Final Announcement

International Academy for Advanced Oncology

IAAO 2022

Trends in Anti-Cancer Strategies with Novel Technologies

2022 July 29 (Fri) 13:00 – 17:20
July 30 (Sat) 8:30 – 15:30
Zoom Webinar

C-FINDs
CHUGAI FOUNDATION FOR INNOVATIVE DRUG DISCOVERY SCIENCE

Trends in Anti-Cancer Strategies with Novel Technologies

DAY 1: Friday, July 29, 2022 13:00 – 17:20 Zoom Webinar

Opening Remarks

13:00 **Osamu Nagayama**, President, Chugai Foundation for Innovative Drug Discovery Science

1. Keynote Lecture

13:05 **Antibody Conjugates Define a New Path to Cancer Treatment**
Speaker: **Bruce A. Chabner, MD**, Professor, Harvard Medical School, USA
Chair/Moderator: **Kohei Miyazono, MD, PhD**, Professor, The University of Tokyo, Japan

2. Cancer Genomics & Biology

13:45 **Gastric Cancer Beyond Gene Mutations – Single Cells and Epigenomes**
Speaker: **Patrick Tan, MD, PhD**, Professor, Duke-NUS Medical School, Singapore
Chair/Moderator: **Chikashi Ishioka, MD, PhD**, Professor, Tohoku University, Japan

14:25 **Taking Genomics to the Clinic, What are We Missing?**
Speaker: **Jean Claude Zenklusen, PhD**, Director, The Cancer Genome Atlas, National Cancer Institute, USA
Chair/Moderator: **Chikashi Ishioka, MD, PhD**, Professor, Tohoku University, Japan

15:05 **Break**

3. Breakthrough Technology for Cancer Treatment

15:20 **Artificial Intelligence and Mammography: Lessons Learned**
Speaker: **Constance Lehman, MD, PhD**, Professor, Harvard Medical School, USA
Chair/Moderator: **Yuko Kitagawa, MD, PhD**, Professor, Keio University, Japan

16:00 **mRNA Based Cancer Vaccines**
Speaker: **Mathias Vormehr, PhD**, Senior Director, BioNTech SE, Germany
Chair/Moderator: **Yuko Kitagawa, MD, PhD**, Professor, Keio University, Japan

16:40 **Development of CRISPR Screening and its Applications in Cancer Research**
Speaker: **Kosuke Yusa, PhD**, Professor, Kyoto University, Japan
Chair/Moderator: **Hiroyoshi Nishikawa, MD, PhD**, Chief, National Cancer Center, Japan

17:20 **Announcement (C-FINDs)**

17:35 **Networking Dinner**
Networking format is subject to change depending on Covid-19 community news

Official language: English
Dress code: Business Casual

DAY 2: Saturday, July 30, 2022 8:30 – 15:30 Zoom Webinar

4. New Insights into the Mechanisms of EMT

8:30 **Mechanisms of Malignant Progression and Stemness: The Role of the EMT**
Speaker: **Robert A. Weinberg, PhD,** Professor, Whitehead Institute, USA
Chair/Moderator: **Hiroyuki Mano, MD, PhD**, Director, National Cancer Center Research Institute, Japan

9:10 **The Epithelial-Mesenchymal Transition Drives Refractory Responses of Breast Carcinomas to Immune Checkpoint Blockade Therapies**
Speaker: **Anushka Dongre, PhD,** Assistant Professor, Cornell University, USA
Chair/Moderator: **Hiroyuki Mano, MD, PhD**, Director, National Cancer Center Research Institute, Japan

9:50 **Break**

5. Trends in Molecular Targeting Therapy

10:05 **Many Faces of Resistance to Cancer Targeted Therapy**
Speaker: **Charles L. Sawyers, MD,** Chair, Human Oncology and Pathogenesis Program, Memorial Sloan Kettering Cancer Center, USA
Chair/Moderator: **Hitoshi Nakagama, MD, PhD**, President, National Cancer Center, Japan

10:45 **Homeostatic Regulation of PI3K Signaling by mTOR-Mechanism and Consequences**
Speaker: **Neal Rosen, MD, PhD,** Chair, Medical Oncology, Memorial Sloan Kettering Cancer Center, USA
Chair/Moderator: **Hitoshi Nakagama, MD, PhD**, President, National Cancer Center, Japan

11:25 **Lunch, ADB meeting**

6. Novel Approaches for Precision Medicine

12:30 **Molecular Driven Medicine Through Institutional Screening Programs**
Speaker**: Josep Tabernero, MD, PhD,** Director, Vall d'Herbrone Institute of Oncology, Spain
Chair/Moderator: **Masakazu Toi, MD, PhD**, Professor, Kyoto University, Japan

13:10 **Mining Exceptional Responders: A Path for Future Precision Oncology**
Speaker: **Naoko Takebe, MD, PhD,** Associate Chief, National Cancer Institute, USA
Chair/Moderator: **Masakazu Toi, MD, PhD**, Professor, Kyoto University, Japan

13:50 **Break**

14:05 **Genomics Determinants of Response of Tumor Immunogenicity**
Speaker: **Luis Alberto Diaz, Jr., MD,** Head, Division of Solid Tumor Oncology, Memorial Sloan Kettering Cancer Center, USA
Chair/Moderator: **Kiyohiko Hatake, MD, PhD**, Sanno Medical Center, Japan

14:45 **Gene Fusions: Diagnosis and Therapy**
Speaker: **Anthony J. Iafrate, MD, PhD,** Professor, Harvard Medical School, USA
Chair/Moderator: **Kiyohiko Hatake, MD, PhD**, Sanno Medical Center, Japan

Closing Remarks

15:25 **Hitoshi Nakagama, MD, PhD**, President, National Cancer Center, Japan

Opening Remarks

Osamu Nagayama

President, Chugai Foundation for Innovative Drug Discovery Science (C-FINDs)

On April 1, 2022, on the occasion of the 60th anniversary of its foundation, the former Tokyo Biochemical Research Foundation changed its name to Chugai Foundation for Innovative Drug Discovery Science (C-FINDs) and made a fresh start.

As president of C-FINDs, I am very pleased to be able to hold the International Academy for Advanced Oncology (IAAO) onsite for the first time in 3 years. I would like to express my sincere gratitude to all of the distinguished guests, experts and investigators attending this conference from overseas and Japan.

C-FINDs has three guiding principles: "top-level science," "human resource development and education for young researchers," and "a global perspective".
IAAO is one of the most important activities of C-FINDs that reflects these three principles.

Each year at IAAO, I am delighted to see that the size of our gathering continues to grow every year. This year, our twelfth meeting, is no exception as more than 250 people will be in attendance. We are always encouraged by the positive feedback that we receive from participants, and we are extremely happy and honored to know that more and more experts are interested in and value this event.

We are very fortunate to have in attendance so many world-class experts who share their experience, knowledge, and insights. I am confident this year's forum will spark extensive and wide-ranging discussions. I encourage everyone to seize the opportunity provided by each session to actively engage in the discussions. Your comments and insights will be found truly valuable to others attending this forum.

The theme of this year's meeting is "*Trends in Anti-Cancer Strategies with Novel Technologies*". The program focuses on cutting-edge research and the latest knowledge in the field of oncology from basic to applied science. We have thirteen great experts

from overseas and one from Japan. At first, we will hear from Dr. Chabner, the global leader of the IAAO advisory board, in a keynote lecture on a new path to cancer treatment. In the session entitled Cancer Genomics & Biology, expert lecturers will discuss the latest novel treatment strategies based on genomics data. Included this year is a new session, Breakthrough Technology for Cancer Treatment, in which we will be able to learn about research and clinical content leading to innovative next-generation treatment. On Day 2, first we will hear about new insights into the mechanisms of EMT. In the session entitled Trends in Molecular Targeting Therapy, the speakers will address the latest knowledge in the battle between drugs and cancer growth. Finally, in the session entitled Novel Approaches for Precision Medicine, we will learn about the multifaceted efforts to promote personalized medicine.

This exceptional program was organized through active discussions and the hard work of the members of the IAAO Advisory Board: Dr. Chabner, Dr. Mano, Dr. Hatake, Dr. Ishioka, Dr. Kitagawa, Dr. Miyazono, Dr. Nakagama, Dr. Nishikawa, Dr. Rosen, Dr. Tabernero, and Dr. Toi. I sincerely appreciate and respect the leadership and dedication of these eleven board members.

In closing, allow me to once again thank you for participating this year. C-FINDs' sincere wish is that this two-day event will be a highly informative and fruitful time for everyone. Our ultimate goal is for the IAAO forum to become an important venue for the exchange of information that advances the fight against cancer and, concurrently, empowers patients to deal with their treatment proactively and with hope.

Thank you very much for your attention.

Session 1

Keynote Lecture

Antibody Conjugates Define a New Path to Cancer Treatment

Speaker: Bruce A. Chabner, MD (Professor, Harvard Medical School, USA)

IAAO2022

Title: Antibody Conjugates Define a New Path to Cancer Treatment

Speaker

Bruce A. Chabner, MD

Professor of Medicine, Harvard Medical School, USA
Clinical Director, Emeritus, MGH Cancer Center,
Massachusetts General Hospital, USA

Chair/Moderator

Kohei Miyazono, MD, PhD

Professor, Graduate School of Medicine, The University of Tokyo, Japan

Bruce A. Chabner, MD

Research Summary

Dr. Chabner's major interest is in the clinical testing, pharmaco-kinetics, and biochemical pharmacology of new anticancer drugs, particularly natural products and signal transduction inhibitors.

Professional Experience/Awards

Dr. Chabner is the Clinical Director, Emeritus, of the Massachusetts General Hospital Cancer Center, and has had extensive experience in the field of cancer drug discovery and development. During his career at the National Cancer Institute (1971-1995), he served as a Senior Investigator in the Laboratory of Chemical Pharmacology, Chief of the Clinical Pharmacology Branch, Director of the Clinical Oncology Program, and Director of the Division of Cancer Treatment.

At the NCI, he maintained an active laboratory program in cancer pharmacology, and led the development of paclitaxel, fludarabine, and cisplatin, His research contributed

significantly to the development of high dose chemotherapy regimens, and to standard therapies for lymphoma. In 1995, he became the first Clinical Director of the MGH Cancer Center and established a clinical trials and translational research effort that has identified multiple new target therapies for Non-Small cell Lung Cancer, Breast Cancer, and melanoma.

Dr. Chabner was for 27 years (1995-2020) the Editor in Chief of the journal, The Oncologist, and serves on the advisory boards for some of the industry's leading innovators in drug development. In 2006, Dr. Chabner received a presidential appointment to the National Cancer Advisory Board at the NCI and chaired the NCAB from 2010 to 2013.

He has received numerous awards, including Phi Beta Kappa, Alpha Omega Alpha, the Public Health Service's Distinguished Service Medal, the Karnofsky Award of the American Society for Clinical Oncology and the Bruce F. Cain Award for Drug Development of the American Association for Cancer Research. In 2006, he was the first recipient of the Bob Pinedo Award for Contributions to Improvement in the Care of Cancer Patients.

Education

BA 1961 Yale College, USA
MD 1965 Harvard Medical School, USA

Selected Recent Publications

Financial Toxicity, Symptom Burden, Illness Perceptions, and Communication Confidence in Cancer Clinical Trial Participants. Perni S, Azoba C, Gorton E, Park ER, **Chabner BA**, Moy B, Nipp RD.
JCO Oncol Pract. 2022 Jun 6:OP2100697. PMID: 35666957

Reimagining patient-centric cancer clinical trials: a multi-stakeholder international coalition. Li BT, Daly B, **Chabner BA**, Rudd K, Wu YL, et al.
Nat Med. 2022 Apr;28(4):620-626. PMID: 35440725

Phase II trial of veliparib and temozolomide in metastatic breast cancer patients with and without BRCA1/2 mutations. Xu J, Keenan TE, **Chabner BA**, Isakoff SJ, et al.
Breast Cancer Res Treat. 2021 Oct;189(3):641-651. PMID: 34417675

Accuracy of Pathologic Diagnosis in Patients With Lymphoma and Survival: A Prospective Analysis From Botswana. Chipidza FE, Kayembe MKA, Nkele I, Efstathiou JA, **Chabner BA**, Abramson J, Dryden-Peterson SL, Sohani AR.
JCO Glob Oncol. 2021 Sep;7:1620-1632. PMID: 34860565

An Homage to Two Explorers of Uncharted Cancer Waters. **Chabner BA**, DeVita V, Murphy MJ. Oncologist. 2021 Apr;26(4):350-351. PMID: 33660908

Session 2

Cancer Genomics & Biology

2-1. Gastric Cancer Beyond Gene Mutations – Single Cells and Epigenomes

Speaker: Patrick Tan, MD, PhD
(Professor, Duke-NUS Medical School, Singapore)

2-2. Taking Genomics to the Clinic, What are We Missing?

Speaker: Jean Claude Zenklusen, PhD
(Director, The Cancer Genome Atlas, National Cancer Institute, USA)

Title: Gastric Cancer Beyond Gene Mutations – Single Cells and Epigenomes

Speaker

Patrick Tan, MD, PhD

Professor, Cancer and Stem Cell Biology, Duke-NUS Medical School
Senior Principal Investigator, Cancer Science Institute of Singapore, NUS
Executive Director, Genome Institute of Singapore
Executive Director, Precision Health Research Singapore

Chair/Moderator

Chikashi Ishioka, MD, PhD

Professor, Institute of Development, Aging and Cancer, Tohoku University, Japan

Patrick Tan, MD, PhD

Research summary

Dr Tan's research focuses on developing genomic approaches to unlock the molecular and clinical diversity of gastric cancer (aka stomach cancer)- a leading cause of global cancer mortality. At present, most gastric cancer (GC) patients are clinically treated with uniform "one-size-fits-all" surgery and chemotherapy regimens. However, individual gastric tumors can often vary in their genetic and epigenetic aberrations, which can regulate disease aggressiveness and treatment response. To improve clinical outcomes for GC patients, our group is developing methods to classify different GC patients into distinct subgroups based on their molecular profiles, identifying specific "Achilles Heel" genes required for cancer development in each subgroup, and translating these discoveries into optimized and tailored subgroup-specific treatments.

Professional Experience/Awards

Dr. Tan received the Charles Yanofsky prize for Most Outstanding Graduate Thesis in Physics, Biology or Chemistry at Stanford University. Other awards include the

Presidents Scholarship, Loke Cheng Kim scholarship, Young Scientist Award (A‐STAR), Singapore Youth Award (twice), Chen New Investigator Award (Human Genome Organization), President's Science Award, and the Japanese Cancer Association International Award. In 2018, he received the American Association for Cancer Research (AACR) Team Science Award as Team Leader, representing the first time a team from Asia has received the award.

Education

BA	1992	Harvard University, USA
MD/PhD	2000	Stanford University School of Medicine, USA

Most Recent Publications

Epigenetic promoter alterations in GI tumour immune-editing and resistance to immune checkpoint inhibition. Sundar R, Huang KK, Göke J, **Tan P**, et al.
Gut. 2022 Jul;71(7):1277-1288. PMID: 34433583

A genomic-augmented multivariate prognostic model for the survival of Natural-killer/T-cell lymphoma patients from an international cohort. Lim JQ, Huang D, **Tan P**, Bei JX, Ong CK, et al.
Am J Hematol. 2022 Jun 20. PMID: 35726449

Integration of Genomic Biology Into Therapeutic Strategies of Gastric Cancer Peritoneal Metastasis. Gwee YX, Chia DKA, So J, Ceelen W, Yong WP, **Tan P**, Ong CJ, Sundar R.
J Clin Oncol. 2022 Jun 1:JCO2102745. PMID: 35649219

Gastric cancer biomarker analysis in patients treated with different adjuvant chemotherapy regimens within SAMIT, a phase III randomized controlled trial. Oshima T, Tsuburaya A, **Tan P**, Sakamoto J, Tanaka S, et al.
Sci Rep. 2022 May 20;12(1):8509. PMID: 35595817

Chromatin Rewiring by Mismatch Repair Protein MSH2 Alters Cell Adhesion Pathways and Sensitivity to BET Inhibition in Gastric Cancer. Nargund AM, Xu C, Li S, **Tan P**, et al.
Cancer Res. 2022 May 18:canres.CAN-21-2072-E.2021. PMID: 35583999

Title: Taking Genomics to the Clinic, What are We Missing?

Jean Claude Zenklusen, PhD

Director, The Cancer Genome Atlas (TCGA), National Cancer Institute, USA

Speaker

Chikashi Ishioka, MD, PhD

Professor, Institute of Development, Aging and Cancer, Tohoku University, Japan

Chair/Moderator

Jean Claude Zenklusen, PhD

Research summary

Dr. Zenklusen leads The Cancer Genome Atlas (TCGA) program, as one of large-scale cancer genome research programs in Genomic Data Commons (GDC) Team, in National Cancer Institute. The mission of the GDC is to provide the cancer research community with a unified repository and cancer knowledge base that enables data sharing across cancer genomic studies in support of precision medicine.

Those research programs including TCGA have provided a comprehensive characterization of genomic changes in several human cancers; however, these characterizations are maintained in separate repositories, in diverse formats, and with different data management infrastructures. To unify these efforts, NCI established the GDC to provide the cancer research community with a data service supporting the receipt, quality control, integration, storage, and redistribution of standardized cancer genomic data sets derived from various legacy and active NCI programs.

Professional Experience/Awards

In 1996, Dr. Zenklusen took a post-doctoral position at the National Genome Research Institute where, while participating in the Human Genome Project, he cloned two novel tumor suppressor genes. From 2003 until 2009, Dr. Zenklusen was Senior Staff Scientist at the NCI Neuro-Oncology Branch where he directed the Glioma Molecular Diagnostic Initiative and its companion data portal REMBRANDT. From 2009 until 2013, Dr. Zenklusen served as the Scientific Program Director of the Office of Cancer Genomics (OCG), where he oversaw a variety of large-scale projects. In August 2013, Dr. Zenklusen was named Director of The Cancer Genome Atlas (TCGA), the largest-scale cancer genomics project to date. The 2020 AACR Team Science Award is being presented to Jean Claude Zenklusen, PhD, and the 129 additional members of the current TCGA project team.

Education

MS	1990	University of Buenos Aires, Argentine
PhD	1995	University of Texas Graduate School of Biomedical Sciences, USA

Most Recent Publications

Just Add Data: automated predictive modeling for knowledge discovery and feature selection. Tsamardinos I, Charonyktakis P, Papoutsoglou G, Borboudakis G, Lakiotaki K, **Zenklusen JC**, Juhl H, Chatzaki E, Lagani V.
NPJ Precis Oncol. 2022 Jun 16;6(1):38. PMID: 35710826

The next horizon in precision oncology: Proteogenomics to inform cancer diagnosis and treatment. Rodriguez H, **Zenklusen JC**, Staudt LM, Doroshow JH, Lowy DR.
Cell. 2021 Apr 1;184(7):1661-1670. PMID: 33798439

The NCI Genomic Data Commons. Heath AP, Ferretti V, **Zenklusen JC**, Staudt LM, Grossman RL, et al.
Nat Genet. 2021 Mar;53(3):257-262. PMID: 33619384

The International Collaboration for Cancer Classification and Research. Cree IA, Indave Ruiz BI, **Zenklusen JC**, Normanno N, Schilsky RL, et al.; IC3R participants.
Int J Cancer. 2021 Feb 1;148(3):560-571. PMID: 32818326

Molecular Features of Cancers Exhibiting Exceptional Responses to Treatment. Wheeler DA, Takebe N, **Zenklusen JC**, Ivy SP, Staudt LM, et al.
Cancer Cell. 2021 Jan 11;39(1):38-53.e7. PMID: 33217343

Session 3

Breakthrough Technology for Cancer Treatment

3-1. Artificial Intelligence and Mammography : Lessons Learned

Speaker: Constance Lehman, MD, PhD
(Professor, Harvard Medical School, USA)

3-2. mRNA Based Cancer Vaccines

Speaker: Mathias Vormehr, PhD (Senior Director, BioNTech SE, Germany)

3-3. Development of CRISPR Screening and its Applications in Cancer Research

Speaker: Kosuke Yusa, PhD (Professor, Kyoto University, Japan)

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Title: Artificial Intelligence and Mammography: Lessons Learned

Speaker

Constance “Connie” Lehman, MD, PhD

Professor, Department of Radiology, Harvard Medical School
Founder and Co-Director, Breast Imaging Research Center, Massachusetts General Hospital

Chair/Moderator

Yuko Kitagawa, MD, PhD

Professor, Department of Surgery, Graduate School of Medicine, Keio University, Japan

Constance “Connie” Lehman, MD, PhD

Research summary

As a change agent, innovator, and pioneer in the domain of Artificial Intelligence implementation in clinical medical practice, my work applies artificial intelligence and advanced methods of deep learning to improve breast cancer detection, diagnosis and treatment. In collaboration with colleagues at MIT, my lab and clinical center is applying AI to deliver higher quality health outcomes at lower costs for the full diversity of patients at risk for and with cancer. This is a continuation of my career-long commitment to expand access for all patients globally to highest quality, patient-centered, affordable care.

Professional Experience

With over 280 peer-reviewed scientific publications, Dr. Lehman has led careful studies of advanced imaging tools to identify breast cancer at its earliest stages—when it can be cured. Collectively, her philosophy embodies the notion that we improve the health of our community by delivery the highest quality patient-centered care in a setting of active innovation and education.

In her prior leadership roles at the University of Washington and Seattle Cancer Care Alliance, she developed an internationally-recognized program of excellence in patient care, education and research. She collaborated with partners in industry, development, and multiple clinical and basic science disciplines to foster new opportunities for faculty to pursue their goals. As division chief of breast imaging and co-Director of the AVON Comprehensive Breast Center at MGH, she rebuilt the service care model as well as the education and clinical research programs to stimulate new growth and productivity in times of scarce resources.

In her career, Dr. Lehman has developed novel patient care pathways, which substantially improve efficiency and increase access for patients and increase satisfaction of patients, faculty and staff. Her methods are used widely by her former fellows and faculty, many who lead their own breast imaging programs.

Education

MD Yale University, USA
PhD Yale University, USA

Selected Recent Publications

Impact of a Deep Learning Model for Predicting Mammographic Breast Density in Routine Clinical Practice. Dontchos BN, Cavallo-Hom K, Lamb LR, Mercaldo SF, Eklund M, Dang P, **Lehman CD**.
J Am Coll Radiol. 2022 May 23:S1546-1440(22)00337-4. PMID: 35618002

Mitigating the Impact of Coronavirus Disease (COVID-19) Vaccinations on Patients Undergoing Breast Imaging Examinations: A Pragmatic Approach. **Lehman CD**, Lamb LR, D'Alessandro HA.
AJR Am J Roentgenol. 2021 Sep;217(3):584-586. PMID: 33617288.

Multi-Institutional Validation of a Mammography-Based Breast Cancer Risk Model. Yala A, Mikhael PG, **Lehman CD**, Guindy M, Barzilay R, et al.
Journal of Clinical Oncology, 2021 Nov 12. PMID: 34767469

Readiness for mammography and artificial intelligence. **Lehman CD**, Topol EJ.
Lancet. 2021 Nov 20;398(10314):1867. PMID: 34801097

Stargazing through the lens of AI in clinical oncology. **Lehman CD**, Wu S.
Nat Cancer. 2021 Dec;2(12):1265-1267. PMID: 35121926

Title: mRNA Based Cancer Vaccines

Speaker

Mathias Vormehr, PhD

Senior Director Cancer Vaccines at BioNTech SE, Germany

Chair/Moderator

Yuko Kitagawa, MD, PhD

Professor, Department of Surgery, Graduate School of Medicine, Keio University, Japan

Mathias Vormehr, PhD

Research summary

Carcinogenesis is largely driven by somatic gene mutations. Accumulating evidence suggests that a significant subset of mutations result in neo-epitopes recognized by tumor-specific T cells and thus may constitute the Achilles' heel of malignant cells. T cells directed against mutations have been shown to have a key role in spontaneous immune responses against cancer and in the clinical efficacy of potent cancer immunotherapy modalities, such as adoptive transfer of autologous tumor infiltrating lymphocytes and immune checkpoint inhibitors. Whereas these findings strengthen the idea of a prominent role of neo-epitopes in tumor rejection, the systematic therapeutic exploitation of mutations was hampered until recently by the uniqueness of the repertoire of mutations ("the mutanome") in every patient's tumor. Our group pioneered to set up a process for an individualized immunotherapy approach to target the full spectrum of a patient's personal tumor-specific mutations by combination of exome and transcriptome sequencing, bioinformatic target identification and selection followed by RNA based tumor vaccination.

Professional experience

After obtaining a PhD at the University of Mainz, Dr. Vormehr joined BionTech SE. He served as Head of Cancer Vaccines from 2018 to 2020 and Director Cancer Vaccines until 2022. Currently he holds the position of Senior Director Cancer Vaccines and is leading a team of scientists conducting the discovery and early development of multiple immunotherapies. His main research areas are mRNA-based vaccines as well as mRNA-encoded cytokines for cancer treatment.

Education

PhD 2016 Johannes Gutenberg-Universität Mainz, Germany

Most Recent Publications

An Fc-inert PD-L1×4-1BB bispecific antibody mediates potent anti-tumor immunity in mice by combining checkpoint inhibition and conditional 4-1BB co-stimulation. Muik A, Altintas I, **Vormehr M**, Jure-Kunkel M, Sahin U, et al.
Oncoimmunology. 2022 Feb 16;11(1):2030135. PMID: 35186440

BNT162b2 vaccine induces neutralizing antibodies and poly-specific T cells in humans. Sahin U, Muik A, **Vormehr M**, Jansen KU, Türeci Ö, et al.
Nature. 2021 Jul;595(7868):572-577. PMID: 34044428

mRNA therapeutics in cancer immunotherapy. Beck JD, Reidenbach D, Salomon N, Sahin U, Türeci Ö, **Vormehr M**, Kranz LM.
Mol Cancer. 2021 Apr 15;20(1):69. PMID: 33858437

BNT162b vaccines protect rhesus macaques from SARS-CoV-2. Vogel AB, Kanevsky I, **Vormehr M**, Jansen KU, Sahin U, et al.
Nature. 2021 Apr;592(7853):283-289. PMID: 33524990

Steatohepatitis Impairs T-cell-Directed Immunotherapies Against Liver Tumors in Mice. Heinrich B, Brown ZJ, **Vormehr M**, Sahin U, Greten TF, et al.
Gastroenterology. 2021 Jan;160(1):331-345.e6. PMID: 33010248

Title: Development of CRISPR Screening and its Applications in Cancer Research

Kosuke Yusa, PhD

Professor, Laboratory of Stem Cell Genetics, Institute for Life and Medical Sciences, Kyoto University, Japan

Speaker

Hiroyoshi Nishikawa, MD, PhD

Professor, Department of Immunology, Nagoya University Graduate School of Medicine, Japan
Chief, Division of Cancer Immunology, Research Institute/Exploratory Oncology Research & Clinical Trial Center (EPOC), National Cancer Center Research, Japan

Chair/Moderator

Kosuke Yusa, PhD

Research summary

To understand gene functions using genetics, we identify causal relationship between phenotype and genotype. While reverse genetics focuses on genes of interest and analyze phenotypes of those mutants, forward genetics provides a powerful means to comprehensively identify genes involved in a phenotype of interest. However, methods available for studies using mammalian cells were not as high as hoped. To overcome this limitation, we applied CRISPR-Cas9 systems and developed powerful ‘CRISPR screening’.

Our current research interest is to understand the molecular mechanism by which cancer cells and pluripotent stem cells proliferate and differentiate, and we take advantage of our CRISPR screen technique to start addressing new biological questions. We have performed a large-scale CRISPR screens on a panel of 234 cancer cell lines and catalogued fitness genes, from which novel molecular target therapy could be developed. For pluripotent stem cells, we are particularly interested in the variation seen amongst ES/iPS cell lines. Understanding the mechanisms would

allow us to develop robust differentiation protocols and facilitate the translation of pluripotent cell technologies.

Professional experience

After his PhD, Dr. Yusa was awarded a post-doctoral fellowship from the Japan Society of Promotion of Science and joined Professor Allan Bradley's team at the Wellcome Sanger Institute in 2007. He has developed the hyperactive piggyBac 'jumping gene' (DNA transporter system) and used it to create a novel platform of iPS cell reprogramming. By combining this system with zinc finger nuclease technology, he has achieved highly precise genetic correction of disease-causing mutations in human iPS cells, opening the way to new clinical treatments.

In October 2012, Dr. Yusa was appointed as a member of the Sanger Institute Faculty in the newly developed scientific programme, Cellular Genetics. He then moved to Institute of Life and Medical Sciences, Kyoto University as a Professor in October 2018.

Education

BS	1999	Osaka University, Japan
MS	2001	The University of Tokyo, Japan
PhD	2005	Osaka University, Japan

Selected Recent Publications

Genome-wide screening identifies Polycomb repressive complex 1.3 as an essential regulator of human naïve pluripotent cell reprogramming. Collier AJ, Bendall A, **Yusa K**, Rugg-Gunn PJ, et al.
Sci Adv. 2022 Mar 25;8(12):eabk0013. PMID: 35333572

Selective targeting of multiple myeloma cells with a monoclonal antibody recognizing the ubiquitous protein CD98 heavy chain. Hasegawa K, Ikeda S, **Yusa K**, Kumanogoh A, Hosen N. et al.
Sci Transl Med. 2022 Feb 16;14(632):eaax7706. PMID: 35171652

KAT7 is a genetic vulnerability of acute myeloid leukemias driven by MLL rearrangements. Au YZ, Gu M, Vassiliou G, **Yusa K**, et al.
Leukemia. 2021 Apr;35(4):1012-1022. PMID: 32764680

Agreement between two large pan-cancer CRISPR-Cas9 gene dependency data sets. Dempster JM, Pacini C, **Yusa K**, Tsherniak A, Iorio F, et al.
Nat Commun 2019 Dec 20;10(1):5817. PMID: 31862961

Prioritisation of oncology therapeutic targets using CRISPR-Cas9 screening. Behan FM, Iorio F, **Yusa K**, Garnett MJ, et al.
Nature 2019 Apr;568(7753):511-516. PMID: 30971826

Session 4

New Insights into the Mechanisms of EMT

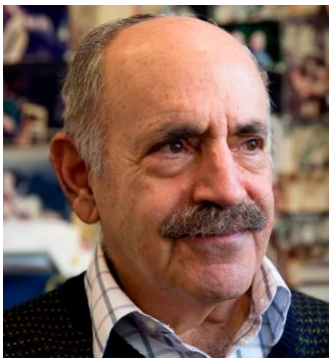
4-1. Mechanisms of Malignant Progression and Stemness : The Role of the EMT (Virtual lecture)

Speaker: Robert A. Weinberg, PhD (Professor, Whitehead Institute, USA)

4-2. The Epithelial-Mesenchymal Transition Drives Refractory Responses of Breast Carcinomas to Immune Checkpoint Blockade Therapies

Speaker: Anushka Dongre, PhD (Assistant Professor, Cornell University, USA)

Title: Mechanisms of Malignant Progression and Stemness: The Role of the EMT



Speaker

Robert A. Weinberg, PhD

Daniel K. Ludwig Professor for Cancer Research; Core Member, Whitehead Institute, USA

Chair/Moderator

Hiroyuki Mano, MD, PhD

Director, National Cancer Center Research Institute, Japan

Robert A. Weinberg, PhD

Research Summary

We investigate three broad questions related to the origin and spread of cancer. First, how do cancer cells within a primary tumor acquire the ability to invade and metastasize? Second, how are the stem-cell state and the epithelial-mesenchymal transition interrelated? Third, how are the regulators of the epithelial-mesenchymal transition able to activate this profound change in cell phenotype?

Professional Experience/Awards

A Founding Member of Whitehead Institute and a National Medal of Science recipient, Dr. Weinberg is a pioneer in cancer research most widely known for his discoveries of the first human oncogene—a gene that can cause normal cells to form tumors—and the first tumor suppressor gene. He received post-doctoral training at the Weizmann Institute and the Salk Institute, and joined the MIT faculty in 1972. In 1982, Weinberg both helped found Whitehead Institute and published his landmark paper "Mechanism of Activation of a Human Oncogene" in the journal Nature.

He has received numerous awards, including the recent JapanPrize (2021) and Salk Institute Medal for Research Excellence (2016), starting with the Robert Koch Foundation Prize (1983).

Education

SB	1964	Biology, Massachusetts Institute of Technology, USA
PhD	1969	Massachusetts Institute of Technology, USA

Selected Recent Publications

Direct and Indirect Regulators of Epithelial-Mesenchymal Transition-Mediated Immunosuppression in Breast Carcinomas. Dongre A, Rashidian M, Eaton EN, Reinhardt F, Thiru P, Zagorulya M, Nepal S, Banaz T, Martner A, Spranger S, **Weinberg RA**.
Cancer Discov. 2021 May;11(5):1286-1305.

Genetically Defined Syngeneic Mouse Models of Ovarian Cancer as Tools for the Discovery of Combination Immunotherapy. Iyer S, Zhang S, Pépin D, **Weinberg RA**, et al.
Cancer Discov. 2021 Feb;11(2):384-407. PMID: 33158843

The systemic response to surgery triggers the outgrowth of distant immune-controlled tumors in mouse models of dormancy. Krall JA, Reinhardt F, Dougan SK, **Weinberg RA**, et al.
Sci Transl Med. 2018 Apr 11;10(436):eaan3464. PMID: 29643230

Epithelial-to-Mesenchymal Transition Contributes to Immunosuppression in Breast Carcinomas. Dongre A, Rashidian M, Reinhardt F, Bagnato A, Keckesova Z, Ploegh HL, **Weinberg RA**.
Cancer Res. 2017 Aug 1;77(15):3982-3989. PMID: 28428275

The epithelial-mesenchymal transition generates cells with properties of stem cells. Mani SA, Guo W, Yang J, **Weinberg RA**, et al.
Cell. 2008 May 16;133(4):704-15. PMID: 18485877

Title: The Epithelial-Mesenchymal Transition Drives Refractory Responses of Breast Carcinomas to Immune Checkpoint Blockade Therapies

Anushka Dongre, PhD

Assistant Professor, Department of Biomedical Sciences
Cornell University College of Veterinary Medicine, USA

Speaker

Hiroyuki Mano, MD, PhD

Director, National Cancer Center Research Institute, Japan

Chair/Moderator

Anushka Dongre, PhD

Research Summary

Although immune checkpoint blockade therapy has revolutionized cancer treatment, a subset of tumors, such as those of the breast, are still largely unresponsive. We have found that the residence of carcinoma cells in distinct cell biological states (epithelial versus mesenchymal) directly impacts their susceptibility to anti-tumor immune attack and elimination by checkpoint blockade immunotherapies. Specifically, while epithelial tumors are highly sensitive to such therapies, mesenchymal tumors are resistant to the same. Moreover, a minority population of more-mesenchymal cancer cells can cross-protect their epithelial neighbors residing in the same tumor from immune attack. In addition, we have very recently demonstrated that perturbation of several cell-intrinsic paracrine pathways that are specifically associated with the mesenchymal state, can potentiate the efficacy of immune checkpoint blockade therapies and render highly refractory mesenchymal tumors responsive.

The central focus of the Dongre Lab is to understand the mechanism(s) underlying EMT-mediated immune-suppression with the overarching goal of interrupting these signaling channels to potentiate the efficacy of these therapies in poor responders.

Professional Experience/Awards

Dr. Dongre obtained her BS and MS degrees in Microbiology from the University of Mumbai, India. Her graduate training in T-cell biology was supervised by Dr. Barbara A. Osborne, at the University of Massachusetts-Amherst, where she studied the role of non-canonical Notch signaling in regulating T-cell function. She completed her postdoctoral work in the laboratory of Dr. Robert A. Weinberg, at the Whitehead Institute for Biomedical Research and the Massachusetts Institute of Technology (MIT) in Cambridge, MA. Here, she demonstrated that the epithelial-to-mesenchymal transition (EMT) contributes to immunosuppression and drives refractory responses of breast cancers to immune checkpoint blockade therapy. She also demonstrated that quasi-mesenchymal breast tumors can be completely sensitized to anti-CTLA4 immune checkpoint blockade therapy by perturbing cancer cell-intrinsic expression of certain paracrine factors. These studies have been published as cover page articles in leading journals.

Dr. Dongre was awarded the Byron Prize for outstanding PhD dissertation for her graduate work on non-canonical Notch signaling in T-cells. Her postdoctoral work on the EMT program as a driver of resistance to immune attack was supported by the Ludwig Cancer Research Postdoctoral Fellowship. For this work, she has also been awarded the Whitehead Institute Postdoc Association Education Award, the Keystone Symposia Future of Science Fund Scholarship, the AACR Scholar-In-Training Award and a Young Investigator Travel Award by the Society for Immunotherapy of Cancer (SITC). For her work in tumor immunology, Anushka was selected to be in the SITC Women in Cancer Immunotherapy Network (WIN) Class of 2021. In addition, she was also awarded a K22 Transition Career Development Award from the NCI, NIH, to support her transition to a faculty position.

Education

BS University of Mumbai, India
MS University of Mumbai, India
PhD University of Massachusetts-Amherst, USA

Most Recent Publications

Epithelial-to-mesenchymal transition promotes immune escape by inducing CD70 in non-small cell lung cancer. Ortiz-Cuaran S, Swalduz A, **Dongre A**, Puisieux A, Saintigny P, et al. Eur J Cancer. 2022 Jul;169:106-122. PMID: 35550950

Editorial: The Role of the EMT Program in Regulating the Immune Response in Carcinoma. **Dongre A**, Ortiz-Cuaran S, Korkaya H.
Front Immunol. 2022 May 30;13:940164. PMID: 35707530

Leveraging immunochemotherapy for treating pancreatic cancer. **Dongre A**, Weinberg RA. Cell Res. 2021 Dec;31(12):1228-1229. PMID: 34667266

Direct and Indirect Regulators of Epithelial-Mesenchymal Transition-Mediated Immunosuppression in Breast Carcinomas. **Dongre A**, Rashidian M, Eaton EN, Reinhardt F, Thiru P, Zagorulya M, Nepal S, Banaz T, Martner A, Spranger S, Weinberg RA. Cancer Discov. 2021 May;11(5):1286-1305. PMID: 33328216

Immuno-PET identifies the myeloid compartment as a key contributor to the outcome of the antitumor response under PD-1 blockade. Rashidian M, LaFleur MW, **Dongre A**, Sharpe AH, Ploegh HL, et al.
Proc Natl Acad Sci U S A. 2019 Aug 20;116(34):16971-16980. PMID: 31375632

Session 5

Trends in Molecular Targeting Therapy

5-1. Many Faces of Resistance to Cancer Targeted Therapy

Speaker: Charles L. Sawyers, MD
(Chair, Human Oncology and Pathogenesis Program,
Memorial Sloan Kettering Cancer Center, USA)

5-2. Homeostatic Regulation of PI3K Signaling by mTOR-Mechanism and Consequences

Speaker: Neal Rosen, MD, PhD
(Chair, Medical Oncology, Memorial Sloan Kettering Cancer Center, USA)

Title: Many Faces of Resistance to Cancer Targeted Therapy

Charles L. Sawyers, MD

Chair, Human Oncology and Pathogenesis Program; Marie-Josée and Henry R. Kravis Chair, Memorial Sloan Kettering Cancer Center, USA

Speaker

Hitoshi Nakagama, MD, PhD

President, National Cancer Center, Japan

Chair/Moderator

Charles L. Sawyers, MD

Research summary

Dr. Sawyers is an HHMI Investigator searching for molecularly targeted approaches to treat cancer. He has identified cell signaling components critical to the growth of cancer cells in chronic myeloid leukemia, prostate and other cancers, resulting in the development of multiple FDA-approved inhibitors in clinical use today.

Professional Experience/Awards

Dr. Sawyers became a Howard Hughes Medical Institute investigator in 2002 while at the University of California, Los Angeles, and then moved to Memorial Sloan Kettering in 2006, where he currently serves as the Chair of the Human Oncology and Pathogenesis Program.

Dr. Sawyers studies mechanisms of cancer drug resistance with an eye toward developing novel therapies. He co-discovered the antiandrogen drug enzalutamide that was approved by the FDA in 2012 for the treatment of advanced prostate cancer. He shared the 2009 Lasker~DeBakey Clinical Medical Research Award for the development of the ABL kinase inhibitor imatinib for patients with chronic myeloid

leukemia and the second-generation ABL inhibitor dasatinib to overcome imatinib resistance. He received the 2013 Breakthrough Prize in Life Sciences, the 2013 Taubman Prize for Excellence in Translational Medical Science, the 2017 American Cancer Society (ACS) Medal of Honor for Clinical Research and the inaugural STAT Biomedical Innovation Award in 2019.

Dr. Sawyers is a member of the National Academy of Sciences, the National Academy of Medicine, and the American Academy of Arts and Sciences. He is past president of the American Association for Cancer Research (AACR) and the American Society of Clinical Investigation, was appointed to the National Cancer Advisory Board by President Obama and has served on the Board of Directors of Novartis since 2013. He also serves as Steering Committee Chair of AACR Project GENIE, an international consortium of cancer centers that share genomic and clinical data from patients treated at their respective clinical sites.

Education

BA 1981 Princeton University, USA
MD 1985 Johns Hopkins Medical School, USA

Most Recent Publications

Allosteric interactions prime androgen receptor dimerization and activation. Wasmuth EV, Broeck AV, Klinge S, **Sawyers CL**, et al.
Mol Cell. 2022 Jun 2;82(11):2021-2031. PMID: 35447082

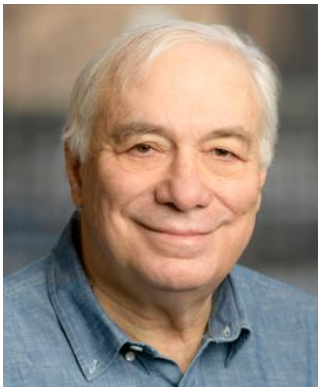
Rapid interrogation of cancer cell of origin through CRISPR editing. Feng W, Cao Z, Jasin M, **Sawyers CL**, et al.
Proc Natl Acad Sci U S A. 2021 Aug 10;118(32):e2110344118. PMID: 34353917

FOXA1 Mutations Reveal Distinct Chromatin Profiles and Influence Therapeutic Response in Breast Cancer. Arruabarrena-Aristorena A, Maag JLV, **Sawyers CL**, Toska E, Scaltriti M, et al.
Cancer Cell. 2020 Oct 12;38(4):534-550.e9. PMID: 32888433

Tumor Microenvironment-Derived NRG1 Promotes Antiandrogen Resistance in Prostate Cancer. Zhang Z, Karthaus W, Watson P, **Sawyers CL**, et al.
Cancer Cell 2020 Aug 10;38(2):279-296.e9. PMID: 32679108

Somatic Tissue Engineering in Mouse Models Reveals an Actionable Role for WNT Pathway Alterations in Prostate Cancer Metastasis. Leibold J, Ruscetti M, Cao Z, **Sawyers CL**, Lowe S, et al.
Cancer Cell 2020 Jul;10(7):1038-1057. PMID: 32376773

Title: Homeostatic Regulation of PI3K Signaling by mTOR-Mechanism and Consequences



Neal Rosen, MD, PhD

Enid A. Haupt Chair in Medical Oncology
Member, Program in Molecular Pharmacology
Member, Department of Medicine
Memorial Sloan Kettering Cancer Center, USA

Speaker

Hitoshi Nakagama, MD, PhD

President, National Cancer Center, Japan

Chair/Moderator

Neal Rosen, MD, PhD

Research summary

The main goal of his laboratory is the identification and characterization of signal transduction pathways that cause the dysregulation of growth and inhibition of apoptosis that characterize advanced human cancer. His laboratory is dedicated to understanding the consequences of activation of these pathways and to using this information to develop mechanism-based therapeutic strategies.

The laboratory is studying small molecules that selectively inhibit the components of RAS-RAF-MEK-ERK and PI3K-AKT-mTOR pathways. These compounds are being used as reagents to define the role of these pathways in tumors with the goal of developing strategies for using these agents in patients.

Professional Experience/Awards

Dr. Rosen has played an important role in the development of tyrosine kinase-mediated signaling inhibitors and has pioneered the concept that cancer cells are dependent on cellular machinery for protein folding. Multiple novel clinical trials based on the work of

the Rosen laboratory are being tested at Memorial Sloan-Kettering and other cancer centers in the United States and internationally. After receiving his MD/PhD from the Albert Einstein College of Medicine, he completed a residency in Internal Medicine at the Brigham and Women's Hospital and post-doctoral training and a fellowship in Medical Oncology at the National Cancer Institute. He was on the senior staff of the Medicine Branch at the NCI prior to joining the faculty of Memorial Sloan-Kettering Cancer Center. He received Lifetime Achievement Award from The Society for Melanoma Research in 2018.

Education

BA	1971	Columbia University, USA
MD/PhD	1979	Albert Einstein College of Medicine, USA

Most Recent Publications

ARAF protein kinase activates RAS by antagonizing its binding to RASGAP NF1. Su W, Mukherjee R, Yao Z, **Rosen N**, et al.
Mol Cell. 2022 May 14:S1097-2765(22)00434-8. PMID: 35613620

Anatomic position determines oncogenic specificity in melanoma. Weiss JM, Hunter MV, **Rosen N**, Hayward NK, White RM, et al.
Nature. 2022 Apr;604(7905):354-361. PMID: 35355015

INK4 Tumor Suppressor Proteins Mediate Resistance to CDK4/6 Kinase Inhibitors. Li Q, Jiang B, **Rosen N**, Gray NS, Chandarlapaty S, et al.
Cancer Discov. 2022 Feb;12(2):356-371. PMID: 34544752

Phase 1 Clinical Trial of Trametinib and Ponatinib in Patients With NSCLC Harboring KRAS Mutations. Arbour KC, Manchado E, **Rosen N**, Lowe S, Riely GJ, et al.
JTO Clin Res Rep. 2021 Nov 23;3(1):100256. PMID: 34984405

HER2 + breast cancers evade anti-HER2 therapy via a switch in driver pathway. Smith AE, Ferraro E, **Rosen N**, Razavi P, Chandarlapaty S, et al.
Nat Commun. 2021 Nov 18;12(1):6667. PMID: 34795269

Session 6

Novel Approaches for Precision Medicine

6-1. Molecular Driven Medicine Through Institutional Screening Programs

Speaker: Josep Tabernero, MD, PhD
(Director, Vall d' Herbrone Institute of Oncology, Spain)

6-2. Mining Exceptional Responders : A Path for Future Precision Oncology

Speaker: Naoko Takebe, MD, PhD
(Associate Chief, National Cancer Institute, USA)

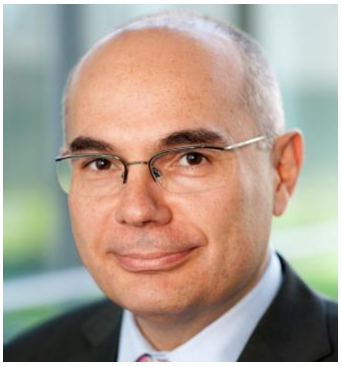
6-3. Genomics Determinants of Response of Tumor Immunogenicity

Speaker: Luis Alberto Diaz, Jr., MD
(Head, Division of Solid Tumor Oncology,
Memorial Sloan Kettering Cancer Center, USA)

6-4. Gene Fusions: Diagnosis and Therapy

Speaker: Anthony J. Iafrate, MD, PhD (Professor, Harvard Medical School, USA)

Title: Molecular Driven Medicine Through Institutional Screening Programs



Josep Tabernero, MD, PhD

Director, Vall d'Hebron Institute of Oncology (VHIO), Spain

Speaker

Masakazu Toi, MD, PhD

Professor, Graduate School of Medicine and Faculty Medicine Kyoto University, Japan

Chair/Moderator

Josep Tabernero, MD, PhD

Research Summary

Dr. Tabernero is active in phase I and II studies with pharmacodynamic endpoints with novel agents directed to cancer and immune cells' targets.
His laboratory is developing molecular therapies that target specific oncoproteins, with particular emphasis on EGFR-family, ERK, and PI3K-pathway inhibitors, for patients displaying genetic lesions or pathway dysregulation. The objectives of his laboratory include identifying new predictive markers of response to diverse treatments and studying circulating biomarkers (detection and genotyping of circulating free DNA). His group develops new xenograft models with explant tumors from patients ("xenopatients") in mice to study tumor development.

Professional Experience/Awards

Dr. Tabernero serves on the Editorial Boards of various top tier journals including Annals of Oncology, ESMO Open, Cancer Discovery, Clinical Cancer Research, Cancer Treatment Reviews, and Nature Reviews Clinical Oncology. He has (co) authored approximately 600 peer-reviewed papers with an H-Index of 112.

He was the President (2018 – 2019) of the European Society for Medical Oncology´s (ESMO). He is also member of the American Association for Cancer Research (AACR), the American Society of Clinical Oncology (ASCO). He has also been a member of the Educational and Scientific Committees of ESMO, ECCO, ASCO, AACR, AACR/NCI/EORTC, ASCO Gastrointestinal, TAT and WCGIC meetings.

Dr. Tabernero has received many awards over the past two decades for his work. In 2017, he was selected as the 25th Medical Embassador of the Spanish Health, and in 2018 he received the Giants of Cancer Care Award in Gastrointestinal Cancer at the ASCO Annual Meeting.

Education

MD Universitat Autònoma de Barcelona, Spain
PhD Universitat Autònoma de Barcelona, Spain

Most Recent Publications

Outcomes of the SARS-CoV-2 omicron (B.1.1.529) variant outbreak among vaccinated and unvaccinated patients with cancer in Europe: results from the retrospective, multicentre, OnCovid registry study. Pinato DJ, Aguilar-Company J, **Tabernero J**, Cortellini A, et al.; OnCovid study group.
Lancet Oncol. 2022 Jul;23(7):865-875. PMID: 35660139

Clinical Trial Endpoints in Metastatic Cancer: Using Individual Participant Data to Inform Future Trials Methodology. Goldberg RM, Adams R, **Tabernero J**, Matheson A, de Gramont A, et al.
J Natl Cancer Inst. 2022 Jun 13;114(6):819-828. PMID: 34865086

Association of Tumor Mutational Burden with Efficacy of Pembrolizumab{plus minus}Chemotherapy as First-Line Therapy for Gastric Cancer in the Phase III KEYNOTE-062 Study.
Lee KW, Van Cutsem E, **Tabernero J**, Shitara K, Wyrwicz L, et al.
Clin Cancer Res. 2022 Jun 3:clincanres.0121.2022-1-18 09:47:14.553. PMID: 35657979

MATTERHORN: phase III study of durvalumab plus FLOT chemotherapy in resectable gastric/gastroesophageal junction cancer.
Janjigian YY, Van Cutsem E, Negro A, **Tabernero J**, et al.
Future Oncol. 2022 Jun;18(20):2465-2473. PMID: 35535555

Vaccination against SARS-CoV-2 protects from morbidity, mortality and sequelae from COVID19 in patients with cancer. Pinato DJ, Ferrante D, **Tabernero J**, Gennari A, Cortellini A, et al.; OnCovid study group.
Eur J Cancer. 2022 May 23;171:64-74. PMID: 35704976

Title: Mining Exceptional Responders: A Path for Future Precision Oncology

Naoko Takebe, MD, PhD

Associate Chief, Developmental Therapeutics Clinic, Head Translational Science Section, Early Clinical Trials Development Program, Division of Cancer Treatment & Diagnosis, National Cancer Institute, NIH USA

Speaker

Masakazu Toi, MD, PhD

Professor, Graduate School of Medicine and Faculty Medicine Kyoto University, Japan

Chair/Moderator

Naoko Takebe, MD, PhD

Research Summary

Dr. Takebe is a physician-scientist at the National Cancer Institute, NIH, and a nationally recognized Hematologist/Oncologist in the field of cancer experimental therapeutics. She has over 25 years of experience in bench to bedside cancer therpeutics enterprise, from translational to phase 1 and 2 early phase drug development in both hematologic malignancy, bone marrow stem cell transplant, and solid tumors. Dr. Takebe is a PI for 6 investigator initiated clinical trials including FIH Trials, and co-investigator for 23 trials. Currently, she is a co-investigator for NCI-MATCH and Pediatric MATCH, and was a translational science PI for the Exceptional Responder Initiative protocol. She is a member of NCI Moonshot Initiatives, “Generation of Human Tumor Atlas”.

Professional Experience/Awards

Dr. Takebe completed her medical Hematology/Oncology Fellowship at Memorial Sloan-Kettering Cancer Center in 1997, and a Postdoctoral Research Fellowship at the

Memorial Sloan-Kettering Institute in 1999. Her research at that time focused on experimental therapeutics including gene therapy approach using retroviral gene transfer to deliver drug resistance genes into hematopoietic stem cells for myeloprotection. In 1999, she joined the Blood and Stem Cell Transplant Program in the Department of Hematology/Oncology, Greenebaum Cancer Center University of Maryland. There she conducted clinical trials in the area of multiple myeloma and leukemia involving autologous and allogeneic transplants. Prior to joining the Developmental Therapeutics Clinic, NCI, in 2017, Dr. Takebe was a Senior Investigator at the Cancer Therapy Evaluation Program (CTEP) and her portfolio included Cancer Stem Cell targeting agents, apoptosis inducing agents, DNA repair inhibitors, Src and c-kit inhibitors. She oversaw multi-million dollar clinical trials sponsored by CTEP.

Dr. Takebe has received six NIH Award of Merit and, three NCI Director's Award. She also was selected for the Distinguished Lecture Award from the Joint International Oncology Congress. She has served as the ASCO Annual Meeting Education Session Committee Member, Chair, Developmental Therapeutics and Immunotherapy Section, 2019; AACR Annual Meeting Scientific Session Co-Chair, Experimental and Molecular Therapeutics Subcommittee and abstract reviewer, 2020; AACR Annual Meeting, Plenary Session Chair Immunotherapy and Cell Therapy and abstract reviewer, 2021; and AACR Annual Meeting 2022 Clinical Trials Committee Member and abstract reviewer.

Education

MD Hirosaki University, Japan
PhD Hirosaki University, Japan

Selected Recent Publications

Actionable Tumor Alterations and Treatment Protocol Enrollment of Pediatric and Young Adult Patients with Refractory Cancers in the National Cancer Institute-Children's Oncology Group Pediatric MATCH Trial. Parsons DW, Janeway KA, **Takebe N**, Seibel NL, Parsons DW, et al.; NCI-COG Pediatric MATCH Team.
J Clin Oncol. 2022 Mar 30: JCO2102838. PMID: 35353553

Trends in Grade 5 Toxicity and Response in Phase I Trials in Hematologic Malignancy: 20-Year Experience from the Cancer Therapy Evaluation Program at the National Cancer Institute. Chihara D, Huang EP, Flowers CR, **Takebe N**, et al.
J Clin Oncol. 2022 Jun 10;40(17):1949-1957. PMID: 35263120

Crizotinib in patients with tumors harboring ALK or ROS1 rearrangements: Results from the NCI-MATCH Trial (EAY131) sub-protocols F and G. Mansfield AS, Mehra R, **Takebe N**, Chen AP, Flaherty KT, et al.
NPJ Precision Oncol 2022;6:13 PMID: 35233056

Precision Oncology with Drugs Targeting the Replication Stress, ATR, and Schlafen 11. Jo U, Murai Y, **Takebe N**, Thomas A, Pommier, Y.
Cancers. 2021;13:4601-22 PMID: 34572827

Molecular Features of Cancers Exhibiting Exceptional Responses to Treatment. Wheeler DA, **Takebe N (Co-1st author)**, Ivy SP, Staudt LM, et al.
Cancer Cell 2021;39:38-57 PMID:33217343

Title: Genomics Determinants of Response of Tumor Immunogenicity

Luis Alberto Diaz, Jr., MD

Head of the Division of Solid Tumor Oncology; Grayer Family Chair, Memorial Sloan Kettering Cancer Center, USA

Speaker

Kiyohiko Hatake, MD, PhD

Sanno Medical Center, Japan

Chair/Moderator

Luis Alberto Diaz, Jr., MD

Research summary

My research focuses on applied cancer genetics. The more we learn about a tumor's makeup, the more precise targets and diagnostics we can create against it — including immunotherapy treatments, which harness the body's immune system to fight cancer. I am also very interested in how we can use cancer genetics to screen for, detect, diagnose, and monitor cancer by looking at DNA in tumor tissue and by using liquid biopsies.

Professional Experience/Awards

Dr. Diaz is a renowned medical oncologist and scientist who cares for patients at MSK with advanced colon cancer and pancreatic cancer. His research focuses on applied cancer genetics and identifying precise targets and diagnostics, with an added focus on immuno-oncology. Dr. Diaz helped spearhead the application of circulating tumor DNA as a cancer diagnostic and a strategy for monitoring the emergence of therapeutic resistance in the blood, and along with his colleagues, is developing a "molecular pap smear" to diagnose early-stage ovarian and endometrial cancer.

Prior to joining MSK, Dr. Diaz was a Professor of Medicine at John Hopkins. There, his team's research led to an FDA approval of an immunotherapy for cancers that share a genetic abnormality called mismatch repair (MMR) deficiency. This was the first time a therapy was approved based on a specific genetic profile rather than where a cancer originated.

In September 2021, President Biden appointed Dr. Diaz as one of seven advisors to the National Cancer Advisory Board (NCAB). He has also been the recipient of the American Academy for Cancer Research (AACR) Team Science Award in 2013, 2014, 2017 and was recently elected to the prestigious Fellows of AACR Academy class of 2022.

Education

MD University of Michigan, USA

Most Recent Publications

PD-1 Blockade in Mismatch Repair-Deficient, Locally Advanced Rectal Cancer. Cercek A, Lumish M, Schalper KA, **Diaz LA Jr**, et al. N Engl J Med. 2022 Jun 23;386(25):2363-2376. PMID: 35660797

Crossing survival curves of KEYNOTE-177 illustrate the rationale behind combining immune checkpoint inhibition with chemotherapy - Authors' reply.
André T, **Diaz LA Jr**, Shiu KK.
Lancet Oncol. 2022 Jun;23(6):e246. PMID: 35654063

Automated next-generation profiling of genomic alterations in human cancers. Keefer LA, White JR, **Diaz LA Jr**, Velculescu VE, Sausen M, et al. Nat Commun. 2022 May 20;13(1):2830. PMID: 35595835

Clinical validation of a next-generation sequencing-based multi-cancer early detection "liquid biopsy" blood test in over 1,000 dogs using an independent testing set: The CANcer Detection in Dogs (CANDiD) study. Flory A, Kruglyak KM, **Diaz LA Jr**, Chorny I, Tsui DWY, et al.
PLoS One. 2022 Apr 26;17(4):e0266623. PMID: 35471999

Pembrolizumab versus chemotherapy for microsatellite instability-high or mismatch repair-deficient metastatic colorectal cancer (KEYNOTE-177): final analysis of a randomised, open-label, phase 3 study. **Diaz LA Jr**, Shiu KK, Marinello P, Andre T, et al.; KEYNOTE-177 Investigators.
Lancet Oncol. 2022 May;23(5):659-670. PMID: 35427471

Title: Gene Fusions: Diagnosis and Therapy

Speaker

A. John Iafrate, MD, PhD

Deputy Chair of Pathology, Massachusetts General Hospital, USA
Professor of Pathology, Harvard Medical School,

Chair/Moderator

Kiyohiko Hatake, MD, PhD

Sanno Medical Center, Japan

A. John Iafrate, MD, PhD

Research summary

Dr. Iafrate's research is focused on lung and brain tumors, where he has been closely involved in the clinical development of crizotinib and companion diagnostics in ALK- and ROS1 positive lung cancers. His lab has developed several technologies for sequencing tumors, including SNaPshot and the next-generation sequencing-based Anchored Multiplex PCR, both techniques have been widely used in the molecular diagnostics community.

Professional Experience/Awards

Dr. Iafrate was trained in anatomic and molecular genetic pathology at Brigham and Women's Hospital. He joined the Massachusetts General Hospital staff in 2005. His post-doctoral work involved the discovery and description of a novel source of human genetic diversity, termed "copy number variation" (CNV). He established the Center for Integrated Diagnostics, a cancer diagnostics lab focusing on genetic fingerprints that help guide novel, targeted therapies. His lab launched "SNaPshot" the first multiplexed genotyping assay in 2008 in genotyping primary and recurrent tumors and has later implemented next generation sequencing technologies including the development of Anchored Multiplexed PCR (AMP), now a widely-used sequencing platform, and has launched clinical ctDNA platforms, nanopore sequencing, and multiplex FISH. He has

focused on gene fusions in cancer, including early clinical-pathologic papers describing ALK and ROS1 patient populations and the therapeutic approaches to tumors with such drivers.

Education

MD/PhD	2000	State University of New York at Stony Brook, USA/ Cold Spring Harbor Laboratories

Selected Recent Publications

Immunogenicity and Reactogenicity of SARS-CoV-2 Vaccines in Patients With Cancer: The CANVAX Cohort Study. Naranbhai V, Pernat CA, **Iafrate AJ**, Gainor JF, et al.
J Clin Oncol. 2022 Jan 1;40(1):12-23. PMID: 34752147

Comparative Immunogenicity and Effectiveness of mRNA-1273, BNT162b2, and Ad26.COV2.S COVID-19 Vaccines. Naranbhai V, Garcia-Beltran WF, Balazs AB, **Iafrate AJ**, et al.
J Infect Dis. 2022 Apr 1;225(7):1141-1150. PMID: 34888672

Mosaicism for Receptor Tyrosine Kinase Activation in a Glioblastoma Involving Both PDGFRA Amplification and NTRK2 Fusion. Shepherd DJ, Miller TE, Forst DA, Jones P, Nardi V, Martinez-Lage M, Stemmer-Rachamimov A, Gonzalez RG, **Iafrate AJ**, Ritterhouse LL: Oncologist 2021 Nov;26:919-924. PMID: 34041811

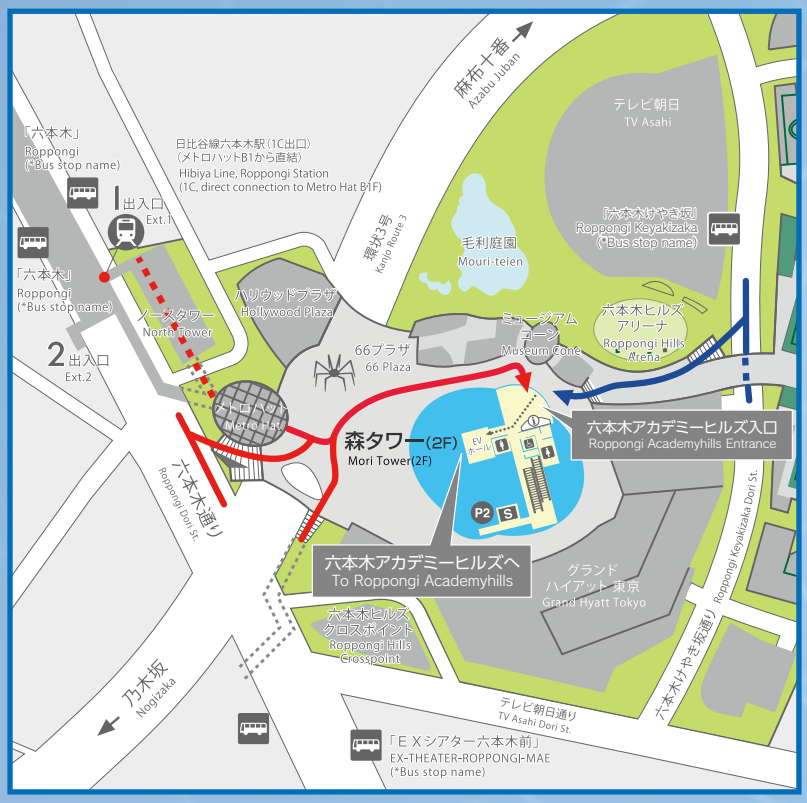
Nanopore Flongle Sequencing as a Rapid, Single-Specimen Clinical Test for Fusion Detection. Jeck WR, **Iafrate AJ**, Nardi V.
J Mol Diagn 2021 May;23(5):630-636. PMID: 33618057

Highly Multiplexed Fluorescence in Situ Hybridization for in Situ Genomics. Onozato ML, Yapp C, Lennerz JK, **Iafrate AJ**, et al.
J Mol Diagn. 2019 May;21(3):390-407. PMID: 30862547

Access Map

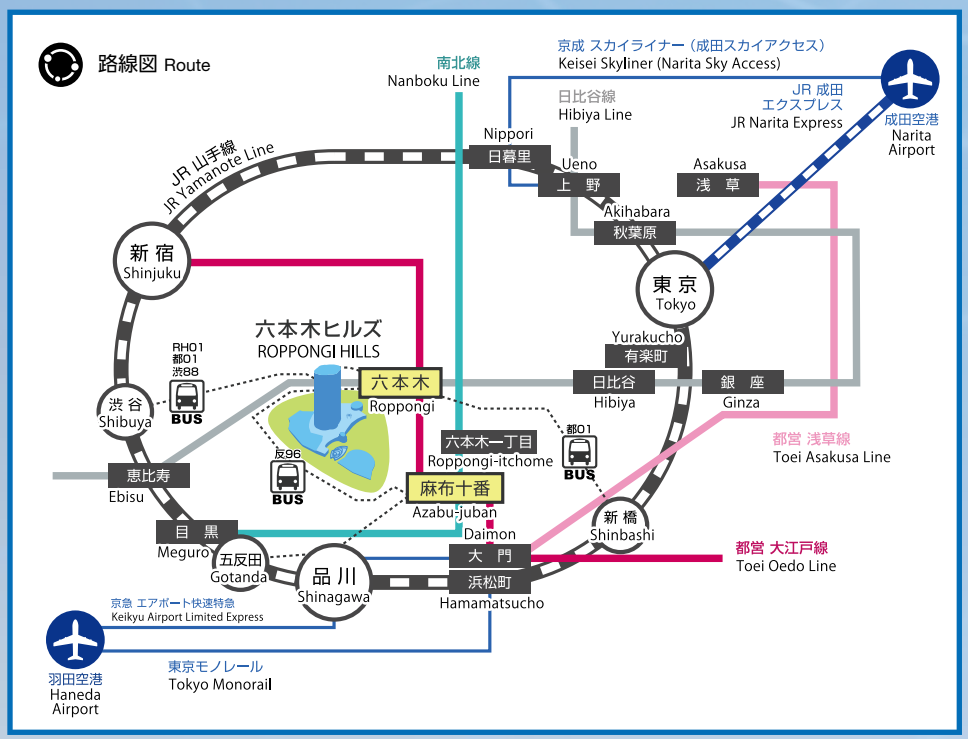
Place: Roppongi Academyhills

49F, Roppongi Hills Mori Tower, 6-10-1 Roppongi,
Minato-ku, Tokyo 106-6149



Subway:
Tokyo Metro Hibiya Line Roppongi Station / 3 min. walk from Exit 1C
(Direct link to concourse)

Toei Subway Oedo Line Roppongi Station / 6 min. walk from Exit 3



Chugai Foundation for Innovative Drug Discovery Science

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