



Precision Oncology

Innovative diagnostic and therapeutic approaches and their social-economic impact



HEALTH AXIS EUROPE VISIONARY SEMINAR – Heidelberg and Leuven

Tuesday, September 25

Moderator: Gerard Drewes – BioRN Network e.V. scientific advisory board

3.30 pm Reception and Coffee

4.00 pm Welcome address by Stefan Meuer, Heidelberg University

4.10 pm Innovative diagnostic and therapeutic approaches

Diether Lambrechts (VIB-KU Leuven Center for Cancer Biology) - *Single Cell sequencing of the tumor microenvironment*

Andree Blaukat (Merck) - *The rollercoaster ride of the c-Met inhibitor Tepotinib - a real-life example for precision medicine*

Olaf Witt (Hopp Children's Cancer Center at the NCT Heidelberg- KiTZ) - *Precision Medicine in Pediatric Oncology – the INFORM program*

Liesbet Lagae (Program Director Life Science Technologies at IMEC) - *Liquid biopsies go digital - chip based tools to capture and inspect circulating tumor cells*

Özlem Türeci (Ci3 Cluster e.V. and University of Mainz) - *Individualized Cancer Immunotherapy*

Q&A

6.00 pm Networking and finger food

6.30 pm Social and economic impact of novel treatment options

Open Panel Discussion

Frank Ulrich Montgomery, President of the German Medical Association
Katelijne De Nys, Chair Belgian Commission for the Reimbursement of Medicines
Michel Delforge, Chairman of the Leuven Cancer Institute
Michael Schlander, German Cancer Research Center (DKFZ), Health Economics

7.30 pm Closing Remarks

Venue: Auditorium - University Hospital Heidelberg - Center for Internal Medicine
Im Neuenheimer Feld 410, Heidelberg

ABSTRACTS

Single Cell sequencing of the tumor microenvironment

Diether Lambrechts (VIB-KU Leuven Center for Cancer Biology)

Cancer cells are embedded in the tumour microenvironment (TME), a highly complex ecosystem of different subset of stromal cells. By assessing marker genes for these cell subtypes in bulk RNA-seq data from patients, we illustrate how they correlate with survival, while immunohistochemistry for a selection of marker genes validates them as separate cellular entities in an independent series of tumours. Hence, in providing a comprehensive catalogue of stromal cells types and by characterizing their phenotype and co-optive behaviour, we provide a first detailed view on the stromal cells successfully targeted by current cancer therapies.

The rollercoaster ride of the c-Met inhibitor Tepotinib - a real-life example for precision medicine

Andree Blaukat (Merck)

Tepotinib is a highly selective and potent inhibitor of the receptor tyrosine kinase c-Met discovered in the laboratories of Merck in Darmstadt. In the talk, the history of Tepotinib from its discovery to proof-of-concept will be discussed as an example for the potential of precision medicine, but also the real-life challenges associated with its development.

Precision Medicine in Pediatric Oncology – the INFORM program

Olaf Witt (Hopp Children's Cancer Center at the NCT Heidelberg- KiTZ)

The INFORM study has enrolled more than 500 children with relapsed cancer for state of the art molecular diagnostics, target identification and clinical follow up. We will discuss the opportunities and challenges associated with precision medicine in a rare disease population.

Liquid biopsies go digital - chip based tools to capture and inspect circulating tumor cells

Liesbet Lagae (Program Director Life Science Technologies at IMEC)

Non-invasive liquid biopsies have become the method of choice for diagnosis, prognosis and treatment monitoring of patients. Current clinical practice is mainly looking for pieces of tumor DNA or fetal DNA, based on DNA fragments circulating in blood. Imec has developed a silicon-based chip whereby intact tumor cells, fetal cells or any immune cell types can be isolated from blood in a very rapid way and at high purity, giving access to its entire DNA, allowing accurate tumor characterization or broad genetic analysis of the unborn baby. This true innovative cell sorting chip is combined with downstream molecular analysis of the isolated DNA of the target cells, providing a walk-up system whereby a molecular read-out is performed on either tumor DNA or fetal DNA derived from the intact cells. This breakthrough technology will drastically change the way we currently diagnose and monitor disease.

Individualized Cancer Immunotherapy

Özlem Türeci (Ci3 Cluster e.V. and University of Mainz)

Cancer mutations can be recognized by the patient's immune system as foreign and can elicit strong immune responses. As first-in-human clinical trials demonstrated recently, vaccination with such `neo-epitopes` may become the first concept to realize a truly personalized treatment of cancer. For integrating this approach into mainstream clinical oncology various challenges have to be addressed, including regulatory registration routes, manufacturing, affordability. The potential gain is worth the effort: Such vaccines bear the potential to be agnostic to the cancer type and universally applicable to any patient

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