Register by 21 February SAVE up to €300

19-21 May 2020 | Lisbon, Portugal | Marriott Hotel Lisbon

PART I

Enabling Technologies for Liquid Biopsy and Beyond

PART II

Enabling Technologies for Liquid Biopsy and Beyond

PART OF

8th Annual

Diagnostics Innovation Summit

Developing Rapid Tests and Liquid Biopsies

Formerly the Molecular Diagnostics Europe Event

Selected Keynote Presentations

How Can a Network Enable Liquid Biopsy Introduction into the Clinic on a Large Scale?

Klaus Pantel, MD, Professor, Chairman, Institute of Tumor Biology, University Medical Center Hamburg-Eppendorf, Germany

Donor-Derived Cell-Free DNA Testing Organ Transplantation: A Value Proposition

Michael Oellerich, MD, Hon MD, FAACC, FAMM, FFPath (RCPI), FRCPath, Distinguished Research Professor, Clinical Pharmacology, University Medical Center Goettingen (UMG), Germany

Detection of Cell-Free Circulating BRAFV600E by Droplet Digital PCR in Patients with Melanocytic Cutaneous Lesions: Considerations for the Clinical Implementation

Joan Anton Puig-Butille, Head, Molecular Biology CORE/PhD, Molecular Biology CORE, Hospital Clinic of Barcelona, Spain

EVENT FEATURES

- Over 80 Presentations
- 6 Keynote Presentations
- Latest Tools and Applications for Liquid Biopsy, Infectious Diseases and Point-of-Care Products
- Dedicated Networking and Exhibit Hours

SHORT COURSES

Technologies, Applications and Commercialisation of Point-of-Care Diagnostics

Biomarkers in Liquid Biopsy: CTCs, ctDNA and Exosomes

DxInnovationSummit.com

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Sponsor Opportunities

COMPREHENSIVE SPONSORSHIP packages allow you to achieve your objectives before, during, and long after the event. Signing on earlier will allow you to maximize exposure to hard-to-reach decision-makers.

PODIUM PRESENTATIONS

Available Within the Main Agenda!

Showcase your solutions to a guaranteed, targeted audience through a 15- or 30-minute presentation during a specific conference program, breakfast, lunch, or separate from the main agenda within a pre-conference workshop. Package includes exhibit space, onsite branding, and access to cooperative marketing efforts by CHI. For the luncheon option, lunches are delivered to attendees who are already seated in the main session room. Presentations will sell out quickly, so sign on early to secure your talk!

ONE-ON-ONE MEETINGS

Select your top prospects from the pre-conference registration list. CHI will reach out to your prospects and arrange the meeting for you. A minimum number of meetings will be guaranteed, depending on your marketing objectives and needs. A very limited number of these packages will be sold.

INVITATION-ONLY VIP DINNER

Select specific delegates from the pre-registration list to attend a private function at an upscale restaurant or a reception at the hotel. From extending invitations, to venue to suggestions, CHI will deliver your prospects and help you make the most of this invaluable experience.

ADDITIONAL BRANDING & PROMOTIONAL OPPORTUNITIES INCLUDE:

- Conference Tote Bags
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LOOKING FOR ADDITIONAL WAYS TO DRIVE LEADS TO YOUR SALES TEAM?

CHI's Lead Generation Programs will help you obtain more targeted, quality leads throughout the year. We will mine our database of 800,000+ life science professionals to your specific needs. We guarantee a minimum of 100 leads per program! Opportunities include:

- Live Webinars
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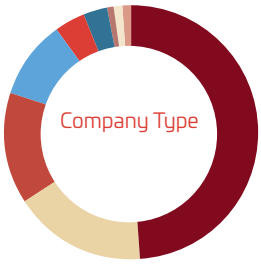
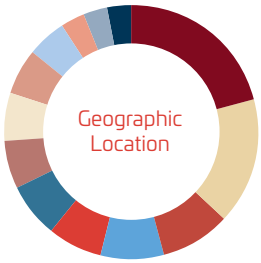
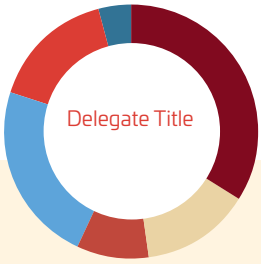
2019 Attendee Demographics



IVD & Pharma	49%
Academic Labs	17%
Healthcare Provider	14%
Healthcare	10%
Government	4%
Services	3%
Financial	1%
Societies	1%
Other	1%



USA + Canada	21%
Germany	16%
United Kingdom	9%
The Netherlands	8%
Rest of Europe	7%
Asia	7%
Switzerland	6%
France	6%
Rest of World	6%
Belgium	5%
Italy	3%
Portugal	3%
Denmark	3%



Executive & Director	34%
Manager	14%
Professor	9%
Scientist/Technologist	23%
Sale & Marketing	16%
Assistant	4%

For more information, please contact:

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Afternoon Short Courses*

*Separate registration required

MONDAY, 18 MAY 2020 | 14:00-17:00

SC1: Technologies, Applications and Commercialisation of Point-of-Care Diagnostics

This short course will provide an overview on the technological aspects of POC system developments. It will introduce current technologies such as microfluidics, sensors, paper- and smartphone-based approaches and discuss their trends and limitations. The course will discuss a variety of POC systems in different stages of their development, from early stage to established diagnostic systems in the clinical routine. Market aspects of POC systems as well as practical examples of commercialization for molecular diagnostic, immunological and clinical tests will be presented.

Instructor:

Holger Becker, PhD, Founder & CSO, microfluidic ChipShop GmbH, Germany

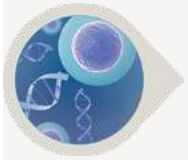
SC2: Biomarkers in Liquid Biopsy: CTCs, ctDNA and Exosomes

Biomarkers for early disease detection, therapeutic efficacy monitoring and outcome prediction are the key to precision medicine. Liquid biopsy studies disease biomarkers in body fluids and can be paramount for precision medicine in cancer. The analysis of biomarkers in peripheral blood improves cancer diagnosis and treatment success. This course will give you a comprehensive overview and update on the established biomarkers, available technologies and clinical applications of liquid biopsy.

Instructors:

Lorena Diéguez, PhD, Group Leader, Department of Life Sciences, Nano4Health Unit, Medical Devices Research Group, International Iberian Nanotechnology Laboratory, Portugal

Roberto Piñeiro Cid, PhD, Cancer Modeling Lab, Instituto de Investigación Sanitaria de Santiago de Compostela, Roche-Chus Joint Unit, Spain



Cambridge Healthtech Institute's 7th Annual

19-21 MAY 2020

Enabling Technologies for Liquid Biopsy and Beyond - Part I

Developing Novel Assays for Circulating Biomarkers and Clinical Use

MONDAY 18 MAY

Recommended Short Course*

SC2: Biomarkers in Liquid Biopsy: CTCs, ctDNA and Exosomes

Separate Registration required. See page 3 for details.

TUESDAY 19 MAY

THE IMPORTANCE OF BIG DATA IN LIQUID BIOPSY

08:00 Registration and Morning Coffee

08:55 Organizer's Opening Remarks

Kaitlin Searfoss Kelleher, Senior Conference Director, Cambridge Healthtech Institute

09:00 Chairperson's Remarks

Michael Oellerich, MD, Hon MD, FAACC, FAMM, FFPath (RCPI), FRCPath, Distinguished Research Professor, Clinical Pharmacology, University Medical Center Goettingen (UMG), Germany

09:05 The First WHO International Standards for Circulating Tumour DNA: Towards Global Harmonisation of Liquid Biopsy Measurement

Angela Pia Sanzone, PhD, Blood Biomarkers Group Leader, Advanced Therapies Division, National Institute for Biological Standards and Control (NIBSC), Italy

The adoption of ctDNA measurement into routine clinical practice would be strengthened by the availability of internationally recognized reference standards, enabling harmonised reporting in diagnostics and patient monitoring. NIBSC (UK) is developing WHO International Standards for ctDNA, initially for EGFR variants, intended to be maximally commutable, and complementing in parallel-developed genomic DNA standards for direct solid tumour diagnostics, thus facilitating accurate, consistent measurement of cancer biomarkers in liquid biopsy.

UPDATES IN LIQUID BIOPSY TECHNOLOGIES

09:35 Fragmentomics as Novel Strategy to Characterize Circulating DNA: Application to Cancer Screening

Alain Thierry, PhD, Director of Research, Biomarkers for Precision Oncology, IRCM/INSERM, France

Most of nuclear circulating DNA (cirDNA) is highly fragmented upon chromatin organization and protection/packaging within mononucleosomes, as the lowest unit and the most stabilized structure in the blood stream. Size pattern characterization or fragmentomics is related to the nucleosomal packing of DNA and the interaction with histone proteins. Fragmentomics may determine tissue-of-origin, and as well classify fetal and cancer derived cirDNA vs healthy individuals. This confirmed our earlier hypothesis that fragmentomics is a strategy to characterize cancer individuals appearing as an alternative or a synergistic supplement to searching mutations, methylation or nucleosome positioning to further improve diagnostics and cancer screening.

10:05 Presentation to be Announced

Sponsored by STILLA

10:20 Sponsored Presentation *(Opportunity Available)*

10:35 Grand Opening Coffee Break in the Exhibit Hall with Poster Viewing

UPDATES IN LIQUID BIOPSY TECHNOLOGIES

11:15 Enabling Technologies for Low-Cost and Efficient Targeted Re-Sequencing for Liquid Biopsy Applications

G. Mike Makrigiorgos, PhD, Professor, Radiation Oncology, Dana-Farber Cancer Institute and Harvard Medical School, United States

As the potential of liquid biopsies for prognostic, predictive or early cancer detection applications grows, so does the demand for technical advances to accompany the burgeoning range of applications. We present new developments that enable targeted re-sequencing for liquid biopsy applications at a fraction of the current cost, while retaining or increasing sensitivity and specificity. Examples for detecting low-level mutations in circulating DNA will be presented.

11:45 Detection of Point Mutations in Liquid and Tissue Biopsy Using an Acoustic Wave Array Platform

Nikoletta Naoumi, MSc, PhD Student, IMBB-FORTH, Greece

The project concerns the development of a novel ultra-sensitive diagnostic method for the detection of single-copy point mutations in circulating and

genomic tumor DNA for liquid and tissue biopsy, respectively. The approach involves the use of a highly sensitive and specific allele-specific PCR assay combined for the first time with an acoustic biosensor. The work is part of the CATCH-U-DNA EU-funded Horizon2020 FET-OPEN project.

12:15 New Markers to Highlight Circulating Tumor DNA for Colon Cancer Patient Follow-Up

Geoffrey Poulet, PhD Student, Valerie Taly's Lab, Translational Research and Microfluidics, Eurofins-BIOMNIS, France

Recent technological developments including droplet-based digital PCR and optimized NGS have greatly facilitated the tracking of circulating cell-free nucleic acids in body effluents. Strategies dedicated to the detection of circulating tumor DNA based on multiple innovative markers, such as DNA hypermethylation or DNA integrity, will be presented. In particular, we will illustrate the pertinence of these approaches for the follow-up of patients with localized or advanced colorectal cancers.

12:45 Nu.QTM Complete – Comprehensive Nucleosome Profiling

Sponsored by Volition

Mark Eccleston, PhD, MBA, Director, Business Development, Volition, Belgium

Volition is utilising epigenetic profiling of cell-free, circulating nucleosomes using simple Nu.Q immunoassays to develop blood tests for early detection of a range of cancers. We now present a broader analytical approach, employing immuno-capture, mass spectrometry, immunoassay and sequencing of constituent DNA to allow comprehensive analysis of circulating nucleosomes of tumor origin.

13:15 LUNCHEON PRESENTATION: Advances in CTC Isolation and Characterisation Using the Epitope-Independent Parsortix System

Sponsored by ANGLE

Anne-Sophie Pailhes-Jimenez, R&D Group Leader, Cell Biology and Imaging – R&D, ANGLE plc, United Kingdom

Circulating tumor cells (CTCs) can provide access to protein and genetic information on patient cancer through a simple blood draw. The enumeration of CTCs has shown prognostic relevance in several cancer types. The Parsortix system allows epitope-independent capture and harvest of CTCs from blood for analysis. We developed a robust workflow allowing for epithelial and mesenchymal CTC identification and characterisation from cancer patient samples using immunofluorescence. The presented workflow would provide a complete and standardised sample-to-answer imaging solution, from blood separation to images of CTCs.

13:45 Session Break

LIQUID BIOPSY FOR INFECTIOUS DISEASE

14:15 Chairperson's Remarks

Clare Morris, BSc, Principal Scientist, Division of Infectious Disease Diagnostics, National Institute for Biological Standards and Control, United Kingdom

14:20 FEATURED PRESENTATION: A Universal Cancer Assay With Applications in Infectious Disease: Are We There Yet?

Matt Trau, PhD, Deputy Director and Co-Founder, Australian Institute for, Bioengineering and Nanotechnology; Professor, Chemistry, University of Queensland, Australia

The Centre for Personalised Nanomedicine at UQ is focused on translating nanotechnologies into a clinical setting, whilst developing the next generation of point-of-care diagnostic technologies to further empower the personalised and precision medicine approach. Our consortium recently published hundreds of epigenetic regions that are highly informative in cancer, as well as a unique epigenetic marker that appears to be universal for cancer. In this talk we will present data on the clinical translation of this approach, highlighting some of the positive impacts that such an approach can make. Along with comprehensive DNA/RNA/methylated-DNA sequencing methodologies, several point-of-care nanotechnologies recently developed by our lab will be presented.

14:45 Liquid Biopsy for Neuroinvasive Arbovirus Diseases

François Jean, PhD, Associate Professor, Microbiology and Immunology, University of British Columbia; Team Leader, NSERC CRD Grant in 3-D Brain Organoid Models of Arboviral Diseases; Co-Founder, Canadian Network of Scientific Platforms, Canada

Arboviruses (arthropod-borne viruses), such as Zika virus (ZIKV), are responsible for a significant health burden worldwide. ZIKV is now the second-most widely distributed arbovirus in the Americas. ZIKV infections produce different neurologic complications in different individuals which are difficult to diagnose virologically. Dr. Jean will present the development of "liquid biopsy" for ZIKV-associated neurological diseases. With the recent discovery of circulating extracellular vesicles (EVs) and their important cellular functions in arboviral infections and diseases, Dr. Jean's team hypothesizes that brain-derived (BD) EVs released during viral infection represent unexplored treasure troves of potential host-biomarkers for neuroinvasive arboviral diseases. For proof-of-concept, Dr. Jean will report the molecular and biophysical characterization of BD EVs released from ZIKV-infected human cerebral organoids and discuss the impact of their findings for developing next-generation molecular diagnostics technology for neuroinvasive arbovirus infection.

15:10 How Good Is Your Assay and Can You Prove It?

Clare Morris, BSc, Principal Scientist, Division of Infectious Disease Diagnostics, National Institute for Biological Standards and Control, United Kingdom

Consistent and effective clinical management of diseases requires comparable data generated by diagnostic assays. With each advancement of technology, we see new challenges, especially in the field of molecular assays. Whilst many laboratories acknowledge the need for validated assays and calibrated controls, there is great variation in methods to determine assay accuracy. Thus, even though a standard may exist, it serves little function if not used correctly. This presentation will address the application of these types of reference materials linked to a primary physical reference. "The International Standard", wherever possible, can provide assurance of the quality of the data and, in turn, support improved clinical management of patients.

15:30 Development of Proteomic Signatures for Use in Precision Medicine

Anthony Whetton, PhD, Director, Stoller Biomarker Discovery Centre, University of Manchester, United Kingdom

Precision medicine is a key objective in improving healthcare. The use of innovations in MS-based technologies offers high-capacity throughput proteomic profiling for clinical biochemistry purposes, as has been achieved at the Stoller Biomarker Discovery Centre. For example, markers of risk in ovarian cancer and response to therapy in schizophrenia have been investigated using a Data Independent Acquisition (DIA) mass spectrometry approach, among other uses. Combined with validation platforms, this approach offers a quicker route to mechanistic detail/drug targets, plus biomarkers for risk and stratification. New approaches to biomarker discovery are also coming to the fore using artificial intelligence approaches.

15:50 Lyophilization Solutions for Assay Developers

Sponsored by ThermoFisher SCIENTIFIC

Peter Holden, PhD, Senior Business Development Manager, Licensing and Commercial Supply, Thermo Fisher Scientific, United States

Lyophilization has become increasingly popular among assay developers because it offers advantages in terms of ease of use, shelf life, and ambient temperature shipping and storage. Now, Thermo Fisher Scientific can provide your assay to you in a lyophilized format, ready to ship to your customers. Learn about how you can streamline your supply chain by partnering with us on assay development and manufacturing.

16:20 Refreshment Break in the Exhibit Hall with Poster Viewing

17:00 Breakout Discussions *(Visit www.dxinnovationsummit.com/Breakout-Discussions for details)*

18:00 Welcome Reception in the Exhibit Hall with Poster Viewing

19:00 Close of Day

WEDNESDAY 20 MAY

BEYOND BLOOD-BASED ASSAYS: UTILIZING OTHER BIOFLUIDS

08:00 Registration and Morning Coffee

09:00 Chairperson's Remarks

Lorena Diéguez, PhD, Research Group Leader, Medical Devices Research Group, Nano4Health Unit, Life Sciences Department, INL-International Iberian Nanotechnology Laboratory, Portugal

09:05 Optofluidic Systems for High-Throughput Analysis of Cancer Material in Body Fluids: Towards Personalized Medicine

Lorena Diéguez, PhD, Research Group Leader, Medical Devices Research Group, Nano4Health Unit, Life Sciences Department, INL-International Iberian Nanotechnology Laboratory, Portugal

Microfluidics is a powerful tool to control fluids at the microscale. Plasmonics and surface-enhanced Raman scattering spectroscopy can be used for highly sensitive molecule detection. Together, with microfluidics and plasmonics, we can build new technologies for precise isolation of tumor material from body fluids and multiplex biomarker analysis.

09:35 Saliva, Exosomes and Type 2 Diabetes Diagnostics

Christa Noehammer, PhD, Senior Scientist, Molecular Diagnostics, AIT Austrian Institute of Technology GmbH, Austria

Saliva is a readily and, even within short time intervals, repeatedly available body fluid, which can be obtained via non-invasive, painless collection.
The Molecular Diagnostics research group at the AIT Austrian Institute of Technology has proven the suitability for circulating biomarker-based saliva diagnostics in a variety of proof-of-concept studies, including DNA-methylation-, miRNA-, protein- and autoantibody-based biomarkers. In the present talk, we will report on results of a research project where we have been looking for salivary and plasma exosome-derived epigenetic biomarkers for early type 2 diabetes diagnosis.

10:05 Identification of Treatment Resistance in Metastatic Prostate Cancer Patients by Leveraging Sequential Plasma Sample Analysis

Daniel Wetterskog, PhD, Senior Research Associate, UCL Cancer Institute, University College London, United Kingdom

The Treatment Resistance Team at the UCL Cancer Institute has been using plasma to interrogate treatment resistance in castration-resistant prostate cancer (CRPC) and develop biomarkers for selecting treatment. Using targeted next-generation sequencing and droplet digital PCR on cfDNA from sequential plasma samples, we have identified markers of response to abiraterone, enzalutamide and chemotherapies. In the presentation, I will discuss our latest findings and ongoing treatment resistance studies.

10:35 Droplet Digital PCR for Higher Precision in Molecular Testing

Sponsored by BIO-RAD

Marco Bianchi, PhD, Product Manager, Life Sciences, Bio-Rad Laboratories

With the third generation of ddPCR technology and a comprehensive portfolio of content for molecular testing, Bio-Rad is expanding the potential of droplet digital PCR in liquid biopsy and in other areas of molecular biology. The launch of the QX ONE ddPCR system and the expanded portfolio of research use applications will enable laboratories to perform more efficient, precise and reproducible molecular diagnostics.

11:05 Coffee Break in the Exhibit Hall with Poster Viewing

11:35 Breakout Discussions *(Visit www.dxinnovationsummit.com/Breakout-Discussions for details)*

12:35 Session Break

KEYNOTE SESSION: BRINGING LIQUID BIOPSY ASSAYS TO THE CLINIC

14:00 Keynote Introduction

Alain R. Thierry, PhD, Director of Research, Biomarkers for Precision Oncology, IRCM/INSERM, France

14:05 How Can a Network Enable Liquid Biopsy Introduction into the Clinic on a Large Scale?

Klaus Pantel, MD, Professor, Chairman, Institute of Tumor Biology, University Medical Center Hamburg-Eppendorf, Germany

The analysis of tumor cells (CTCs) and tumor cell products (DNA, miRNA, extracellular vesicles or tumor-educated platelets) in blood can provide clinically relevant information as "liquid biopsy". To support the translation into clinical routine, the European Liquid Biopsy Society was recently established based on the achievements of the EU/IMI sponsored consortium CANCER-ID (www.cancer-id.eu). Here, the opportunity of ELBS to transfer liquid biopsy research into clinical practice will be outlined and discussed.

14:35 Donor-Derived Cell-Free DNA Testing in Organ Transplantation: A Value Proposition

Michael Oellerich, MD, Hon MD, FAACC, FAMM, FFPath (RCPI), FRCPath, Distinguished Research Professor, Clinical Pharmacology, University Medical Center Goettingen (UMG), Germany

There is a need to improve personalized immunosuppression in organ transplantation to reduce premature graft loss. A value proposition concept was applied for donor-derived cell-free DNA testing in plasma of transplant recipients as an alternative to invasive biopsies to early detect or exclude rejections or other graft injuries. This approach allows to personalize immunosuppression and may improve outcome. Transplant physicians could provide better immunosuppressive guidance. Hospital management and insurance companies benefit from more cost-effective surveillance of transplant recipients.

15:05 Detection of Cell-Free Circulating BRAFV600E by Droplet Digital PCR in Patients with Melanocytic Cutaneous Lesions: Considerations for the Clinical Implementation

Joan Anton Puig-Butille, PhD, Head, Molecular Biology CORE, Hospital Clinic of Barcelona, Spain

The p.V600E mutation in BRAF gene (BRAFV600E) is frequently detected in melanoma and common benign naevi. We evaluated the clinical significance of detection of BRAFV600E in plasma cfDNA (cfBRAFV600E) from melanoma patients and from patients without melanoma undergoing regular follow-up of their melanocytic lesions. The study suggests that naevus-related factors do not influence the detection of cfBRAFV600E and supports the clinical diagnostic value of cfBRAFV600E quantification in melanoma patients.

15:35 Presentation to be Announced

Sponsored by BlueBee

16:05 Refreshment Break in the Exhibit Hall with Poster Viewing

Enabling Technologies for Liquid Biopsy and Beyond - Part II

Developing Novel Assays for Circulating Biomarkers and Clinical Use

WEDNESDAY 20 MAY

11:00 Registration

11:35 Breakout Discussions *(Visit www.dxinnovationsummit.com/Breakout-Discussions for details)*

12:35 Session Break

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15:35 Presentation to be Announced

Sponsored by BlueBee

16:05 Refreshment Break in the Exhibit Hall with Poster Viewing

MULTI-OMIC APPROACHES

17:00 Chairperson's Remarks

Daniel Wetterskog, PhD, Senior Research Associate, UCL Cancer Institute, University College London, United Kingdom

17:05 Sample to Answer Multi-Omic Exosome and cf-DNA Biomarker Detection for Liquid Biopsy Diagnostics

Michael Heller, PhD, Professor and Distinguished Scientist, Center for Cancer Early Detection and Research (CEDAR), Knight Cancer Institute, Oregon Health & Science University (OHSU), United States

New multi-omic approaches for combining genomic and proteomic biomarker information are becoming a viable strategy for liquid biopsy diagnostics. Electrokinetic samples to answer ACE microarray chip devices now allow rapid isolation of exosomes/EV biomarkers, cell free (cf) DNA and RNA from small volumes of cancer patient blood samples. On-chip fluorescent detection of cf-DNA levels, immunostaining for specific exosome/EV protein biomarkers and subsequent sequencing analysis for point mutation biomarkers were successfully carried out on blinded patient samples for pancreatic cancer diagnostics.

17:35 Clinical Application of Ultrasensitive Sequencing of Cell-Free Tumor DNA and Immune Cells

Anders Ståhlberg, Associate Professor, Sahlgrenska Cancer Center, University of Gothenburg; Clinical Genetics & Genomics, Sahlgrenska University Hospital, Sweden

Detailed analysis of cell-free tumor DNA and immune-cell clonality in liquid biopsies requires ultrasensitive sequencing. We have developed simple, flexible and sensitive approaches to analyze DNA from various cell sources, as well as from circulating cell-free DNA. Here, we will present our experiences of using ultrasensitive analysis from both a clinical and technical point of view. Data from different applications will be shown.

18:05 A Multi-Omic Strategy for Cancer Diagnostics and Monitoring

Michael Roehrl, MD, PhD, Associate Professor of Pathology and Laboratory Medicine, Pathology and Human Oncology and Pathogenesis Program, Memorial Sloan Kettering Cancer Center, United States

An integrated approach to cancer that encompasses combining genomics, transcriptomics, and epigenomics with deep proteomics promises to become a powerful tool for cancer diagnosis, personalized treatment guidance, resistance detection, and recurrence monitoring. We will discuss several examples using such combined approaches (including gastrointestinal cancers and sarcomas), new technological and specimen-directed advances for correlating circulating and tissue-resident cancer markers, and the computational challenges that arise from multi-omic big data analytics.

18:35 Close of Day

THURSDAY 21 MAY

EXAMINING CIRCULATING TUMOUR CELLS

08:30 Registration and Morning Coffee

09:00 Chairperson's Remarks

Catherine Alix-Panabieres, PhD, Director, Laboratory of Rare Human Cells (LCCRH), Department of Pathology and Onco-Biology, University Medical Centre of Montpellier, France

09:05 Detection, Characterization and *ex vivo* Expansion of Viable Circulating Tumor Cells (CTCs)

Catherine Alix-Panabieres, PhD, Director, Laboratory of Rare Human Cells (LCCRH), Department of Pathology and Onco-Biology, University Medical Centre of Montpellier, France

Circulating tumor cells (CTCs) in blood are promising new biomarkers potentially useful for prognostic prediction and monitoring of therapies in patients with solid tumors including colon cancer. Moreover, CTC research opens a new avenue for understanding the biology of metastasis in cancer patients. The establishment of cell cultures and permanent cell lines from CTCs has become the most challenging task over the past year.

09:25 Capture of Circulating Tumour Cell Clusters Using Straight Microfluidic Chips

Chamindie Punyadeera, PhD, Associate Professor, Biomedical Sciences, Queensland University of Technology, Australia

We have demonstrated that CTCs can be isolated from head and neck cancer (HNC) patients before clinically evident metastasis, using a novel, spiral microfluidic technology and now we have exciting preliminary data correlating CTC presence to clinical outcomes during the course of treatment. Using the state of the art technology, straight channel microfluidic technology, we have been able to detect CTC clusters from HNC, non-small cell lung cancer and glioblastoma. These clusters contain two or more CTCs and leukocytes and were found in advanced stage cancer patients. This microfluidic technology has the ability to transform scientific findings into translational outcomes and tangible health benefits with a significant reduction in healthcare costs.

09:45 Patient-Derived Circulating Tumor Cells as a Predictor of Treatment Response and Survival

Prashant Kumar, PhD, Faculty Scientist, Cancer Biology, Institute of Bioinformatics, India

Monitoring CTCs is a valuable strategy for guiding patient treatment, predicting cancer progression, and evaluating the risk for metastatic relapse. We have devised a microwell-based culture method to assess CTCs from patients undergoing neoadjuvant therapy. The culture method allowed selective enrichment of CTCs that went on to form proliferative clusters. Cluster formation was affected by the presence and duration of systemic therapy and its persistence may reflect therapeutic resistance.

10:05 Sponsored Presentation *(Opportunity Available)*

10:35 Coffee Break in the Exhibit Hall. Last Chance for Poster Viewing

MUTATIONAL ANALYSIS

11:20 Mutational Analysis of Circulating Tumor Cells at the Single-Cell Level

Pamela Pinzani, PhD, Associate Professor, Clinical, Experimental and Biomedical Sciences, University of Florence, Italy

11:50 CO-PRESENTATION: Molecular Tagging NGS Technology in Liquid Biopsy: Mutational Profiling of ctDNA and CTCs

Maria Dono, PhD, Senior Researcher, Pathology, Molecular Diagnostics, IRCCS Ospedale Policlinico San Martino, Italy

Giuseppa De Luca, PhD, Postdoc Research Fellow, Pathology, Molecular Diagnostic, IRCCS Ospedale Policlinico San Martino, Italy

Molecular analysis of liquid biopsy biomarkers, resembled primarily by circulating tumor DNA and cells (CTCs) is technically challenging. The development of NGS panels, molecular tagging-based, gives a relevant chance for their accurate molecular characterization. Here, we will discuss some data developed by using commercial NGS assays for the study of ctDNA in NSCLC patients and CTCs isolated from breast cancer patients.

12:20 Sponsored Presentation *(Opportunity Available)*

12:50 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

13:20 Session Break

EXOSOMES AND DNA METHYLATION

13:50 Chairperson's Remarks

Christa Noehammer, PhD, Senior Scientist, Molecular Diagnostics, AIT Austrian Institute of Technology GmbH, Austria

14:00 An Exosome-Based Liquid Biopsy for Detection of Melanoma Residual Disease

Susana García-Silva, PhD, Senior Researcher, Oncology Program, Spanish National Cancer Research Centre (CNIO), Spain

Tumor-derived, extracellular vesicles carry a portrait of the cancer cells and associated microenvironment. Our data show that extracellular vesicles isolated from the lymphatic exudate of melanoma patients can be interrogated for melanoma markers and BRAF mutations. Profiling the BRAFV600 mutation in lymph-circulating EVs is a novel prognostic approach to predict residual disease after tumor resection and lymphadenectomy.

14:30 A Liquid Biopsy PCR Assay to Detect Cell-Free DNA from Dying Neurons and Glia

Jason Ross, PhD, Principal Research Scientist, Health and Biosecurity, CSIRO, Australia

In head trauma, DNA from dying brain cells is released into peripheral blood. Using the DNA methylation marks present on this brain cell-free DNA (cfDNA), it is possible to discretely identify brain cfDNA against the usual blood background. Applying this principle, we have developed a PCR diagnostic assay which can specifically detect small quantities of cfDNA from dying neurons and glia. Recently, we have commenced clinical trials.

15:00 Rapid Nickel-Based Isolation of Extracellular Vesicles for Multidimensional Liquid Biopsy Tests

Vito Giuseppe D'Agostino, PhD, Group Leader, Laboratory of Biotechnology and Nanomedicine, CIBIO, University of Trento, Italy

Extracellular vesicles (EVs) are membranous structures massively released in biofluids. EVs carry cellular components, such as lipids, proteins, and nucleic acids, that can work as a formidable source in liquid biopsy studies. We recently described the nickel-based isolation (NBI) as a versatile method for fast and efficient recovery of heterogeneous EVs. We combined NBI with RNA- , as well as protein-based ultrasensitive technologies, improving the detection of biomarkers under clinical use.

15:30 Pan-Genome cfDNA Methylation Analysis of Metastatic Prostate Cancer

Anjui Wu, PhD, MD, Postdoctoral Research Fellow, UCL Cancer Institute, University College London, United Kingdom

Genomic profiling of cfDNA has been well described in multiple tumour types, including lung cancer, colon cancer and prostate cancer; however, the cfDNA methylation status has not been extensively studied. I will present our unpublished work on cfDNA methylation analysis of metastatic prostate cancer, and our data indicated that plasma methylome has great potentials for cancer screening, detection and risk stratification.

16:00 Close of Conference

HOTEL & TRAVEL INFORMATION

Lisbon Marriott Hotel

Avenida dos Combatentes, 45
Lisbon 1600-042 Portugal
Phone: (351)(21) 723 5400

Discounted Room Rate: €189 single/€199 double, includes breakfast

Discounted Room Rate Cut-off Date: 10 April 2020

For more information: DxInnovationSummit.com/travel

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19-20 May	20-21 May
Advanced Diagnostics for Infectious Disease	Point-of-Care Diagnostics
Enabling Technologies for Liquid Biopsy and Beyond - Part 1	Enabling Technologies for Liquid Biopsy and Beyond - Part 2

SHORT COURSE SELECTIONS

18 May

- SC1: Technologies, Applications and Commercialisation of Point-of-Care Diagnostics
- SC2: Biomarkers in Liquid Biopsy: CTCs, ctDNA and Exosomes

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