iCANx Minisymposium

(iCANx: Cancer – Lung (Disease) Crosstalk: Tumor and Organ Microenvironment)

29th June 2022; 15:00 – 18:00 (CEST)

virtual event via Cisco Webex™
Click here to join!

15:00 — ***Welcome***

15:10 — **Albrecht Stenzinger**
(University Clinic Heidelberg, Germany)
„Immunoncology and Biomarkers“

15:50 — **Julia Kargl**
(Medical University in Graz, Graz, Austria)
„Tumor-associated Neutrophils in Non-small Cell Lung Cancer“

16:30 — ***Coffee break***

16:40 — **Oleg Demidov**
(University of Burgundy, Dijon, France)
"DNA damage response, Clonal Hematopoiesis, and Anti-tumor Immunity"

17:20 — **Seyed Javad Moghaddam**
(University of Texas MD Anderson Cancer Center, Houston, USA)
„Reprogramming Lung Inflammatory Microenvironment: An Alternative Path to Prevention and Treatment of K-ras Mutant Lung Cancer”

Organizers: T. Acker | T. Stiewe | R. Savai | S. S. Pullamsetti | F. Grimminger | N. Salik | M. Cekay | N. Ritschel

LOEWE Exzellente Forschung für Hessens Zukunft
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Speakers at the 4rd iCANx Cancer Minisymposium - Short introductions (Biosketches)

Prof. Dr. Albrecht Stenzinger

(University Clinic Heidelberg, Germany)

„*Immunoncology and Biomarkers*“

Prof. Dr. med. Albrecht Stenzinger is professor of Molecular Tumor Pathology at the Ruprecht-Karls-University Heidelberg, as well as head of the Molecular Pathology Center and deputy director of the Institute of Pathology at the University Clinic Heidelberg. Furthermore, he is principal investigator at the German Center for Lung Research (DZL).

Prof. Stenzinger's fields of interest are, among others, tumor genetics, immuno-oncology and biomarkers in lung cancer. Recently, he published a study proposing that the abundance of B cells and total tumor-infiltrating lymphocytes in lung biopsies predict immune checkpoint blockade benefit in non-small-cell lung cancer. Currently, his laboratory investigates the (inverse) correlation between microsatellite instability and deficiencies in homologous recombination by using publicly available data from The Cancer Genome Atlas (TCGA).

Selected recent literature (3 selected publications):

1. Budczies J, …, **Stenzinger A**. Homologous recombination deficiency is inversely correlated with microsatellite instability and identifies immunologically cold tumors in most cancer types. ***J Pathol Clin Res***. 2022.
2. Budczies J, …, **Stenzinger A**. A gene expression signature associated with B cells predicts benefit from immune checkpoint blockade in lung adenocarcinoma. ***Oncoimmunology***. 2021.
3. Christopoulos P, …, **Stenzinger A**, Thomas M. The impact of TP53 co-mutations and immunologic microenvironment on outcome of lung cancer with EGFR exon 20 insertions. ***Eur J Cancer***. 2022.

Ass.-Prof. PD Dr. Julia Kargl

(Medical University in Graz, Graz, Austria)

"Tumor-associated neutrophils in non-small cell lung cancer"

PD Dr. Julia Kargl is assistant professor at the Otto Loewi Research Center, Division of Pharmacology at the Medical University in Graz, Austria. She has received, among other awards, the Heribert Konzett Award of the Austrian Pharmacological Society in 2019.

The scientific interests of her group are at the interface of pharmacology and tumor immunology with an emphasis on non-small-cell lung cancer (NSCLC). She and her team investigate the immune cell composition in NSCLC and the role of immunosuppressive cells, such as neutrophils. Employing established cancer cell lines, tumor tissue from consented patients and functional *in vitro* and *in vivo* models, her group seeks to understand the mechanisms of immunotherapy failure.

Selected recent literature (3 selected publications):

1. Valadez-Cosmes P, …, **Kargl J**. Identification of Novel Low-Density Neutrophil Markers Through Unbiased High-Dimensional Flow Cytometry Screening in Non-Small Cell Lung Cancer Patients. ***Front Immunol***. 2021.
2. **Kargl J**, …, Houghton A M. Neutrophil content predicts lymphocyte depletion and anti-PD1 treatment failure in NSCLC. ***JCI Insight***. 2019.
3. **Kargl J**, …, Houghton A M. Neutrophils dominate the immune cell composition in non-small cell lung cancer. ***Nat Commun***. 2017.

Oleg Demidov, M. D., Ph. D., H. D. R.

(INSERM UMR1231, University of Burgundy, Dijon, France)

"DNA damage response, Clonal Hematopoiesis, and Anti-tumor Immunity"

Dr. Oleg Demidov is scientist at the French National Institute of Health and Medical Research (INSERM) research center UMR1231 “Lipids, Nutrition, Cancer” at the University of Burgundy, Dijon, France.

For the past several years, Dr. Demidov and colleagues worked mainly on myeloid suppressor cells and the question how they could be reprogrammed into antitumor immune cells. In that line, he uncovered that inhibition of PPM1D/Wip1 in neutrophils increases the immune anti-tumor response in mice, shown, for instance, by significantly reduced growth of lung carcinoma tumors. Very recently, Dr. Demidov and colleagues shed light on the role of the lysine methyltransferase SETDB1 in lung cancer, emphasizing the essential role of chromatin organization in oncogenic programs.

Selected recent literature (3 selected publications):

1. Uyanik B, …, **Demidov O N**. Inhibition of the DNA damage response phosphatase PPM1D reprograms neutrophils to enhance anti-tumor immune responses. ***Nat Commun***. 2021.
2. Toropova Y, …, **Demidov O**. Controlling the Movement of Magnetic Iron Oxide Nanoparticles Intended for Targeted Delivery of Cytostatics. ***Int J Nanomedicine***. 2021.
3. Zakharova V V, …, **Demidov O**, ..., Ait-Si-Ali S. SETDB1 fuels the lung cancer phenotype by modulating epigenome, 3D genome organization and chromatin mechanical properties. ***Nucleic Acids Res***. 2022.

Seyed Javad Moghaddam, M. D.

(University of Texas MD Anderson Cancer Center, Houston, Texas, USA)

"*Reprogramming Lung Inflammatory Microenvironment: An Alternative Path to Prevention and Treatment of K-ras Mutant Lung Cancer.* "

Dr. Seyed Javad Moghaddam is an associate professor at the Department of Pulmonary Medicine, University Texas MD Anderson Cancer Center, and director of the Immunology Graduate Program, at MD Anderson UTHealth Graduate School of Biomedical Sciences in Houston, Texas, USA. Among several other awards, he received the Lung Cancer Discovery Award of the American Lung Association in 2021.

Dr. Moghaddam's research focuses on airway inflammation, e. g. in the course of chronic obstructive pulmonary disease (COPD), and its role in airway epithelial carcinogenesis. His group is working on understanding the cell type specific roles of inflammatory signaling pathways in lung carcinogenesis in order to subsequently allow preclinical testing of the efficacy of anti-inflammatory agents in preventing lung cancer and finally improve the efficacy of currently available treatment regimens. His group has published several articles showing that a network of immunomodulatory cytokines (namely IL-6, and IL-17/IL-22) released during inflammation, that mainly regulated by the NF-κB/STAT3 crosstalk, promotes K-ras mutant lung cancer by providing a pro-tumor lung microenvironment in a sex specific manner which could be modulated by estrogen thereby providing context dependent preventive and therapeutic modalities for this deadly disease. Recently, Dr. Moghaddam published data showing that IL-1β blockade could strongly prevent the development of K-ras mutant lung cancer by inhibiting suppressive myeloid cells and induction of a cytotoxic T cell response in the tumor microenvironment.

Selected recent literature (3 selected publications):

1. Yuan B, …, **Moghaddam S J**. Targeting IL-1β as an immune preventive and therapeutic modality for K-ras mutant lung cancer. ***JCI Insight***. 2022
2. Khosravi N, …, **Moghaddam S J**. IL22 Promotes Kras Mutant Lung Cancer by Induction of a Pro-Tumor Immune Response and Protection of Stemness Properties. ***Cancer Immunol Res***. 2018
3. Caetano M S, …, **Moghaddam S J.** IL-6 blockade reprograms the lung tumor microenvironment to limit the development and progression of K-ras mutant lung cancer. ***Cancer Res***. 2016