Frontiers of Predictive Oncology and Computing III

** PRELIMINARY DRAFT MEETING OVERVIEW**

August 14-16, 2018

Intel Headquarters, Santa Clara, CA

Limited Capacity: Participation by Invitation Only

Anticipated Outcomes

- Active, broader connection between the predictive oncology community and oncologists. Greater understanding of oncologists' needs and challenges in delivering patient impact
- Identification of opportunities to 1) increase awareness of new findings and technologies and 2) engage clinicians, academia, government, and industry about promising advances in predictive oncology and computing
- Ongoing opportunities to actively connect and share ideas, findings, and progress throughout the year
- Meeting summaries and position papers to inform both public and private stakeholders on insights and lessons learned

History of the Frontiers of Predictive Oncology and Computing (FPOC) Meeting

The Frontiers of Predictive Oncology and Computing (FPOC) meetings are hosted by Intel Corporation in collaboration with Lawrence Livermore National Laboratory, a Department of Energy National Laboratory, the Frederick National Laboratory for Cancer Research, and the National Cancer Institute. FPOC is an annual event whose origins are tied to the Biological Applications of Advanced Strategic Computing (BAASIC) program initiated in 2015 by the Department of Energy's (DOE) Lawrence Livermore National Laboratory.

The BAASIC program is itself a component of DOE's Computational Predictive Biology program and focuses on exploring the opportunities and challenges involved in bringing together advanced computing and the life sciences. The goal of this synthesis is to apply the power of extreme computing, big-data analysis, and the explosion of knowledge in life sciences to make possible predictive simulations of human biology and, within that framework, transform the promise of predictive oncology into a reality guiding the clinical care of cancer patients. Realizing this goal requires the creation of a new generation of simulation tools and analytical approaches that can address research challenges of unprecedented complexity.

The FPOC meetings offer a unique opportunity for thought leaders from leading public and private-sector organizations to meet and share ideas and new approaches to predictive oncology and computing. Through a series of presentations, interactive sessions, and informal discussions, the participants engage in a multidisciplinary exploration of critical issues, challenges, and opportunities for accelerating the broader impact—and patient benefit—from both computing technology and predictive oncology.

The **first Frontiers of Predictive Oncology and Computing (FPOC) meeting was held in July 2016 in Washington, DC.** At this meeting over 100 thought leaders from industry, government and academia converged to share insights, knowledge, and a vision for the future of computationally predictive oncology. Intel Corporation compiled the summary report for this meeting, which is available online at this link.

The theme of the **second Frontiers of Predictive Oncology and Computing meeting (FPOC II), held in October 2017 in New York City, was "computational pathology."** Discussions at FPOC II focused on the broader application of technology, computation, and domain expertise to understand and describe the specifics of cancer as a disease. The FPOC II meeting overview and agenda are available online at this link.

Topics at both meetings included emerging avenues for patient impact, the use of advanced computing technologies, access and aggregation of data, and frontiers of describing, probing and measuring the disease in its many forms and stages.

Overview of the 2018 Meeting

Now in its third year, the **2018 Frontiers of Predictive Oncology and Computing meeting (FPOC III)** will highlight the **disruptions and innovations** that will **support and enhance clinicians' and oncologists' point-of-care decisions for cancer patients**. By incorporating a critical view of key factors involved in reaching the cancer patient and the physician, the 2018 meeting will explore and integrate new ideas for predictive oncology to deliver the maximum patient impact.

In broad themes, the meeting will emphasize the following primary topics:

2018 Planned Themes

Patient First Opportunities: Bedside to Bench to Bedside – This session highlights research and innovations that focus first and foremost on impact to cancer patients. The session will include useful perspectives on new opportunities and developing ideas in predictive oncology and computing that start first from the bedside—then to the bench—and back to the bedside.

Broader Perspectives: Beyond Oncology and Borders – This session focuses on how insights learned from efforts to advance predictive capabilities in other diseases can be leveraged to identify and refine opportunities to advance the frontiers of predictive oncology and computing. This session will provide insight on innovative research approaches in the United States and across the globe. The session also includes perspectives involving both traditional and non-traditional research settings in industry, academia, and government.

Closing the Gap Between Research and Clinic – To accelerate new advances in patient impact, there is an ever-present need to build bridges across disciplines, communities, and interests. This session will focus on identifying and closing gaps in key areas, including technology, education, regulation, social acceptance, and workforce capabilities that may limit the adoption of advances in predictive oncology and computing.

Disruptions and Innovations: Advancing the Frontier and Looking Ahead – This session focuses on technological, social, and economic innovations and disruptions on the horizon that affect the frontiers of predictive oncology and computing. These disruptions and innovations include the broad use of technology, data driven models, artificial intelligence, computing, persistent health monitoring, and other factors that have the potential to disrupt how cancer care is delivered—and patient impact is achieved—in the future.

PRELIMINARY DRAFT AGENDA

Frontiers of Predictive Oncology and Computing III

August 14-16, 2018

Intel Museum - RNB Auditorium
2200 Mission College Boulevard
Santa Clara, CA 95054

Day One – Tuesday, August 14, 2018

8:00 AM **Arrival and check-in** at the Intel Museum, RNB Auditorium to receive badge
Registration and continental breakfast

9:00 AM **Welcome & Introductory Remarks**

Claudine Conway
Director, Public Sector Health Life Science, Intel

Emily Greenspan, PhD
Program Director, Center for Biomedical Informatics and Information Technology (CBIIT), National Cancer Institute (NCI)

Amy Gryshuk, PhD
Director, Strategic Engagements & Alliance Management, Physical & Life Sciences (PLS) Directorate, Lawrence Livermore National Laboratory (LLNL)

Eric Stahlberg, PhD
Director, Strategic and Data Science Initiatives, Data Science and Information Technology Program, Frederick National Laboratory for Cancer Research (FNLCR)

9:30 AM **Day 1 Keynote – Healthcare Meets High Performance Computing**

Patricia Damkroger
Vice President, General Manager, Extreme Computing, Data Center Group, Intel Corporation

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10:15 AM ***Break - networking***

10:30 AM **Session - Patient First Opportunities: From Bedside to Bench to Bedside**

Moderator: **Rachael Calcutt, MD, MSPH**
Associate Professor of Surgery Trauma, Critical Care & General Surgery,
Zuckerberg San Francisco General Hospital, University of California San Francisco (UCSF)
Director of Data Science, UCSF Center for Digital Health
Program Director, UCSF SmarterHealth Artificial Intelligence Initiative

Eric Collisson, MD
Associate Professor, School of Medicine, University of California San Francisco (UCSF)

Dwight Nissley, PhD
Director, Cancer Research Technology Program, Frederick National Laboratory for Cancer Research (FNLCR)

Mari Nygård, MD, PhD
Senior Medical Officer, Cancer Registry of Norway

12:00 PM *Lunch*

1:00 PM **Open Discussion – Goals and Desired Outcomes for FPOC**

Facilitators: **Marissa Powers, PhD**
Solutions Architect, Intel Corporation

Emily Greenspan, PhD
Program Director, Center for Biomedical Informatics and Information Technology (CBIIT), National Cancer Institute (NCI)

2:00 PM **Session – Patient Perspective**
(*Providing Perspectives from Clinicians, Oncologists, Patients/Patient Advocates*)

Sudheer Doss, PhD
Chief Data Officer, Pancreatic Cancer Action Network (PanCAN)

Elizabeth Lacasia
Author and Editor, LungPedia

Bryce Olson
Global Strategist, Health and Life Sciences, Intel Corporation

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3:30 PM *Break - networking*

4:00 PM **Panel Session – Adopting Disruptive Capabilities**

Moderator: **Scott Hammond, MD**
*Strategic Director Outlier Initiative/**S**marter**Heal**th*
CDHI Expert in Residence, University of California San Francisco (UCSF)

Timothy Andrews, MS
Vice President, Civilian Services Chief Technology Officer, Booz Allen Hamilton

Stefan Kirsch, PhD
Group Leader, Fraunhofer Institute for Toxicology and Experimental Medicine

Martin Kohn, MD
Independent Consultant – Clinical Informatics, Health Policy

Hongye Sun, PhD
Chief Technology Officer, Head of China, WuXi NextCODE

5:00 PM **Adjourn – Social Networking Opportunity**

Social Event

5:30 PM ***Light hors d'oeuvres and beverages will be served at the Intel Museum***

Day Two – Wednesday, August 15, 2018

8:00 AM **Arrival and check-in** at the Intel Museum, RNB Auditorium to receive badge
Registration and continental breakfast

8:50 AM **Welcome & Recap**

Claudine Conway
Director, Public Sector Health Life Science, Intel

Emily Greenspan, PhD
Program Director, Center for Biomedical Informatics and Information Technology (CBIIT), National Cancer Institute (NCI)

Amy Gryshuk, PhD
Director, Strategic Engagements & Alliance Management, Physical & Life Sciences (PLS) Directorate, Lawrence Livermore National Laboratory (LLNL)

Eric Stahlberg, PhD
Director, Strategic and Data Science Initiatives, Data Science and Information Technology Program, Frederick National Laboratory for Cancer Research (FNLCR)

9:00 AM **Updates and New Developments Since FPOC II**

Moderator: Eric Stahlberg, PhD
Director, Strategic and Data Science Initiatives, Data Science and Information Technology Program, Frederick National Laboratory for Cancer Research (FNLCR)

John Baldoni, PhD
Senior Vice President of Platform Technology and Science, GlaxoSmithKline

Jim Brase
Deputy Associate Director, Computation, Lawrence Livermore National Laboratory

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10:00 AM ***Break - networking***

10:30 AM **Panel Session – Closing the Gap Between Research and the Clinic: Reaching the Patient with Advances in Predictive Oncology and Computing**

Moderator: Michael Liebman, PhD
Founder, IPQ Analytics

Yvonne Evrard, PhD
Operations Manager, National Cancer Institute (NCI), Patient-Derived Models Repository, Frederick National Laboratory for Cancer Research (FNLCR)

Daniel L. Rubin, MD, MS
Associate Professor of Biomedical Data Science, Radiology, Medicine (Biomedical Informatics Research), and Ophthalmology (courtesy) at Stanford University. Principal Investigator of two centers in the National Cancer Institute's Quantitative Imaging Network (QIN)

Wade Schulz, MD, PhD
Clinical Fellow; Transfusion Medicine Fellow, Department of Laboratory Medicine; Senior Solution Architect, Helix Data Sciences, Yale-New Haven Health

Andrew Ury, MD
Chief Executive Officer, ActX

12:00 PM *Lunch*

1:00 PM **Keynote – Disruptions and Innovations in Predictive Oncology and Computing**

Rick Stevens
Associate Laboratory Director, Argonne National Laboratory (ANL)
Principal Investigator, CANcer Distributed Learning Environment Exascale Computing Project

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2:00 PM *Break - networking*

2:30 PM **Panel Session – Leveraging AI, Cognitive Learning, and Persistent Health Monitoring for Patient Impact**

Moderator: Melvin Greer
Chief Data Scientist, Americas, Intel

Tanmoy Bhattacharya, PhD
External Professor and Scientist, Los Alamos National Laboratory (LANL)

Benjamin Loop, MBA
Vice President and Head of Medical Technology and Services, North America, Merck/EMD Serono

Don Rucker, MD
National Coordinator for Health Information Technology, Office of the National Coordinator

Rick Stevens

Associate Laboratory Director, Argonne National Laboratory (ANL)
Principal Investigator, CANcer Distributed Learning Environment Exascale Computing Project

Fred Streitz, PhD
Chief Computational Scientist, Physical and Life Sciences Directorate,
Director, High Performance Computing Innovation Center (HPCIC), Lawrence Livermore National Laboratory (LLNL)

Georgia Tourassi, PhD
Director, Health Data Sciences Institute, Oak Ridge National Laboratory (ORNL)

3:30 PM **Breakout Sessions**

	Session Name
Session I	Blending Research and Clinical Practice to Enable More Effective Research
Session II	Building Community Support for the Use of AI in Biomedical Applications
Session III	Technology Sharing: Who Solved My Problem? Whose Problem Have I Solved?

5:00 PM **Adjourn**

Social Event

7:00 PM **Meeting Dinner**

Day Three – Thursday, August 16, 2018

8:00 AM **Arrival and check-in** at the Intel Museum, RNB Auditorium to receive badge
Registration and continental breakfast

9:00 AM **Welcome & Recap**

Claudine Conway
Director, Public Sector Health Life Science, Intel

Emily Greenspan, PhD
Program Director, Center for Biomedical Informatics and Information Technology (CBIIT), National Cancer Institute (NCI)

Amy Gryshuk, PhD
Director, Strategic Engagements & Alliance Management, Physical & Life Sciences (PLS) Directorate, Lawrence Livermore National Laboratory (LLNL)

Eric Stahlberg, PhD
Director, Strategic and Data Science Initiatives, Data Science and Information Technology Program, Frederick National Laboratory for Cancer Research (FNLCR)

9:15 AM **Individual Breakout Session Conclusion and Preparation**

10:30 AM ***Break – networking***

11:00 AM **Facilitated Discussion on Breakouts**

12:00 PM **Next Steps and Meeting Wrap-up**

12:30 PM **Meeting Adjournment**