

# EXPANDING immune cells and their tumor antigens during checkpoint immunotherapy



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meet the PhD jury

**Monday, February 24 @ 3 pm**

FSVM II - seminar room 'Walter Fiers' (L5)

Host: Katleen De Preter

## Abstract

Cancer immunotherapy using immune-checkpoint blockade (ICB) has created a paradigm shift in the treatment of advanced-stage cancers. In terms of lives saved and person-years restored, these therapies promise to be more significant than any other form of cancer treatment. However, one of the major limitations of ICB is that it provides durable clinical responses only in a fraction of patients. Single-cell (spatial) technologies have been exceptionally instrumental in highlighting how checkpoint immunotherapy works in some patients, and why not in other patients. During my talk, I will highlight how T-cells respond differently to these therapies, which surrounding microenvironments are needed to provide durable responses and where in the tumor tissue these T-cells need to be located. I will also highlight how responding T-cells and the tumor antigens that they recognize can be characterized, and how this information can be harnessed to develop novel synergistic therapies that can be combined with approved checkpoint inhibitors.

## Scientific biography

Professor Diether Lambrechts is Group Leader at the VIB and Full Professor at the University of Leuven. Prof. Lambrechts was trained as an engineer at the University of Leuven where he also pursued his PhD. He then worked at the Wellcome Trust Centre for Human Genetics at the University of Oxford, UK, before joining the VIB as an independent Group Leader in 2008. He currently holds a Kuang-Piu professorship chair at Zhejiang University. He has won several awards, including the Karel-Lodewijk Award for Human Medicine; the Galenus Prize for Pharmacology; the AstraZeneca Award for Translational Research and the Agilent Thought Leadership Award. The expertise of the Laboratory for Translational Genetics is focused on tackling important questions in oncology by translating genome-scale data sets into clinically applicable knowledge. Investigations are based on the application of cutting-edge sequencing technologies and bioinformatics, and on the seamless integration of genomic data sets with clinical and fundamental biological information to generate novel insights and potent biomarkers for the field of oncology. Prof. Lambrechts lab has developed a special interest in studying the mechanisms underlying genomic scars and developing biomarkers for them. He already succeeded in developing a novel microsatellite instability marker. This test was commercialised by Biocartis NV as the Idylla<sup>TM</sup> MSI Test and recently also received FDA approval. His group also developed with the gynaeco-oncology team at the University Hospital Leuven an academic HRD test to guide treatment of patients with high-grade serous ovarian cancer towards PARP inhibition. Recently, he has developed a special interest in dissecting the tumor microenvironment using single-cell technologies. He was among the first to characterize the lung tumor stroma (Lambrechts et al., Nat Med 2018) and in comparing stromal cells residing in tumor versus normal tissues across various cancer types (Qian et al. Cell Res 2020). Currently, he is focusing his team's efforts on studying changes in the tumor microenvironment during checkpoint immunotherapy at single-cell level (Bassez et al., Nat Med 2021). In this context, his lab is also applying the most recent spatial technologies to better understand how tumors respond to checkpoint inhibition (Franken et al., Immunity 2024). Since 2015, Prof. Lambrechts has been Director of the VIB Center for Cancer Biology in Leuven, Belgium (jointly with C Marine).

