vision of the made-in Japan surgical robot system & development of new robot-assisted surgical system suitable for the tele-surgery
- Explore Telemedicine in Asia and beyond: Possible expansion to UAE

TARGET AUDIENCE

- Bioscientists
- Gastroenterologists
- General Surgeons
- Endoscopy
- Radiologists
- Pathologists
- Internists
- Oncologists
- Cardiologists
- General Practitioners
- Family Physicians
- Nurses
- Medical Students
- Allied Healthcare Professionals

SPEAKERS

Prof. Yoshiki Sawa
Professor, Department of Cardiovascular Surgery, Osaka University Graduate School of Medicine

Dr. Masayo Takahashi
M.D., Ph.D., President
Vision Care Inc.

Prof. Takanori Teshima
Professor of Medicine, Division of Hematology & Deputy-director of Hokkaido University Hospital

Prof. Jun Takahashi
MD, PhD, Department of Clinical Application, Center for iPS Cell Research & Application, Kyoto University, Kyoto, Japan

Prof. Shuji Terai
Chairman & Professor, Division of Gastroenterology & Hepatology, Vice-director, Institute for Research Promotion, Niigata University

Prof. Masato Sato
Prof. of Department Orthopaedic Surgery, Tokai University School of Medicine

Prof. Masaya Nakamura
Professor & Chair, Department of Orthopedic Surgery, Vice Dean, Keio University School of Medicine

Prof. Hideyuki Okano
Vice President, Professor, Dean of Keio University Graduate School of Medicine

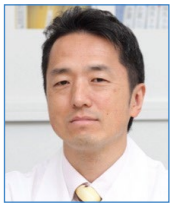
Prof. Hiroshi Kawamoto
Professor, Laboratory of Immunology, Institute for Frontier Life and Medical Sciences, Kyoto University

Prof. Takanori Takebe
Director of Commercial Innovation Center for Stem Cell & Organoid Medicine, Professor, Tokyo Medical & Dental University

Prof. Rica Tanaka
Chairman & Professor of Juntendo University Graduate School of Medicine Division of Regenerative Therapy

Prof. Kenji Osafune
Professor, Kyoto University Center for iPS Cell Research and Application

Prof. Haruhiro Inoue
Professor, Showa University School of Medicine, Chairman of the Digestive Disease Center at Showa University Koto Toyosu Hospital, Tokyo, Japan



Dr. Yutaka Saito
Director, Endoscopy Center, National Cancer Center Hospital

Dr. Seiichiro Abe
M.D., Ph.D., FASGE
National Cancer Center Tokyo

SPEAKERS

Dr. Nobuyuki Hinata
Associate Professor, Department of Urology, Kobe University Graduate School of Medicine

Prof. Shuji Shimizu
Vice President of Kyushu University and Chairman, Professor of the Department of International Medical Department, Kyushu University Hospital, Director of the Telemedicine Development Centre of Asia

Prof. Masatoshi Eto
Professor and Chairman, Department of Urology, Director of Center for Advanced Medical Innovation, Kyushu University

Prof. Jun Hatazawa
Specially Appointed Professor, Osaka University, Research Center for Nuclear Physics, WPI Immunology Frontier Research Center Institute for Radiation Sciences

Prof. Hiroaki Shimokawa
Professsor & Chairman of the Dept. of Cardiovascular Medicine, Tohoku University, Vice Dean, Graduate School, International University of Health and Welfare

Dr. Shunsuke Takaki
Chair, Department of Intensive Care Medicine, Yokohama City University Hospital, Head of Tele-ICU Committee at the Japanese Society of Intensive Care Medicine

Yuma Nambu
Collaborative Researcher, Yokohama City University Hospital, Department of Anesthesiology

Dr. Eiji Oki
Associate Professor, Department of Surgery and Science, Graduate School of Medical Sciences, Kyushu University

Prof. Naoki Nakashima
Director and Professor Medical Information Center, Kyushu University Hospital, President of Japan Association for Medical Informatics

Dr. Peter Shane
Assoc. Prof. of International Medicine Chief of International Development Section of the Clinical Research and Medical Innovation Center, Hokkaido University Hospital

Hideaki Sato
MSc., President & CEO, Luxna Biotech Co., Ltd.

SCIENTIFIC PROGRAM

SCIENTIFIC AGENDA

Day 1 - Thursday | 4 March, 2021 (GST/UAE Time)

TIME	TOPIC	SPEAKER
09:00-09:05	Welcome & Introduction	Dr. Sho Inoue, Conference Chairman, Co-Founder Representative Director, Medical Note, Inc.
09:05-09:10	Official Inauguration	HE Dr. Yousif Al Serkal, Assistant Undersecretary, MOHAP, UAE
09:10-09:15	Opening Remarks	HE Mr. Nakajima, Japan Ambassador to UAE
SESSION 1	**Regenerative Medicine & Cellular Therapy**	
09:15-09:45	Translational research of myocardial regeneration therapy for severe heart failure patients using iPS cell derived cardiac cell patch	Prof. Yoshiki Sawa
09:45-10:15	iPSC derived Retinal Cell Transplantation	Dr. Masayo Takahashi
10:15-10:45	Recent advances in cellular therapy for hematologic malignancies	Prof. Takanori Teshima
10:45-10:55	**Break | Online Networking**	
SESSION 2	**Regenerative Medicine & Cellular Therapy**	
10:55-11:25	Human iPS cell-derived dopaminergic neurons function in a primate Parkinson's disease model	Prof. Jun Takahashi
11:25-11:55	Mesenchymal Stem Cell Therapies for Liver Cirrhosis	Prof. Shuji Terai
11:55-12:25	Regenerative medicine for the treatment of osteoarthritis of the knee	Prof. Masato Sato
12:25-12:35	**Break | Online Networking**	
SESSION 3	**Regenerative Medicine & Cellular Therapy**	
12:35-13:05	Regenerative medicine for spinal cord injury using iPS cells	Prof. Masaya Nakamura
13:05-13:35	'Reprogrammed' stem cells to treat spinal-cord injuries for the first time	Prof. Hideyuki Okano
13:35-14:05	Regeneration of T cells using the iPS cell technology	Prof. Hiroshi Kawamoto
14:05	**End of Day 1**	

SCIENTIFIC AGENDA

Day 2 - Friday | 5 March, 2021 (GST/UAE Time)

TIME	TOPIC	SPEAKER
09:00-09:10	Welcome & Introduction - Dr. Ghanem Al Hassani | Group Education & Research Director, Abu Dhabi Health Services Company SEHA, UAE	
SESSION 4	**Regenerative Medicine & Cellular Therapy**	
09:10-09:40	The Frontiers of Organoid Medicine	Prof. Takanori Takebe
09:40-10:10	Establishment of next generation minimal invasive highly vascular and tissue regenerative cell therapy	Prof. Rica Tanaka
10:10-10:40	iPS cell-based regenerative medicine for diabetes	Prof. Kenji Osafune
10:40-10:50	**Break | Online Networking**	
SESSION 5 Chairperson:	**Gastro & Endoscopy** Dr. Maryam Al Khatry	
10:50-11:20	Flexible endoscopic surgery 2021	Prof. Haruhiro Inoue
11:20-11:50	Real-time endoscopic diagnosis using deep learning technology and ESD for lower GI neoplasms	Dr. Yutaka Saito
11:50-12:20	Up-to-date advanced endoscopy of upper GI neoplasm	Dr. Seiichiro Abe
12:20-13:00	**Break | Prayer**	
SESSION 6 Chairperson:	Dr. Ghanem Al Hassani, UAE	
13:00-13:30	Development and future vision of the made-in Japan surgical robot system	Dr. Nobuyuki Hinata
13:30-14:00	Telemedicine in Asia and beyond: Benefits and Challenges	Prof. Shuji Shimizu
14:00	**End of Day 2**	

SCIENTIFIC AGENDA

Day 3 - Saturday | 6 March, 2021 (GST/UAE Time)

TIME	TOPIC	SPEAKER
09:00-09:05	Welcome & Introduction	
SESSION 7		
09:05-09:35	Recent Advances in surgical navigation & microsurgery robotics	Prof. Masatoshi Eto
09:35-10:05	Introduction of BNCT and its future possibility	Prof. Jun Hatazawa
10:05-10:35	Development of innovative therapy with low-intensity pulsed ultrasound for angina pectoris and dementia	Prof. Hiroaki Shimokawa
10:35-10:45	**Break | Online Networking**	
SESSION 8		
10:45-11:15	Tele-ICU and the integration of AI technologies	Dr. Shunsuke Takaki/ Yuma Nambu
11:15-11:45	Development of new robot-assisted surgical system suitable for the tele-surgery	Dr. Eiji Oki
11:45-12:15	Electronic Clinical Pathway to be used in Learning Health System	Prof. Naoki Nakashima
12:15-12:25	**Break | Online Networking**	
SESSION 9		
12:25-12:55	Mitochondrial Augmentation Therapy Restoring Cellular Bioenergetics in Dysfunctional or Damaged Tissues and Organs	Dr. Peter Shane
12:55-13:25	We Aspire to Cure Spinal Cord Injury by Novel Antisense Oligonucleotide	Hideaki Sato, M.Sc., President & CEO of Luxna Biotech Co., Ltd.
13:25	**Closing Remarks**	Dr. Sho Inoue, Conference Chairman, Co-Founder, Representative Director, Medical Note, Inc.

GENERAL INFORMATION

CME Accreditation

Japan Healthcare Update Conference has been Accredited by the European Accreditation Council for Continuing Medical Education (EACCME®) for **16 European CME** Credits (ECMEC®s)

Day 1, Thursday 04/03/2021 is Accredited for 6 ECMEC®s
Day 2, Friday 05/03/2021 is Accredited for 5 ECMEC®s
Day 3, Saturday 06/03/2021 is Accredited for 5 ECMEC®s

Certificate of Attendance

- Certificates can be downloaded at MENA Conference (www.menaconference.com) website 7 days post conference. A notification with the link and instructions on how it can be downloaded will be sent to your registered email address.
- All delegates are requested to complete the online evaluation prior to downloading their certificates as a mandatory requirement from the accreditation body.
- Each medical specialist should claim only those credits that he/she actually spent in the educational activity

SPEAKERS' BIOGRAPHY

SPEAKERS' BIOGRAPHY

Prof. Yoshiki Sawa
Professor, Department of Cardiovascular Surgery,
Osaka University Graduate School of Medicine

Yoshiki Sawa is the Professor at Department of Cardiovascular Surgery, Osaka University Graduate School of Medicine. Research activities include heart transplantation, artificial organs, gene and regenerative therapies. Dedication to the research led to receive numerous awards and honors, such as Japan Biomaterial Association Award, Scientific Technology Award sponsored by Minister of Education, Culture, Sports, Science and Technology, Minister of Health, Labor and Welfare award. He is also the President of Japanese Society of Regenerative Medicine and the President of Japanese Association for Thoracic Surgery.

Earned a medical degree from Osaka University Medical School in 1980 and joined the First Department of Surgery, Osaka University School of Medicine. In 1989, earned Humboldt scholarship to pursue further education in both the departments of cardiovascular physiology and cardiac surgery at the Max-Planck Institute in Germany. After returning to Japan, became Chief surgeon at the Department of Cardiovascular Surgery in 2004, Professor and Chief at the Department of Cardiovascular Surgery in 2006 till now. Appointed to the Dean at Osaka University Graduate School of Medicine from 2015 – March 2017.

Dr. Masayo Takahashi
M.D., Ph.D., President
Vision Care Inc.

After she received her M.D. and Ph.D. from Kyoto University, served as an assistant professor in the Kyoto University Hospital. Discovered the potential of stem cells as a tool for retina therapy when she moved to the Salk Institute, U.S. She joined RIKEN in 2006, her team launched a pilot clinical study using iPS cells first in human in 2013. She started a new carrier, a president of start up company; Vision Care Inc., to proceed implement clinical therapy.

SPEAKERS' BIOGRAPHY

Prof. Takanori Teshima
Professor of Medicine, Division of Hematology &
Deputy-director of Hokkaido University Hospital

Dr. Takanori Teshima is Professor of Medicine in the Division of Hematology and Deputy-director of Hokkaido University Hospital. He serves as a president of Japanese Society of Hematopoietic Cell Transplantation (JSHCT), an executive director of Japanese Society of Hematology (JSH) and Japan Society of Transfusion Medicine and Cell Therapy (JSTMCT). His clinical and research interests are hematopoietic stem cell transplantation and cellular therapy specifically using Chimeric antigen receptor (CAR) T-cells for hematologic malignancies.

Prof. Jun Takahashi
MD, PhD, Department of Clinical Application,
Center for iPS Cell Research & Application,
Kyoto University, Kyoto, Japan

Jun Takahashi is a professor and deputy director of the Center for iPS Cell Research and Application (CiRA), Kyoto University, Kyoto, Japan. He graduated from the Kyoto University Faculty of Medicine in 1986 and thereafter started his career as a neurosurgeon at Kyoto University Hospital. After he earned his Ph.D. from the Kyoto University Graduate School of Medicine, he worked as a postdoctoral research fellow at the Salk Institute (Dr. Fred Gage), CA, U.S.A., where he started research work on neural stem cells. After returning to Kyoto University Hospital, he conducted functional neurosurgery including deep brain stimulation and also research work on stem cell therapy for Parkinson's disease. In 2012, he became a full professor at CiRA, pursuing stem cell therapies for Parkinson's disease patients. As a physician-scientist, he has laid the groundwork for the clinical application of iPS cells and started the world's first clinical trial for Parkinson's disease using iPS cells in 2018.

SPEAKERS' BIOGRAPHY

Prof. Shuji Terai
Chairman & Professor, Division of Gastroenterology & Hepatology,
Vice-director, Institute for Research Promotion, Niigata University

Affiliation & Address:
Chairman & Professor
Division of Gastroenterology & Hepatology,
Graduate School of Medical and Dental Sciences,
Niigata University
Vice-director, Institute for Research Promotion, Niigata University

Career History:
Education: Medical training; Yamaguchi University School of Medicine (1984-1990)
Medical Doctor license (1990)
Graduate school: Graduate School of Yamaguchi University 1992-1997
Ph.D. degree (1997),
Postgraduate Training; Guest Researcher at Laboratory of Experimental Carcinogenesis, NCI, NIH Bethesda (Chief: Dr. Snorri S. Thorgeirsson)(1998-2000)

Academic Appointment:
2015 January-Present: Professor and chairman, Division of Gastroenterology & Hepatology, Graduate School of Medical and Dental Sciences,
Niigata University
2019 Visiting Professor Niigata University of Pharmacy and Applied Life Science (Japan)
2019 Visiting Professor Zunyi Medical University (China)
2020 Vice-director, Institute for Research Promotion, Niigata University
2021 Visiting Professor Osaka University (Japan)

Summary of Present Works, Research Focus:
• Development of Stem Cell and exosome therapy for liver cirrhosis patient.
• Analysis for the Cancer Stem Cell in HCC
• Analysis for the mechanism of liver fibrosis (Liver cirrhosis), liver steatosis (NASH)

Activity:
Japanese Society for Regenerative medicine (Director), Japan Society of Hepatology (Director), The Japan Society of the Study of Obesity, ACTO (Asian Cellular Therapy Organization) (Director), Japanese society of Gastroenterology, Japan Gastroenterological Endoscopy Society, Fellow of American Association for Study of Liver Disease (FAASLD)

SPEAKERS' BIOGRAPHY

Prof. Masato Sato
Prof. of Department Orthopaedic Surgery,
Tokai University School of Medicine

Masato Sato is a professor of Department Orthopaedic Surgery, Tokai University School of Medicine, and a director of Center for Musculoskeletal innovative Research and Advancement (C-MiRA), Tokai University Graduate School. He is board members of The Japanese Orthopaedic Association, The Japanese Society of Regenerative Medicine, The Japanese Society of Cartilage Metabolism, Orthopaedic Research Society, International Cartilage Regeneration and Joint Preservation Society, and so on.

Earned a medical degree from National Defense Medical College in 1991 and joined the department of Orthopaedic Surgery, NDMC, and engaged in Self Defense Force Hospitals. Started out as Assistant Professor, Department of Orthopaedic Surgery, Tokai University School of Medicine in 2003; Associate Professor, in 2007; and Professor, in 2013.

His research field is the cartilage regeneration using multidisciplinary approach such as tissue engineering, cell sheet technology and noninvasive mechanical evaluation. Of special note is that the autologous cell sheet transplantation for osteoarthritis of the knee (OAK) has been approved as an Advanced Medical Care in Japan. He has also achieved the transplantations of allogeneic cell sheets derived from polyductyly tissue to the patients of OAK, and planned to perform clinical trials with companies.

SPEAKERS' BIOGRAPHY

Prof. Masaya Nakamura
Professor & Chair, Department of Orthopedic Surgery,
Vice Dean, Keio University School of Medicine

Professional Experience:
1987-1993:- Resident, Department of Orthopedic Surgery, Keio University School of Medicine, Tokyo, Japan
1993-1994:- Fellow, Spine and Spinal Cord Surgery, Department of Orthopedic Surgery, Keio University School of Medicine
1998-2000:- Research fellow, Georgetown University, Department of Neuroscience, Washington, D. C., United States
2004-2011:- Assistant professor, Chief of Spinal cord division, Department of Orthopedic Surgery, Keio University School of Medicine
2012- 2014:- Associate professor, Chief of Spinal cord division, Department of Orthopedic Surgery, Keio University School of Medicine
2015-present:- Professor & Chair, Department of Orthopedic Surgery, Keio University School of Medicine
2017-present:- Vice Dean, Keio University School of Medicine

Awards:
2004 & 2005 Cervical Spine Research Society, Basic science research award
2006 Japan Orthopaedic Association Award
2014 Japanese Society for regenerative medicine award
2014 Erwin von Bälz prize
2014 Journal of Orthopaedic Science, Best paper award 2013
2015 Journal of Orthopaedic Science, Best paper award 2014

Skills & Activities:
Spinal Cord Injury, Spinal Cord Tumor,
Basic research for regenerative medicine, stem cell biology

Scientific Memberships:
International Spinal Cord Society, Scientific Committee, member
Science Council of Japan (SCJ), Cooperative member
Japanese Society for regenerative medicine, Board member, Delegate
Japanese Orthopaedic Association, Delegate, Transplantation and regeneration committee (Advisor)
Japanese Society for Spine Surgery and Related Research, Board member
International committee (Chair)
Japanese Medical Society of Spinal Cord Lesion, Board member, Committee of Regenerative medicine for spinal cord injury (Chair)

SPEAKERS' BIOGRAPHY

Prof. Hideyuki Okano
Vice President, Professor, Dean of
Keio University Graduate School of
Medicine

Hideyuki Okano received M.D. in Physiology from Keio University in 1983. After he obtained Ph.D. degree on Molecular Biology of Myelin-related genes and myelin deficient mutant mice from Keio University in 1988, he held post-doctoral position at Dr. Craig Montell's Lab in Johns Hopkins University School of Medicine. He has appointed full professors at Tsukuba University School of Medicine in 1994, Osaka University School of Medicine in 1997, and returned to Keio University Medical School in 2001 as a full professor of Physiology. Since 2007 to date, he has been a Dean of Keio University Graduate School of Medicine or a Dean of Keio University School of Medicine. He has been conducting basic research in the field of regenerative medicine including, neural stem cells and iPS cells, spinal cord injury, developmental genetics and RNA binding proteins.

Prof. Hiroshi Kawamoto
Professor, Laboratory of Immunology,
Institute for Frontier Life and Medical Sciences,
Kyoto University

Hiroshi Kawamoto was born in Kyoto, Japan, in 1961. He graduated from Faculty of Medicine, Kyoto University, in 1986, and worked as a physician in hospital for three years. He took his doctor course in Kyoto University from 1989, and then joined Prof. Katsura's laboratory in Chest Disease Institute (currently Institute for Frontier Medical Sciences) from 1994 to 2001 as a visiting researcher, where he started to study the early hematopoiesis and T cell development, while working as a physician in Kyoto Reformatory Hospital. In 2001, He became an assistant professor of Prof. Minato's laboratory in Faculty of Medicine. He was then promoted to be a team leader of RIKEN Research Center for Allergy and Immunology in 2002. In RIKEN, in parallel with the basic research, he has started the study on the development of immune cell therapy using regenerated lymphocytes. He moved to Kyoto University in 2012.

SPEAKERS' BIOGRAPHY

Prof. Takanori Takebe
Director of Commercial Innovation Center for Stem Cell & Organoid Medicine,
Professor, Tokyo Medical & Dental University

Takanori Takebe is a Director of Commercial Innovation in Center for Stem Cell & Organoid Medicine (CuSTOM) (2017-), and Assistant Professor at Cincinnati Children's Hospital Medical Center (2015-). He is also Professor at Institute of Research at Tokyo Medical and Dental University (TMDU) (2018-), and the founding director, Communication Design Center, Yokohama City University (2018-), and Principal Investigator at the Takeda-CiRA joint program (2016-). After spending time as a surgical intern at the one of the world's leading liver transplant center in 2010, he is highly motivated to find alternative approaches to traditional transplantation as he met many patients who were terminal but due to long waiting lists, were unlikely to be recipients of life-saving donor organs. Therefore, after completed by MD degree at 2011, he focused on patient-centered stem cell research, wherein he led a history of innovation for engineering complex hepato-biliary-pancreatic organoids from human stem cells for advancing the study of disease modeling, drug development and transplantation. He was honored with the Robertson Investigator Award, from the New York Stem Cell Foundation and also on the board of directors for International Society for Stem Cell Research (ISSCR).

Prof. Rica Tanaka
Chairman & Professor of Juntendo University
Graduate School of Medicine
Division of Regenerative Therapy

Rica Tanaka MD.PhD is a chairman and professor of Juntendo University Graduate School of Medicine Division of Regenerative Therapy, professor of Juntendo University School of Medicine Department of Plastic and Reconstructive Surgery and director of Juntendo Hospital Center of Podiatry. Research filed is focused on vascular stem cell biology, vasculogenesis, wound healing, and establishing new generation cell therapy for vascular and tissue regeneration. And, clinically specialized in plastic and reconstructive surgery, wound healing, limb salvage, lower limb reconstruction, podiatry, cell therapy and cosmetic surgery. Recently developed ex vivo cultured peripheral blood mononuclear cell (RE-01) which lead to establishing a minimal invasive simple and highly effective cell therapy for vascular and tissue regeneration. Also, as a chief scientific officer of ReEir Inc. (start-up company of RE-01 cell therapy), now preparing an industrial based clinical trial for approval of RE-01 as a new regenerative cell product to treat ischemic non-healing wounds.

SPEAKERS' BIOGRAPHY

Prof. Kenji Osafune
Professor, Kyoto University Center for iPS Cell
Research and Application

Dr. Osafune graduated from Kyoto University, Japan in 1996. He completed his nephrology residency in Kyoto University Hospital and its affiliated hospitals. In 2000, he started basic researches on kidney development and regeneration as a graduate student at Graduate School of Science, The University of Tokyo (Prof. Makoto Asashima), then he worked on pancreatic regeneration using hESCs/iPSCs as a postdoctoral fellow with Prof. Douglas A. Melton at Harvard Stem Cell Institute/Department of Stem Cells and Regenerative Biology, Harvard University, USA. He became Principal Investigator at Center for iPS Cell Research and Application (CiRA), Kyoto University, Japan, in 2008. In 2014, he was appointed Professor at Department of Cell Growth and Differentiation, CiRA, Kyoto University. He is on the editorial board of Differentiation and StemJournal. His major research interests are the development of regenerative therapies against diabetes, chronic kidney disease (CKD) and liver disorders.

Prof. Haruhiro Inoue
Professor, Showa University School of Medicine,
Chairman of the Digestive Disease Center at Showa
University Koto Toyosu Hospital, Tokyo, Japan

Dr. Haruhiro Inoue is a world-renowned surgeon and endoscopist. He is a professor at Showa University School of Medicine and Chairman of the Digestive Disease Center at Showa University Koto Toyosu Hospital in Tokyo, Japan.

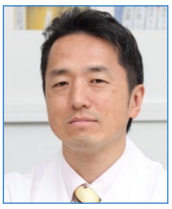
Dr. Inoue graduated from Yamaguchi University School of Medicine in 1983. He completed a residency in General Surgery at Tokyo Medical and Dental University, and remained on the faculty at the university and its affiliated hospitals for more than 13 years. During this time, he served on the Japanese Board of Surgery, Gastrointestinal Surgery, and Endoscopic Surgery. In 2009, he was promoted to a full professor at Showa University, where he served as a chair of the Showa University International Training Center for Endoscopy and Surgical endoscopy (SUITES).

In 2014, he moved Showa University Koto Toyosu Hospital and serve as a professor and chair of Digestive Diseases Center.

Dr. Inoue's clinical achievements are wide-ranging. In 1992, he developed a technique (cap-EMR) that simplified the performance of endoscopic mucosal resection (EMR). In 2000, he reported the world's first EMR for Barrett's intramucosal cancer, and in 2003, he again reported a circumferential EMR for Barrett's esophagus with high grade dysplasia. This also recognized as the first clinical report of antireflux mucosectomy (ARMS). In 2008, he performed the world's first clinical case of per-oral endoscopic myotomy (POEM), and to date his team has treated more than 2100 achalasia patients with the POEM procedure. In 2014, he reported the endoscopic removal of a submucosal tumor (SMT) using a POEM-like procedure, per-oral endoscopic tumor resection (POET). Also in 2014, he reported the ARMS procedure for PPI-resistant GERD. Now it advanced as antireflux mucosal ablation (ARMA). In 2019, he reported POEM+F (POEM+fundoplication) as a pure NOTES surgery for PPI refractory GERD.

Dr. Inoue is an honorary member of the Russian Society of Endoscopy, and the German Society of Radiology and Digestive Endoscopy. In 2008, he has become a Fellow of ASGE, and he was honored twice with the society's Crystal award (2006 and 2013). In 2011, he received the Pioneer in Endoscopy Award from the Society of American gastrointestinal and endoscopic Surgeons (SAGES). In 2017, he received the Bushell Lecture Award from Australian society of gastroenterology. He is a long-term full member of ISDE.

SPEAKERS' BIOGRAPHY



Dr. Yutaka Saito
Director, Endoscopy Center,
National Cancer Center Hospital

Dr. Yutaka Saito is the Director of the Endoscopy Division at the National Cancer Center Hospital, Tokyo, Japan. He also has served as an attending Professor of Gastroenterology at Tokyo Medical University since April 2017.

He has been invited to perform as a faculty member and live demonstrator in numerous countries. He was honored for an invited professor at Mayo Clinic, Rochester, Minnesota and Jacksonville, Florida in 2010, and at Arizona in 2016.

He was also commended for Basil Hirschowitz Master Endoscopist Award for advancing the art and science of endoscopy throughout the world in 2013 and Certificate of appreciation of Outstanding Reviewer for GIE: Gastrointestinal Endoscopy 2015-2017.

He has a wide spectrum of research exposure and interests including
1. Chromo-magnification Colonoscopy;
2. Endoscopic Mucosal Resection and Endoscopic Submucosal Dissection for early gastrointestinal cancer and
3. Colon capsule endoscopy and artificial intelligence diagnosis for colorectal neoplasia

Dr. Seiichiro Abe
M.D., Ph.D., FASGE
National Cancer Center Tokyo

Dr. Seiichiro Abe M.D., Ph.D., FASGE received medical degree from Sapporo Medical University in 2002. He completed his short-term and chief residency training at Endoscopy Division, National Cancer Center Tokyo, Japan.

Dr. Abe specializes in the endoscopic diagnosis of early gastrointestinal cancer in addition to advanced endoscopic therapy, including EMR and ESD for esophageal, gastric, and colorectal cancers. Furthermore, he serves the co-editor in Endoscopy International Open, the associate editor in DEN Open, and the international editorial board in Endoscopy and Gastrointestinal Endoscopy. He contributed to scientific journals and congresses and received many best oral presentation awards and many best reviewer awards in Gastrointestinal Endoscopy, VideoGIE, Endoscopy, Digestive Endoscopy, and Digestion.

SPEAKERS' BIOGRAPHY

Dr. Nobuyuki Hinata
Associate Professor, Department of
Urology, Kobe University Graduate
School of Medicine

1998 Graduated from Kobe University School of Medicine
2012 Assistant Professor, Department of Renal Urology, Graduate School of Medicine, Kobe University
2013 Lecturer, Department of Renal Urology, Graduate School of Medicine, Kobe University
2015 Roswell Park Cancer Center Research Fellow, USA
2016 Associate Professor, Department of Renal Urology, Graduate School of Medicine, Kobe University

Prof. Shuji Shimizu
Vice President of Kyushu University and Chairman,
Professor of the Department of International Medical Department,
Kyushu University Hospital, Director of the Telemedicine
Development Centre of Asia

Dr Shuji Shimizu, M.D. Ph.D. is a surgeon, currently being Vice President of Kyushu University, and the Chairman and Professor of the Department of International Medical Department as well as the Director of the Telemedicine Development Centre of Asia. Since 2002, he has facilitated a comprehensive telemedicine project, which has widely spread in various Asia-Pacific regions and is expanding globally. He has invited more than 500 young doctors and technical staff from all over the world for medical and engineering training as the Director of Overseas Exchange Center. Dr Shimizu organized the Medical Working Group of the Asia-Pacific Advanced Network (APAN) in 2005 and started Asia Telemedicine Symposium in 2007.

SPEAKERS' BIOGRAPHY

Prof. Masatoshi Eto
Professor and Chairman, Department of Urology,
Director of Center for Advanced Medical Innovation,
Kyushu University

Prof Masatoshi Eto graduated from Faculty of Medicine, Kyushu University in 1986 and obtained MD degree. In 1988, he entered to Graduate School, Division of Medical Science, Kyushu University (Department of Immunology, Medical Institute of Bioregulation) and obtained Doctor of Medical Science (equivalent to PhD) in 1992.

After his residency in Urology at Kyushu University Hospital and clinical fellow at various hospitals, he studied abroad at University of Pittsburgh for 2 years from 1999 to 2001.

After studying abroad, he became a lecturer at Kyushu University Hospital. Then he moved to Department of Urology, Kumamoto University as a professor and chairman in 2009.

From 2015 to present, he has been a professor and chairman of Department of Urology, Graduate School of Medical Sciences, Kyushu University. In addition, from 2018, he is a director of Center for Advanced Medical Innovation, Kyushu University, and a director of Department of Advanced Medicine and Innovative Technology, Kyushu University Hospital.

Speciality and Research Field of Interest
1.Diagnosis and treatment of urological cancers
2.Tumor immunology
3.Urologic surgery (including laparoscopic and robotic surgery)

Prof. Jun Hatazawa
Specially Appointed Professor, Osaka University,
Research Center for Nuclear Physics, WPI Immunology
Frontier Research Center Institute for Radiation Sciences

Jun Hatazawa is former Professor and Chair of Nuclear Medicine and Tracer Kinetics at Osaka University Graduate School of Medicine, and is appointed to President of Asia Oceania Federation of Nuclear Medicine and Biology from 2017 to 2021. He is engaged in the "Atoms for Medicine" project where nuclear energy is used for diagnostic imaging and targeted radionuclide therapy of cancer. This project covers radionuclide production with accelerator/reactor, purification of radionuclide, labelling biomolecules with radionuclides for targeting cells, dosimetry and safety, nuclear medicine education/training and practice, and disposal of medical radioactive waste. He is promoting this project in Asia Oceania nuclear medicine community and beyond. He is involved in establishing an education/training platform of human resource development in nuclear medicine in Japan by collaborating with International Atomic Energy Agency (IAEA). He is serving as a member of Standing Advisory Group of Nuclear Sciences and Applications, IAEA from 2018 to 2021.

SPEAKERS' BIOGRAPHY

Prof. Hiroaki Shimokawa
Professsor & Chairman of the Dept. of Cardiovascular Medicine,
Tohoku University, Vice Dean, Graduate School, International
University of Health and Welfare

Dr. Shimokawa graduated from Kyushu University in 1979 and obtained MD and PhD degrees at the University. He studied at the Mayo Clinic from 1985-1987 and was appointed as an assistant professor at Kyushu University in 1991, and then associate professor in 1995. In 2005, he was appointed as the professor and chairman of the Department of Cardiovascular Medicine, Graduate School of Medicine, Tohoku University. In 2020, he was appointed as the Vice Dean of Graduate School, International University of Health and Welfare. He has performed a number of innovative research in both basic and clinical cardiovascular medicine, and has received society awards from the American Heart Association (AHA), the European Society of Cardiology (ESC), and the Japanese Circulation Society (JCS). He also served as a Co-Editor of European Heart Journal (ESC), associate editor of Arteriosclerosis, Thrombosis, and Vascular Biology (AHA), and editor-in-chief of Circulation Journal (JCS).

Dr. Shunsuke Takaki
Chair, Department of Intensive Care Medicine,
Yokohama City University Hospital,
Head of Tele-ICU Committee at the Japanese
Society of Intensive Care Medicine

He is the chair of the department of Intensive Care Medicine at Yokohama City University Hospital, and also head of Tele-ICU committee at the Japanese Society of Intensive Care Medicine.

He had trained anesthesiology, emergency medicine and intensive care in Japan and completed clinical fellow at National heart center at Malaysia and clinical research fellow at department of intensive care medicine at Sydney Prince of Wales Hospital. His current research interests include Tele-medicine, bigdata analysis especially using panel data, face recognition in acute care medicine.

SPEAKERS' BIOGRAPHY

Yuma Nambu
Collaborative Researcher,
Yokohama City University Hospital,
Department of Anesthesiology

He is a collaborative researcher at Yokohama City University, Department of Anesthesiology. He had completed Risk Masters in Durham University in the UK and researched public health, epidemiology and statistics. After graduation, he worked at an international NGO and a leading IT networking company as system engineer for hospital customers and experienced several telemedicine projects. His current research interests include Tele-medicine, machine learning, medical economics and infectious disease epidemiology.

Dr. Eiji Oki
Associate Professor, Department of Surgery and Science,
Graduate School of Medical Sciences, Kyushu University

Eiji Oki, is a surgeon and medical oncologist. His specialty is clinical oncology, gastroenterological surgery, laparoscopic surgery.

He graduated medical school of Kyushu University at 1993 in Japan. After residency, He acquired a degree in a research on DNA repair in 1999. And he spent two years as research fellow in Department of Adult Oncology, Harvard Medical School, Dana-Farber Cancer Institute from 1999 to 2001, and two years in National Kyushu Cancer center in Japan from 2008-2010. Currently, he is the leader of Gastro-intestinal surgery unit in the Department Surgery and Science, Kyushu University, in Japan.

He has hundreds of publications in the field of gastric and colorectal cancer, and plays a central role in some clinical oncology group in Japan (KSCC, JFMC).

SPEAKERS' BIOGRAPHY

Prof. Naoki Nakashima
Director and Professor Medical Information Center,
Kyushu University Hospital, President of Japan
Association for Medical Informatics

Naoki Nakashima MD PhD is the Director/Professor (2014-) of the Medical Information Center of Kyushu University Hospital, and also Vice CIO of Kyushu University, Japan. He has been a specialist of diabetes mellitus for more than 30 years and simultaneously worked as a specialist of medical informatics for 20 years. He is the president of Japan Association for Medical Informatics (JAMI) from June 2019 for three years. He is also the president of Asia Pacific Association for Medical Informatics (APAMI) from January 2021. He focuses on the methodologies of disease management and patient-engagement in chronic diseases from primary to tertiary prevention, including personal health record (PHR), telemedicine, IoT sensor network, cyber physical system, data driven medical study, learning health system, and artificial intelligence.

Dr. Peter Shane
Assoc. Prof. of International Medicine
Chief of International Development Section of
the Clinical Research and Medical Innovation
Center, Hokkaido University Hospital

Peter Shane is currently Associate Professor of International Medicine and Chief of International Development Section of the Clinical Research and Medical Innovation Center at the Hokkaido University Hospital. He concurrently assumes the role of scientific advisor for Luca Science, a bioventure firm pioneering mitochondrial sugmentation therapy. Prior to his current roles, Dr. Shane spent eight years as Director of Medical Affairs at two pharmaceutical companies designing clinical trials and managing teams of immunology specialists. Having conducted more than 800 talks, he is a nationally renowned speaker in the field of rheumatology in Japan. Before joining industry, Dr, Shane was a privately practicing rheumatologist in Colorado, where he specialized in treating systemic autoimmune diseases. Peter completed his rheumatology training at the University of Texas Medical School at Houston, where he had earned his Doctor of Medicine.

SPEAKERS' BIOGRAPHY

Hideaki Sato
MSc., President & CEO,
Luxna Biotech Co., Ltd.

Born in 1971, withdrew from the doctoral program at the Graduate School of Agriculture, Kyoto University. He involved in contract manufacturing of oligonucleotides therapeutics business management, GMP production system construction, and oligonucleotides therapeutics drug seeds creation as a general manager of sales and technical support department, executive officer, and director (in charge of business) at GeneDesign Co., Ltd. of nucleic acid drug CDMO. In December 2017, co-fund Luxna Biotech Co., Ltd. and became president in February 2018.

SPEAKERS' ABSTRACTS

Day 1 - Thursday | 4 March, 2021

SPEAKERS' ABSTRACTS

Day 1 - Thursday | 4 March, 2021

SESSION 1: Regenerative Medicine & Cellular Therapy

09:15-09:45
Translational research of myocardial regeneration therapy for severe heart failure patients using iPS cell derived cardiac cell patch

Prof. Yoshiki Sawa
Professor, Department of Cardiovascular Surgery,
Osaka University Graduate School of Medicine

Heart failure is a life-threatening disorder worldwide, and the current end-stage therapies for severe heart failure are replacement therapies such as ventricular-assist devices and heart transplantation. Although these therapies have been reported to be useful, there are many issues in terms of the durability, complications, limited donors, adverse effect of continuous administration of immunosuppressive agents, and high costs involved. Recently, regenerative therapy based on genetic, cellular, or tissue engineering techniques has gained attention as a new therapy to overcome the challenges encountered in transplantation medicine. We focused on skeletal myoblasts as the source of progenitor cells for autologous cell transplantation and the cell-sheet technique for site-specific implantation. In vitro studies have reported that myoblast sheets secrete cytoprotective and angiogenic cytokines such as hepatocyte growth factor (HGF). Additionally, in vivo studies using large and small animal models of heart failure, we have shown that myoblast sheets could improve diastolic and systolic performance and enhance angiogenesis and antifibrosis as well as the expression of several cytokines including HGF and vascular endothelial growth factor (VEGF) in the tissues at the transplanted site. Based on the results of these studies, we performed clinical trials using autologous myoblast sheets in ischemic cardiomyopathy (ICM) and dilated cardiomyopathy patients. Some patients showed left ventricular reverse remodeling and improved symptoms and exercise tolerance. Recently, multiple medical institutions including our institution successfully conducted an exploratory, uncontrolled, open-label phase II study in subjects with ICM to validate the efficacy and safety of autologous myoblast sheets. Thus, we could get the evidence that autologous skeletal muscle sheet might occur reverse remodeling in the responder of severe heart failure patients.

09:45-10:15
iPSC derived Retinal Cell Transplantation

Dr. Masayo Takahashi
M.D., Ph.D., President
Vision Care Inc.

Our aim is to develop outer retinal cell therapy using iPS cells. The first in man application of autologous iPS cell-derived RPE (iPSC-RPE) cells started in 2013, targeted age-related macular degeneration (AMD). We proceeded to clinical research using HLA matched allogeneic iPSC-derived RPE cells. Immune responses to transplanted allogeneic cells could be suppressed by topical steroid administration without systemic immunosuppressant. Safety was confirmed one year after transplantation of HLA 6 loci matched allogeneic iPSC-RPE transplantation. So far 6 patients have received autologous and allogeneic iPS-derived retinal pigment epithelial cell transplantation. The grafted cells survive without any harm in all the patients.

The next challenge is photoreceptor replacement. We proved that grafted photoreceptor cells formed synapses only when they were transplanted in the form of organoids. They showed the functional recovery in the completely photoreceptor degenerated blind mice after transplantation. With those findings as POC, we are performing clinical study using retinal organoid for retinitis pigmentosa.

SPEAKERS' ABSTRACTS

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SESSION 1: Regenerative Medicine & Cellular Therapy

10:15-10:45
Recent advances in cellular therapy for hematologic malignancies

Prof. Takanori Teshima
Professor of Medicine, Division of Hematology &
Deputy-director of Hokkaido University Hospital

In 2019, two novel treatment strategies against hematologic malignancies such as leukemia, lymphoma, and myeloma have been approved in Japan; one utilizes patient' own immune cells and the other uses family member's immune cells. Chimeric antigen receptor T cells (CAR-T) are patient' s T cells that have been genetically engineered to attack own cancer cells. CAR-T can cure B-cell leukemia and lymphoma that had been resistant to cancer chemotherapies. Allogeneic hematopoietic cell transplantation (HCT) has been curative treatment for hematologic malignancies but required an HLA-identical donor. However, birthrate is declining in most counties and therefore bone marrow banking is required. We developed HLA-haploidentical HCT in Japan. The donor is typically a family member who shares only one of the 2 HLA haplotypes. Now all the patients who requires HCT to fight cancer can have a donor in their own family, eliminate the needs of bone marrow banking. These two strategies provide chance of cure in patients with hematologic malignancies that are refractory to standard treatments.

SESSION 2: Regenerative Medicine & Cellular Therapy

10:55-11:25
Human iPS cell-derived dopaminergic neurons function in a primate Parkinson's disease model

Prof. Jun Takahashi
MD, PhD, Department of Clinical Application,
Center for iPS Cell Research & Application,
Kyoto University, Kyoto, Japan

Human induced pluripotent stem cells (iPSCs) can provide a promising source of midbrain dopaminergic (DA) neurons for cell replacement therapy for Parkinson's disease (PD). Towards clinical application of iPSCs, we have developed a method for 1) scalable DA neuron induction on human laminin fragment and 2) sorting DA progenitor cells using a floor plate marker, CORIN. The grafted CORIN+ cells survived well and functioned as midbrain DA neurons in the 6-OHDA-lesioned rats, and showed the minimal risk of tumor formation. In addition, we performed a preclinical study using primate PD models. Regarding efficacy, human iPSC-derived DA progenitor cells survived and functioned as midbrain DA neurons in MPTP-treated monkeys. Regarding safety, cells sorted by CORIN did not form any tumors in the brains for at least two years. Based on these results, we have started a clinical trial to treat PD patients at Kyoto University Hospital in Kyoto, Japan, in 2018. The trial evaluates the safety and efficacy of transplanting human iPS cell-derived DA progenitors into PD patients' putamen. We implant approximately 5 million cells to each of 7 patients and observe for 2 years. By showing these results, I will discuss how we can cross the valley of death.

SPEAKERS' ABSTRACTS

Day 1 - Thursday | 4 March, 2021

SESSION 2: Regenerative Medicine & Cellular Therapy

11:25-11:55
Mesenchymal Stem Cell Therapies for Liver Cirrhosis

Prof. Shuji Terai
Chairman & Professor, Division of Gastroenterology & Hepatology,
Vice-director, Institute for Research Promotion, Niigata University

Cirrhosis is a chronic condition that can lead to liver failure. Currently, the only available option for decreasing mortality is liver transplantation. However, liver transplantation is highly invasive. Therefore, stem cell therapy has been expected as an alternative. Previously, we performed autologous bone marrow cell infusion therapy (ABMi) which we started in 2003 and found that ameliorating liver fibrosis with inducing liver regeneration. Now, majority of trials focus on low-immunogenicity Mesenchymal Stem Cell (MSCs) appropriate for allogeneic administration. We started clinical trial of allogenic adipose tissue derived MSC therapy for liver cirrhosis from 2017. Now Phase I has finished and now do Phase II clinical trial. From basic study we show that MSCs act as "conducting cells" and regulate host cells including macrophages via extracellular vesicles (EVs) signal leading to ameliorate liver fibrosis and promote regeneration. Based on the experience of clinical trial for liver cirrhosis we also started clinical trial of MSC therapy for severe cases of COVID-19 in 2020.

Allogeneic MSC therapy is attractive therapy that can be applied into a variety of diseases and patients and expand the field of regenerative medicine.

11:55-12:25
Regenerative medicine for the treatment of osteoarthritis of the knee

Prof. Masato Sato
Prof. of Department Orthopaedic Surgery,
Tokai University School of Medicine

Osteoarthritis of the knee (OAK) is a progressive and debilitating disease affecting millions, however, effective treatment to reverse joint damage and to restore articular cartilage is still in development. We completed the clinical study of autologous chondrocyte sheets transplantation to the patients of OAK, and reported safety and efficacy associated with this study. The ministry of Health Labour and Welfare approved this treatment as the Advanced Medical Care which provide patients with adaptation of national health insurance in Japan. Patients can be treated with autologous chondrocyte sheets transplantation if patients pay extra cost. On the other hand, the most useful characteristic of cartilage is immunotolerance, so the use of allogeneic chondrocyte sheets derived from surgical sample of polydactyly patients is in a rational manner. We are currently conducting a clinical study involving the allogeneic transplantation of polydactyly-derived chondrocyte sheets with the aim of treating patients with OAK. In my presentation, I will introduce our project to overcome OAK using regenerative medicine.

SPEAKERS' ABSTRACTS

Day 1 - Thursday | 4 March, 2021

SESSION 3: Regenerative Medicine & Cellular Therapy

12:35-13:05
Regenerative medicine for spinal cord injury using iPS cells

Prof. Masaya Nakamura
Professor & Chair, Department of Orthopedic Surgery,
Vice Dean, Keio University School of Medicine

Spinal cord injuries (SCI) result in devastating loss of function, because spinal cord of human beings never regenerates after injury. People believed in this dogma for a long time. There is an emerging hope for regeneration-based therapy of the damaged spinal cord due to the progress of neuroscience and regenerative medicine including stem cell biology. Stimulated by the 2012 Nobel Prize in Physiology or Medicine awarded for Shinya Yamanaka and Sir John Gurdon, there is an increasing interest in the iPS cells (iPSCs) and reprogramming technologies in medical science. While iPS cells are expected to open new era providing enormous opportunities in the biomedical sciences in terms of cell therapies for regenerative medicine, safety-related concerns for iPS cell-based cell therapy should be resolved prior to the clinical application of iPSCs. Especially, some previous reports indicated risk factors for the use of iPSCs, such as genetic and epigenetic abnormalities that could take place during reprogramming or maintenance in subsequent cell culture. Of particular relevance is the potential tumorigenicity and immunogenicity associated with iPSC-based cell therapy. In this symposium, I would like to summarize previous efforts in the field as well as the current status of iPSC-based cell therapy for repair of the damaged central nervous system, with a special emphasis on SCI. Furthermore, I would like to explain our upcoming clinical trial of iPSC-derived neural stem cell transplantation for sub-acute SCI patients.

13:05-13:35
'Reprogrammed' stem cells to treat spinal-cord injuries for the first time

Prof. Hideyuki Okano
Vice President, Professor, Dean of
Keio University Graduate School of
Medicine

Spinal cord injury (SCI) is a devastating injury, resulting in permanent neurological impairment and attendant social and economic losses. In our previous preclinical studies, we showed transplantation of neural stem progenitor cells (NS/PCs) can result in successful functional recovery. We found that long-term restoration of motor function was induced without tumorigenicity, by selecting suitable hiPSCs-lines, when NS/PCs-derived from human induced pluripotent stem cells (hiPSCs) were transplanted into mouse or non-human primate SCI models. Based on these findings, we are establishing production and selection method of clinical grade NS/PCs stocks-derived from human iPSC stocks generated from HLA-homozygous super-donors by CiRA. In this clinical trial, SCI patients with ASIA impairment scale A are the target subjects for our clinical study, and 2 × 106 hiPSC-NS/PCs will be transplanted at 14–28 days after injury. The patients will be followed-up for one year, undergoing neurological and imaging evaluations and rehabilitation.

SPEAKERS' ABSTRACTS

Day 1 - Thursday | 4 March, 2021

SESSION 3: Regenerative Medicine & Cellular Therapy

13:35-14:05
Regeneration of T cells using the iPS cell technology

Prof. Hiroshi Kawamoto
Professor, Laboratory of Immunology,
Institute for Frontier Life and Medical Sciences,
Kyoto University

We have proposed a strategy to use the iPSC technology for expansion of antigen specific cytotoxic T lymphocytes (CTLs); iPSCs produced from T cells (T-iPSCs) inherit rearranged T cell receptor (TCR) genes, and thus all regenerated T cells from T-iPSCs express the same TCR. Based on this idea, we previously succeeded in regenerating tumor antigen-specific CTLs (Cell Stem Cell, 2013). To apply this approach in allogeneic setting, we developed a method in which non-T cell derived iPSCs are transduced with exogenous TCR genes (TCR-iPSCs) (PCT/JP2015/070623). We used HLA-haplotype homo semi-universal iPSCs and WT1-specific TCR that had been clinically tested in Japan. The regenerated WT1-CTLs showed cytotoxicity against renal cell carcinoma cells in patient-derived xenograft model (iScience, 2020). We are now preparing for clinical trial to be realized in 3-4 years in Kyoto University Hospital, in which acute myeloid leukemia patients will be treated by the regenerated WT1-CTLs. Since 2020, the whole world has been hit by a pandemic of COVID-19. To fight against this disease, we have started to develop off-the-shelf T cell medicine, and have started to clone corona-specific TCRs. We propose that this strategy can be applied to other viral infections, such as MERS or Ebora hemorrhage fever, etc.

SPEAKERS' ABSTRACTS

Day 2 - Friday | 5 March, 2021

SPEAKERS' ABSTRACTS

Day 2 - Friday | 5 March, 2021

SESSION 4: Regenerative Medicine & Cellular Therapy

09:10-09:40
The Frontiers of Organoid Medicine

Prof. Takanori Takebe
Director of Commercial Innovation Center for Stem Cell & Organoid Medicine,
Professor, Tokyo Medical & Dental University

Organoids are multicellular structures that can be derived from adult organs or pluripotent stem cells. Early versions of organoids range from simple epithelial structures to complex, disorganized tissues with large cellular diversity. The current challenge is to engineer cellular complexity into organoids in a controlled manner that results in organized assembly and acquisition of tissue function. These efforts have relied on studies of organ assembly during embryonic development and have resulted in development of organoids with multilayer tissue complexity and higher order functions. For example, we show that antero-posterior interactions recapitulate the foregut and the midgut boundary in vitro, modeling the inter-coordinated specification and invagination of the human hepato-biliary-pancreatic system from human pluripotent stem cells. Coupled with patient-derived stem cells, my group studied the mechanisms of human hepatic diseases that includes viral hepatitis, steatohepatitis, recently extended to drug induced liver injury, wherein organoid modelled remarkable correlation between the clinical phenotype and genotype. Here I will summarize the frontiers of organoid research, and discuss its promise and impact to elucidate personalized disease mechanisms and understand drug reactions in humans, realizing "My Medicine" applications.

09:40-10:10
Establishment of next generation minimal invasive highly vascular and tissue regenerative cell therapy

Prof. Rica Tanaka
Chairman & Professor of Juntendo University
Graduate School of Medicine
Division of Regenerative Therapy

We have recently disclosed a newly developed ex vivo expansion system of peripheral blood mononuclear cells (PbMNC) to generate assembly of cells including endothelial progenitor cells (EPCs) and macrophages and regulatory T cells for enhanced vasculogenesis and wound healing. For the first time, this methodology will allow us to transplant highly vasculogenic peripheral blood cells from only 100 mL of blood draw. After finishing pre-clinical study and safety tests, we have performed a physician-based phase I clinical trial for treating non-healing ischemic limb ulcers from January 2015 to March 2018 and demonstrated its safety and efficacy in patients. Industrial clinical trial is prepared to be staring in 2021 FY. Herein, we will introduce challenges and future perspective of world`s first non-invasive and effective peripheral blood vascular stem cell therapy for limb salvage.

SPEAKERS' ABSTRACTS

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SESSION 4: Regenerative Medicine & Cellular Therapy

10:10-10:40
iPS cell-based regenerative medicine for diabetes

Prof. Kenji Osafune
Professor, Kyoto University Center for iPS Cell
Research and Application

Diabetes is caused by an absolute or relative insufficiency of insulin which is secreted from pancreatic β-cells, resulting in impaired glucose metabolism in entire body. The supplementation of β-cell function is an effective therapeutic strategy, but the insufficient cell supply is a major obstacle to this intervention. Regenerative medicine strategies using human induced pluripotent stem cells (iPSCs) are among the candidate approaches to solve the problems. Based on the knowledge of developmental biology, the stepwise differentiation strategy by mimicking pancreatic development has been adopted. Our group developed the directed differentiation methods to generate transplantable pancreatic lineage cells from human iPSCs. In addition, we are examining the therapeutic potential of human iPSC-derived pancreatic cells by transplantation into diabetes mouse models, and recent results indicate therapeutic effectiveness. Further elucidation of the mechanisms of pancreatic development and establishing the efficient differentiation methods from human iPSCs into pancreatic lineage cells will be required for the development of regenerative medicine strategies for diabetes, such as cell transplantation therapy and new drug discovery. In this presentation, I would like to summarize the current status of pancreatic regeneration researches using human iPSCs including our results and discuss the future perspective of iPSC technology-based regenerative treatment of diabetes.

SESSION 5: Gastro & Endoscopy

10:50-11:20
Flexible endoscopic surgery 2021

Prof. Haruhiro Inoue
Professor, Showa University School of Medicine,
Chairman of the Digestive Disease Center at Showa
University Koto Toyosu Hospital, Tokyo, Japan

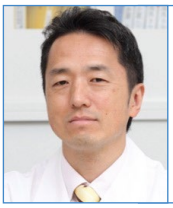
Recently marked advancement of technology allows completing conventional surgery using flexible endoscopy. Laparoscopic Heller-Dor surgery can be done now by transoral flexible endoscopic surgery. This is POEM (Peroral endoscopic myotomy) for esophageal achalasia.

World first case was done in 2008, more than 2200 consecutive cases received POEM in our hospital. As offshoots of POEM, POET (Peroral endoscopic tumor resection), G-POEM (Gastric POEM) for gastroparesis, Z-POEM (Zenker POEM) were developed and clinically well accepted. In these procedures, submucosal tunnel is commonly created and then each surgical procedure is completed. Like this way, flexible endoscopic surgery brings us minimally invasive surgery with no visible scar on our skin. In this lecture we would like to show you a clinical series of flexible endoscopic surgery and discuss future of it.

SPEAKERS' ABSTRACTS

Day 2 - Friday | 5 March, 2021

SESSION 5: Gastro & Endoscopy



11:20-11:50
Real-time endoscopic diagnosis using deep learning technology and ESD for lower GI neoplasms

Dr. Yutaka Saito
Director, Endoscopy Center,
National Cancer Center Hospital

Image-enhance endoscopy (IEE) assists in the early detection of flat and depressed neoplasia, differentiation between non-neoplastic and neoplastic lesions, and the characterization of early colorectal cancers. The Japan NBI Expert Team (JNET) was organized in 2011 to develop a universal magnifying NBI classification system. Consensus on JNET classification was reached based on univariate and multivariate analysis using a modified Delphi method on June 6, 2014.

In the western countries, however, magnified endoscopic diagnosis is not yet widely adopted. There is immense variability in the diagnostic ability of flat and depressed neoplasia among endoscopists, and solutions are critically needed.

An AI using a deep learning system that automatically detect pre-cancerous lesion and diagnose the estimated histology during colonoscopy is currently available.

As for therapeutic procedures, lesions smaller than 2cm are generally treated with endoscopic mucosal resection (EMR). In case of lesions larger than 2cm, piecemeal EMR is inevitable. The main advantage of endoscopic submucosal dissection (ESD) over EMR is completeness of resection as it enables en bloc removal of lesions irrespective of lesion size. This allows a definitive histological diagnosis and staging of superficially invasive cancers which is significantly superior to piecemeal EMR providing a treatment alternative to surgery for early colorectal cancer with no risk of lymph-node metastasis.

Colorectal ESD has gained acceptance as a safe and effective therapeutic option not only in Japan but also in western countries and is considered as the mainstream treatment for some neoplastic lesions with distinctive features.

11:50-12:20
Up-to-date advanced endoscopy of upper GI neoplasm

Dr. Seiichiro Abe
M.D., Ph.D., FASGE
National Cancer Center Tokyo

Advanced diagnostic and therapeutic endoscopy is developed and widely accepted in Japan. Endoscopic submucosal dissection (ESD) is technically more demanding than endoscopic mucosal resection (EMR). However, it allows for en bloc resection regardless of lesion size and location. Some adverse events have been resolved by the development of novel devices, techniques, and prophylactic procedures. Moreover, several papers reported excellent short and long-term ESD outcomes for superficial esophageal squamous cell carcinoma and early gastric cancer. ESD is now acceptable minimally invasive treatment options, and some Japanese guidelines were published and revised.

Moreover, the ESD technique consisting of mucosal incision and submucosal dissection has been utilized for more advanced surgical resection, such as laparoscopic and endoscopic cooperative surgery (LECS) for gastric submucosal tumor and hybrid endoscopy-assisted larynx preserving esophagectomy for cervical esophageal cancer.

This lecture will overview the up-to-date advanced endoscopy for upper GI neoplasms.

SPEAKERS' ABSTRACTS

Day 2 - Friday | 5 March, 2021

SESSION 6:

13:00-13:30
Development and future vision of the made-in Japan surgical robot system

Dr. Nobuyuki Hinata
Associate Professor, Department of
Urology, Kobe University Graduate
School of Medicine

Japan's first surgical support robot, the hinotori ™ surgical robot system, was approved for manufacturing and marketing in August 2020, and was approved for insurance coverage in September of the same year. Initially, it was approved only for surgery in the urology field, but in the future we plan to expand the target clinical departments and target surgical procedures, and in this paper we will collaborate with Medicaroid Corporation from 2015 on industry-academia collaboration and medical engineering. We will explain the medical device approval of this device, which has been developed in collaboration, and the actual development process.

13:30-14:00
Telemedicine in Asia and beyond: Benefits and Challenges

Prof. Shuji Shimizu
Vice President of Kyushu University and Chairman,
Professor of the Department of International Medical Department,
Kyushu University Hospital, Director of the Telemedicine
Development Centre of Asia

With the tight restriction of physical movement, COVID-19 drastically changed our life-style and forced us to communicate online all over the world. People felt inconvenience without direct human touch, but at the same time, we have re-recognized the efficiency of remote communications. We started remote medical education in 2002 with the development of new telemedicine system which could preserve the quality of transmitted images without any costly special videoconferencing equipment. It rapidly expanded in Asia as well as other parts of the world, having collaborated with 1028 institutions in 75 countries and organized over 1200 programs so far in 39 medical fields such as endoscopy and surgery. Now UAE is one of our top priorities of activity expansion and we would like to discuss how we can achieve it.

SPEAKERS' ABSTRACTS

Day 3 - Saturday | 6 March, 2021

SPEAKERS' ABSTRACTS

Day 3 - Saturday | 6 March, 2021

SESSION 7:

09:05-09:35
Recent Advances in surgical navigation & microsurgery robotics

Prof. Masatoshi Eto
Professor and Chairman, Department of Urology,
Director of Center for Advanced Medical Innovation,
Kyushu University

I will present 2 topics regarding recent advances in robotic surgery in our institute. First topic is surgical navigation (SN) system to perform robotic surgery more safely and efficiently. For the purpose, we have established a SN system during robotic assisted partial nephrectomy for kidney cancer where 3D model images in virtual reality are synchronized with real time endoscopic images. I will demonstrate the mechanism of the SN system and several real surgical cases to show the benefit of the system. Indeed, our results have demonstrated that the SN system contributes to postoperative renal parenchymal preservation, resulting in preservation of postoperative kidney function.

Another topic is our development of microsurgery robotic system. Microsurgery is a very delicate task, including anastomosis of small blood vessels, nerves, and lymph vessels with a diameter of 0.5 to 2 mm, and sometimes it is a heavy burden for plastic surgeons. To reduce the burden, we have been developing microsurgery robotic system with the grant from Japan Agency for Medical Research and Development (AMED). Currently, we have succeeded in the development of master-slave microsurgery robotic system that enables anastomosis of simulated blood vessel with a diameter of 1 mm, aiming commercialization.

09:35-10:05
Introduction of BNCT and its future possibility

Prof. Jun Hatazawa
Specially Appointed Professor, Osaka University,
Research Center for Nuclear Physics, WPI Immunology
Frontier Research Center Institute for Radiation Sciences

Boron neutron capture therapy (BNCT) is new radiotherapy to treat intractable cancers based on the external radation of neutron, in vivo nuclear reaction of 10B (n, α)7Li and high cancer cell killing effect of α and 7Li particles, and an evaluation of 10B concentration in target tumor and surrounding normal issue with a PET/CT. The BNCT was initially conducted by means of nuclear reactor as neutron source. It is now possible to employ an in-house accelerator in a hospital. The BNCT required cancer cell specific delivery of 10B, and 10B boronophenylalanine (BPA: INN : Borofolan (10B)) was developed as 10B carrier agent. The PET tracer of 18F-FBPA was developed to estimate BPA concentration in tumors and normal issue in a patient before the BNCT. For Unresectable, locally advanced or locally recurrent – head and neck cancer, the Phase II clinical trial was completed. The objective response rate was 71%, and overall survival at 2 years was 85%. The BNCT accelerator and Borofalan (10B) WERE APPROVED BY Ministry of Health, Labour, and Welfare, Japan. In order to extend an application of BNCT, the clinical trials for recurrent glioblastoma multiforme, recurrent malignant meningioma, malignant melanoma, and angiosarcoma are now on-going by means of BNCT accelerator and Borofalan (10B) in Japan.

SPEAKERS' ABSTRACTS

Day 3 - Saturday | 6 March, 2021

SESSION 7:

10:05-10:35
Development of innovative therapy with low-intensity pulsed ultrasound for angina pectoris and dementia

Prof. Hiroaki Shimokawa
Professsor & Chairman of the Dept. of Cardiovascular Medicine,
Tohoku University, Vice Dean, Graduate School, International
University of Health and Welfare

Although the numbers of patients with severe angina pectoris and those with dementia have been rapidly increasing in the current super-aging society, effective therapies still remain to be developed. In 2004, we succeeded in developing low-intensity shock wave therapy that enhances angiogenesis and improves myocardial ischemia in patients with severe angina pectoris. Then, we aimed to develop innovative therapy with ultrasound, which should be safer and time-saving than shock wave therapy. In 2013, we found that low-intensity pulsed ultrasound (LIPUS) exerts almost the same effects as shock wave therapy and this LIPUS therapy ameliorated myocardial ischemia in a porcine model of angina. Based on these findings, we started investigator-initiated clinical trial of the LIPUS therapy for angina pectoris with 60 patients. The results will be available in 2021. Then, we hypothesized that this LIPUS therapy may also be effective for dementia. In mouse models of Alzheimer disease and vascular dementia, we confirmed that the LUPUS therapy is effective and safe. Based on these findings, we started investigator-initiated clinical trial of the LIPUS therapy for Alzheimer disease. We already have confirmed its safety in those patients in the exploratory trial and have started subsequent confirmatory trial with 40 patient

SESSION 8: ---

10:45-11:15 Tele-ICU and the integration of AI technologies

Dr. Shunsuke Takaki
Chair, Department of Intensive Care Medicine,
Yokohama City University Hospital,
Head of Tele-ICU Committee at the Japanese
Society of Intensive Care Medicine

Yuma Nambu
Collaborative Researcher,
Yokohama City University Hospital,
Department of Anesthesiology

While the number of critically ill patients with underlying diseases is rapidly increasing in super aging society, medical resources in acute care settings, especially intensivists and ICU beds, are limited. In our hospital research in 2019, 61% of ICU incidents were attributed to communication errors. Moreover, today's COVID-19 pandemic redefines many clinical activities because of the restriction of face-to-face interaction. In this session, we will explain a new approach to intensive care using ICT and AI, and introduce examples of utilization and research of ICT (Tele-ICU) and AI at our hospital.

SPEAKERS' ABSTRACTS

Day 3 - Saturday | 6 March, 2021

SESSION 8:

11:15-11:45
Development of new robot-assisted surgical system suitable for the tele-surgery

Dr. Eiji Oki
Associate Professor, Department of Surgery and Science,
Graduate School of Medical Sciences, Kyushu University

Japan is experiencing a super-aging society both in rural and urban areas. A medical care service has become complicated and specialized every year. Therefore, it is difficult that all doctors handle all diseases. Thus, a chronic manpower shortage is one of main problem in medical issue. However, tele-surgery is not an applicable in clinical condition since it have some problems for realization. The significant problem is the network latency. In Japan, some companies including robotic companies, network operators, and research institutes cooperate and start an experimental study to establish a tele-surgery. We want to introduce practical realization of telesurgery, establishing a reasonable guideline for regulatory. As a basic study, we are investigating the impact of communication delay on the surgical technique. We will elucidate which techniques has problems by the communication delay and clarify the limit of communication delay. Next step is the experimental study for tele-surgery. We will start the tele-surgery between university hospital and area hospital using open network system in at least three area. Efficacy and safety will be confirmed in the experimental study. We will ultimately develop the next generation Japanese surgeon assist robot suitable for tele-surgery.

11:45-12:15
Electronic Clinical Pathway to be used in Learning Health System

Prof. Naoki Nakashima
Director and Professor Medical Information Center,
Kyushu University Hospital, President of Japan
Association for Medical Informatics

Real-world evidence is defined as clinical evidence about the usage and potential benefits or risks of a medical product derived from analyses of real-world data (RWD). Standardization and structuring of data are necessary for analysis of RWD collected from different institutions to use medical purpose level. However, electronic medical record is not a good data source of RWD for achievement high quality data analysis, because of difficulty of standardization and filled by unstructured data

About 2,000 of Japanese hospitals are using clinical pathway system (scheduled procedures are planned by diagnosis basis) in electronic medical record system, but not standardized. We have lead the ePath project which determined the outcome-oriented standard structure of data, electronic message and repository for analysis of high quality medical RWD collected from multiple medical institutes, and conducted a verification study with 4 top vendors of electronic medical record with 4 hospitals.

In the data structure, we have three layers with an outcome (layer 1), assessments (layer 2, multiple), and tasks (layer 3, same number to layer 2, linked as 1: N: N), and named as "OAT unit" as a basic unit in medical process. Now, we can describe all processes of inpatient clinical course by series of OAT unit on clinical pathway system in main diseases. We are analyzing medical process RWD like a Toyota automobile factory, improving by medical PDCA cycle 'Kaizen' to form a multi-institutional Learning Health System.

SPEAKERS' ABSTRACTS

Day 3 - Saturday | 6 March, 2021

SESSION 9:

12:25-12:55
Mitochondrial Augmentation Therapy Restoring Cellular Bioenergetics in Dysfunctional or Damaged Tissues and Organs

Dr. Peter Shane
Assoc. Prof. of International Medicine
Chief of International Development Section of
the Clinical Research and Medical Innovation
Center, Hokkaido University Hospital

In collaboration with LUCA Science, Hokkaido University is developing an innovative platform of highly functional mitochondria using proprietary technologies. Providing functional mitochondria allows restoration of cellular bioenergetics. The use of mitochondria as a biopharmaceutical agent will revolutionize the treatment of unmet medical needs involving multiple organ systems.

Although it is well-known that mitochondria produces most of the energy needed for life, much of their implication in human diseases are only recently becoming clear. Mitochondrial dysfunction has been found to be associated with neurodegenerative, cardiovascular, and autoimmune diseases, to name just a few. In 2018, resurgence of heart function was observed in an infant after mitochondrial auto-transplantation, allowing her to wean off ECMO. In collaboration with LUCA Science Inc., Hokkaido University is building upon this proof of concept, developing an innovative platform of highly functional "off-the shelf" mitochondria using proprietary technologies. Augmentation of mitochondrial function allows restoration of cellular bioenergetics, thereby providing revolutionary treatments of unmet medical needs involving multiple organ systems.

12:55-13:25
We Aspire to Cure Spinal Cord Injury by Novel Antisense Oligonucleotide

Hideaki Sato
MSc., President & CEO,
Luxna Biotech Co., Ltd.

Luxna Biotech has developed antisense drug discovery platform based on the bridged nucleic acid technology originate from Prof. Satoshi Obika group of Osaka University. Luxna also has been collaborating with pharmaceutical companies for novel targets including spinal cord injury and small cell lung cancer from academic research.

Today, we'd like to introduce our most advanced project, spinal cord injury treatment antisense drug development. The glial and fibrotic scars form a physical and chemical barrier to axon growth after spinal cord injury (SCI) and chondroitin sulfate (CS) is presumed to play a pivotal role for the neuronal regeneration. Our strategy is the inhibition of biosynthesis of CS with antisense oligonucleotide (ASO).

ASOs were designed with our proprietary nucleic acids to match both of mice and human CSGalNAcT1 mRNA sequences. It was found that some ASOs demonstrated efficacy in mice SCI model with minimal in vitro hepatotoxicity and cytotoxicity. There was no adverse event occurred in normal Cynomolgus monkey safety study. Non-clinical GLP studies are planned to start in late 2021.

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