This meeting marks the sixth Annual US Japan Workshop on Cancer Biomarkers. Presentations by Japanese colleagues will be organized throughout the 3 days for better integration. We want to foster an environment of collaboration between EDRN-NCI and Japan Agency for Medical Research and Development (AMED) funded investigators. Presentations by EDRN investigators will provide NCI Program Staff with updates on progress made by individual researchers and by the EDRN as a collaborative network.

**Monday, March 18, 2019**

**7:00 a.m. – 8:00 a.m.**
*Sign-in and Continental Breakfast*

*Pre Function Area*

**8:00 a.m. – 8:05 a.m.**
*Opening of Steering Committee Meeting and Approval of September 2018 EDRN Steering Committee Meeting Minutes*

Joshua LaBaer, M.D., Ph.D., Arizona State University/The Biodesign Institute

**8:05 a.m. – 8:10 a.m.**
*Welcome*

Scott Hiebert, Ph.D., Vanderbilt-Ingram Cancer Center

**8:10 a.m. – 8:25 a.m.**
*Charge to Participants: Strategic Priorities*

- EDRN – Sudhir Srivastava, Ph.D., M.P.H., National Cancer Institute
- AMED – Tetsuo Noda, M.D., Ph.D., Cancer Institute, Japanese Foundation for Cancer Research, Director

**8:25 a.m. – 9:15 a.m.**
*Session 1: Personalized Medicine in Companion Diagnostics*

Chair: Sudhir Srivastava, Ph.D., M.P.H., National Cancer Institute

**8:35 a.m. – 8:45 a.m.**
*Development of Circular RNAs as Cancer Biomarkers*

Arul Chinnaiyan, M.D., Ph.D., University of Michigan

**8:45 a.m. – 8:50 a.m.**
*Q&A*
Monday, March 18, 2019 (Continued)

Session 1: Personalized Medicine in Companion Diagnostics (Continued)

8:50 a.m. – 9:10 a.m.  Grand Ballroom  Analysis of Immunological Resistance to Anti-tumor Immunity
Yoshihiro Ohue, M.D., Ph.D., Division of Cancer Immunology, Exploratory Oncology Research & Clinical Trial Center, National Cancer Center, Laboratory Head

9:10 a.m. – 9:15 a.m.  Grand Ballroom  Q&A

9:15 a.m. – 10:05 a.m.  Grand Ballroom  Session 2: Genotype, Next Gen Sequencing, and Genomics
Chair: Sudhir Srivastava, Ph.D., M.P.H., National Cancer Institute

9:15 a.m. – 9:35 a.m.  The Integrative Genomics of Early Prostate Cancer
Paul Boutros, Ph.D., M.B.A., University of California Los Angeles

9:35 a.m. – 9:40 a.m.  Q&A

9:40 a.m. – 10:00 a.m.  Progression of Hepatocellular Carcinoma: from Early to Advanced Cancer
Hiroyuki Aburatani, M.D., Ph.D., The University of Tokyo, Research Center for Advanced Science and Technology, Professor

10:00 a.m. – 10:05 a.m.  Q&A

10:05 a.m. – 10:25 a.m.  Break

10:25 a.m. – 12:30 p.m.  Grand Ballroom  Session 3: Novel Technologies toward Developing Cancer Biomarkers
Chair: Paul Wagner, Ph.D., National Cancer Institute
Monday, March 18, 2019 (Continued)

Session 3: Novel Technologies toward Developing Cancer Biomarkers (Continued)

10:25 a.m. – 10:45 a.m. N-NOSE: 1st Screening Technology for Cancer Using Nematode Olfaction
Yohei Matsunaga, Ph.D., Hirotsu Bio Science, Inc., Head Research Fellow

10:45 a.m. – 10:50 a.m. Q&A

10:50 a.m. – 11:10 a.m. AI (Deep Learning) Cancer Diagnosis with Small Amount of Blood
Nobuyuki Ota, Ph.D., Preferred Medicine, Inc., Chief Executive Officer

11:10 a.m. – 11:15 a.m. Q&A

11:15 a.m. – 11:35 a.m. Using Machine-learning Assisted Histopathology (HistoMAP) to Enable Early Detection of Aggressive Prostate Cancer
Andries Zijlstra, Ph.D., Vanderbilt University Medical Center

11:35 a.m. – 11:40 a.m. Q&A

11:40 a.m. – 12:00 p.m. Measurement and Inference of Contextual Biomarkers
Ruedi Aebersold, Ph.D., Institute of Molecular Systems Biology, ETH Zurich

12:00 p.m. – 12:05 [p.m. Q&A

12:05 p.m. – 12:25 p.m. Improving Early Detection of Breast Cancer with Auto-anti-glycoprotein Antibodies
Joshua LaBaer, M.D., Ph.D., Arizona State University/The Biodesign Institute

12:25 p.m. – 12:30 p.m. Q&A
Monday, March 18, 2019 (Continued)

12:30 p.m. – 2:00 p.m. Lunch (On Your Own)

12:30 p.m. – 2:00 p.m. EDRN Executive Committee Meeting with Larry Norton, M.D., Chair of Network Consulting Team (Closed Session)

2:00 p.m. – 5:15 p.m. Session 4: Progress on Biomarkers for Selected Cancers
Chair: Paul Wagner, Ph.D., National Cancer Institute

2:00 p.m. – 2:20 p.m. Potential Usefulness of ApoA2 Isoforms for the Screening and Risk Stratification of Pancreatic Cancer
Kazufumi Honda, D.D.S., Ph.D., Department of Biomarkers for Cancer Early Detection, National Cancer Center Research Institute, Laboratory Head

2:20 p.m. – 2:25 p.m. Q&A

2:25 p.m. – 2:45 p.m. TBD
Wade Iams, M.D., Vanderbilt-Ingram Cancer Center, Vanderbilt University Medical Center

2:45 p.m. – 2:50 p.m. Q&A

2:50 p.m. – 3:10 p.m. The High Specificity Secondary Screening Biomarker for Prostate Cancer “PSA G-Index”
Koji Ueda, Ph.D., Japanese Foundation for Cancer Research, Cancer Precision Medicine Center, Project Leader

3:10 p.m. – 3:15 p.m. Q&A
Monday, March 18, 2019 (Continued)

Session 4: Progress on Biomarkers for Selected Cancers (Continued)

3:15 p.m. – 3:35 p.m.  
**Grand Ballroom**  
Blood Protein Biomarkers for Early Detection of Pancreatic Cancers  
Sumio Ohtsuki, Ph.D., Kumamoto University, Faculty of Life Sciences, Department of Pharmaceutical Microbiology, Professor

3:35 p.m. – 3:40 p.m.  
Q&A

3:40 p.m. – 4:00 p.m.  
**Break**

4:00 p.m. – 4:20 p.m.  
Colorectal/Eosophageal Cancer  
Robert Schoen, M.D., M.P.H., University of Pittsburgh

4:20 p.m. – 4:25 p.m.  
Q&A

4:25 p.m. – 4:45 p.m.  
Pancreatic Cancer  
Samir Hanash, M.D., Ph.D., The University of Texas MD Anderson Cancer Center

4:45 p.m. – 4:50 p.m.  
Q&A

4:50 p.m. – 5:10 p.m.  
Breast Cancer  
Karen Anderson, M.D., Ph.D., Arizona State University/The Biodesign Institute

5:10 p.m. – 5:15 p.m.  
Q&A

5:15 p.m. – 5:45 p.m.  
**Panel Discussion of Issues Raised During Previous Sessions**  
**Grand Ballroom**

- Tetsuo Noda, M.D., Ph.D., Cancer Institute, Japanese Foundation for Cancer Research, Director
- Sudhir Srivastava, Ph.D., M.P.H., National Cancer Institute
Monday, March 18, 2019 (Continued)

5:45 p.m. Adjourn for the Day

5:45 p.m. – 6:30 p.m. Executive Session (Closed)
Skyline Junior Ballroom
AMED, EDRN Program Staff and EDRN Leadership

Tuesday, March 19, 2019

7:00 a.m. – 8:00 a.m. Sign-in and Continental Breakfast
Pre Function Area

8:00 a.m. – 8:30 a.m. State of the EDRN
Grand Ballroom
Sudhir Srivastava, Ph.D., M.P.H., National Cancer Institute

8:30 a.m. – 9:20 a.m. Session 5: Guest Lectures
Grand Ballroom
Chair: Paul Wagner, Ph.D., National Cancer Institute

8:30 a.m. – 8:50 a.m. Integration of Multi-omics Data to Identify Biomarkers for Cancer Risk
Wei Zheng, M.D., Ph.D., Vanderbilt-Ingram Cancer Center

8:50 a.m. – 8:55 a.m. Q&A

8:55 a.m. – 9:15 a.m. Drug Target Discovery by Proteomics
Tesshi Yamada, M.D., Ph.D., National Cancer Center Research Institute, AMED Japan Cancer Research Project, Program Officer

9:15 a.m. – 9:20 a.m. Q&A

9:20 a.m. – 10:35 a.m. Session 6: Biospecimen Science: Collection, Availability and Accessibility
Grand Ballroom
Chair: Paul Wagner, Ph.D., National Cancer Institute
Tuesday, March 19, 2019 (Continued)

Session 6: Biospecimen Science: Collection, Availability and Accessibility (Continued)

9:20 a.m. – 9:40 a.m.  
Integration of Clinical Data and Repeated Imaging Measures for the Early Detection of Lung Cancer  
Yuankai Huo, Ph.D., Vanderbilt University Medical Center

Grand Ballroom

9:40 a.m. – 9:45 a.m.  
Q&A

9:45 a.m. – 10:05 a.m.  
Development of the Collaborative Research and Biobanks and Biobanking Network in Japan  
Tohru Masui, M.D., Ph.D., Keio University School of Medicine, AMED Genomic Medicine R&D Platform Utilization System, Program Officer

10:05 a.m. – 10:10 a.m.  
Q&A

10:10 a.m. – 10:30 a.m.  
Use Right Samples to Answer Right Questions - Lessons and Strategies  
Ziding Feng, Ph.D., Fred Hutchinson Research Cancer Center

10:30 a.m. – 10:35 a.m.  
Q&A

10:35 a.m. – 10:55 a.m.  
Break

10:55 a.m. – 12:35 p.m.  
Session 7: Update on Current Projects  
Chair: Paul Wagner, Ph.D., National Cancer Institute

10:55 a.m. – 11:10 a.m.  
Development of Combinatorial Biomarker(s) for Pancreatic Cancer Diagnosis and Prognosis  
Sukhwinder Kaur, Ph.D., University of Nebraska Medical Center

11:10 a.m. – 11:15 a.m.  
Q&A
Tuesday, March 19, 2019 (Continued)

Session 7: Update on Current Projects (Continued)

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<th>Time</th>
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| 11:15 a.m. – 11:30 a.m. | Quantitative Image Analyses for Breast Cancer Diagnosis and Risk Prediction  
                        | John Heine, Ph.D., H. Lee Moffitt Cancer Center and Research Institute, Inc. |
| 11:30 a.m. – 11:35 a.m. | Q&A                                                                     |
| 11:35 a.m. – 11:50 a.m. | Combining Biomarkers to Improve Early Lung Cancer Diagnosis              
                        | Eric Grogan, M.D., M.P.H., Vanderbilt-Ingram Cancer Center, Vanderbilt University Medical Center |
| 11:50 a.m. – 11:55 a.m. | Q&A                                                                     |
| 11:55 a.m. – 12:10 p.m. | Urine-derived Biomarkers from a Racially Diverse Cohort of Men Biopsied for Prostate Cancer  
                        | Indu Kohaar, Ph.D., Center for Prostate Disease Research, Uniformed Services University of the Health Sciences and the Walter Reed National Military Medical Center |
| 12:10 p.m. – 12:15 p.m. | Q&A                                                                     |
| 12:15 a.m. – 12:30 p.m. | Biomarkers for Ovarian Cancer Detection                                 
                        | Steven Skates, Ph.D., Massachusetts General Hospital                    |
| 12:30 a.m. – 12:35 p.m. | Q&A                                                                     |
| 12:35 p.m. – 2:00 p.m. | Lunch (On Your Own)                                                   |
**Tuesday, March 19, 2019 (Continued)**

12:35 p.m. – 2:00 p.m. **2019 EDRN Scientific Workshop Organizing Committee Meeting**  
*Skyline Junior Ballroom*

**Chair:** Arul Chinnaian, M.D., Ph.D., University of Michigan  
o Anirban Maitra, M.B.B.S., The University of Texas MD Anderson Cancer Center (by Phone)  
o Matthew Schabath, Ph.D., H. Lee Moffitt Cancer Center and Research Institute, Inc.  
o Marc Lenburg, Ph.D., Boston University  
o Robert Schoen, M.D., M.P.H., University of Pittsburgh  
o Amanda Paulovich, M.D., Ph.D., Fred Hutchinson Research Cancer Center  
o NCI Program Staff

2:00 p.m. – 5:40 p.m. **Session 8: Developing Deliverables and Regulatory Requirements (4 Concurrent Breakout Sessions)**  
*Grand Ballroom*

**Session Questions:**

1. What differentiates EDRN in this area from other programs nationally or internationally?

2. What are the most exciting things that will happen in biomarker cancer research over the next five years? Why so few biomarkers to validate?

3. Is EDRN well positioned to lead in these areas?

4. What is/are the biggest challenges EDRN faces to maintain or take on leadership in those areas?

5. If given unlimited resources, how would you/your group go about making the single biggest impact in early detection?

6. What models of collaboration will EDRN need to undertake to early detection cancer research and its delivery to the population?
Tuesday, March 19, 2019 (Continued)

Session 8: Developing Deliverables and Regulatory Requirements (Continued)

2:00 p.m. – 3:30 p.m. | Table 1: Investing in Fundamental Discovery
Gulch
Discussion Facilitators/Reporters:
- Karen Anderson, M.D., Ph.D., Arizona State University/The Bodesign Institute
- James Herman, M.D., University of Pittsburgh Cancer Institute

2:00 p.m. – 3:30 p.m. | Table 2: Leading the Science of Validation
Skyline Junior Ballroom
Discussion Facilitators/Reporters:
- Pierre Massion, M.D., Vanderbilt-Ingram Cancer Center, Vanderbilt University Medical Center
- Steven Skates, Ph.D., Massachusetts General Hospital

2:00 p.m. – 3:30 p.m. | Table 3: Enabling Screening Strategies
SOBRO
Discussion Facilitators/Reporters:
- Martin Sanda, M.D., Emory University
- Ziding Feng, Ph.D., Fred Hutchinson Cancer Research Center

2:00 p.m. – 3:30 p.m. | Table 4: Moving Discoveries to Diagnostic Tests
12-South
Discussion Facilitators/Reporters:
- Arul Chinnaiyan, M.D., Ph.D., University of Michigan
- Daniel Chan, Ph.D., Johns Hopkins University

3:30 p.m. – 3:50 p.m. | Break

3:50 p.m. – 5:40 p.m. | Reports from Session 8 Discussions
Grand Ballroom
(5-minute report plus 10-minute discussion for each group)

5:40 p.m. | Adjourn for the Day
Wednesday March 20, 2019

7:00 a.m. – 8:00 a.m.  Sign-in and Continental Breakfast
   Pre Function Area

8:00 a.m. – 12:00 p.m. Collaborative Group Meetings (By Invitation Only)

12-South       Breast and Gynecological Cancers
   o  Steven Skates, Ph.D., Massachusetts General Hospital
   o  Christopher Li, M.D., Ph.D., Fred Hutchinson Cancer Research Center
   o  Christos Patriotis, Ph.D., National Cancer Institute
   o  Sharmistha Ghosh-Janjigian, Ph.D., National Cancer Institute

Gulch           Gastrointestinal Cancers
   o  Brian Haab, Ph.D., Van Andel Research Institute
   o  Robert Schoen, M.D., M.P.H., University of Pittsburgh
   o  Matthew Young, Ph.D., National Cancer Institute

Skyline Junior Ballroom  Lung and Upper Aerodigestive Cancers
   o  Pierre Massion, M.D., Vanderbilt-Ingram Cancer Center, Vanderbilt University Medical Center
   o  James Herman, M.D., University of Pittsburgh Cancer Institute
   o  Lynn Sorbara, Ph.D., National Cancer Institute
   o  Karl Krueger, Ph.D., National Cancer Institute

SOBRO           Prostate and Urological Cancers
   o  O. John Semmes, Ph.D., Eastern Virginia Medical School
   o  Martin Sanda, M.D., Emory University
   o  Jacob Kagan, Ph.D., M.Sc., National Cancer Institute

12:00 p.m. – 1:00 p.m. Lunch (On Your Own)
Wednesday, March 20, 2019 (Continued)

1:00 p.m. – 2:00 p.m. **Reports from Collaborative Groups**

*Grand Ballroom*

1:00 p.m. – 1:15 p.m. **Breast and Gynecological Cancers**
- Steven Skates, Ph.D., Massachusetts General Hospital
- Christopher Li, M.D., Ph.D., Fred Hutchinson Cancer Research Center

1:15 p.m. – 1:30 p.m. **Gastrointestinal Cancers**
- Brian Haab, Ph.D., Van Andel Research Institute
- Robert Schoen, M.D., M.P.H., University of Pittsburgh

1:30 p.m. – 1:45 p.m. **Lung and Upper Aerodigestive Cancers**
- Pierre Massion, M.D., Vanderbilt-Ingram Cancer Center, Vanderbilt University Medical Center
- James Herman, M.D., University of Pittsburgh Cancer Institute

1:45 p.m. – 2:00 p.m. **Prostate and Urological Cancers**
- O. John Semmes, Ph.D., Eastern Virginia Medical School
- Martin Sanda, M.D., Emory University

2:00 p.m. – 2:10 p.m. **Final Remarks**
- Joshua LaBaer, M.D., Ph.D., Arizona State University/The Biodesign Institute
- Sudhir Srivastava, Ph.D., M.P.H., National Cancer Institute

2:10 p.m. **Adjourn**