

2022 TANDEM awardees

Prof. Camilla Jandus & Dr Francesco Ceppi & Prof. Georges Coukos / UNIGE & CHUV

This is a highly translational project aiming at harnessing the tumoricidal activities of CD4+ T cells to optimize cancer immunotherapies. The project includes preclinical validation of TCR engineered CD4 T cells and the setup of a Phase 1 clinical trial for relapsed and refractory solid tumors in both adult and childhood cohorts.

Prof. Marianna Kruihof-de-Julio & Dr Bernhard Kiss / UNIBE & INSEL

NEREUS (Network based drug Response and repUrposing at Single cell resolution) is focused on the multimodal characterization of the ecosystem of bladder cancer and developing an Artificial Intelligence framework to advise patient treatment care and improve outcome.

Prof. Virginie Hamel & Dr Benita Wolf / UNIGE & CHUV

Understanding on the nanoscale how engineered T cells interact with target tumor cells is an unmet medical need. This TANDEM research proposal aims to develop easily accessible and robust super-resolution expansion microscopy for preclinical characterization of CAR T cell products. This project will advance our understanding of the engineered CAR T cell immunological synapse by elucidating its molecular composition and architecture as a function of different CAR designs. The overall goal is to implement super-resolution microscopy as a standard procedure in translational immuno-oncology.

Prof. Michele De Palma & Dr Nahal Mansouri / EPFL & CHUV

Small-cell lung cancer (SCLC) is a type of lung cancer with very dismal prognosis. Unfortunately, current immunotherapies have shown little efficacy in this disease. The team, led by Prof. De Palma (cancer biologist; EPFL) and Dr. Mansouri (pneumologist and chef de clinique; CHUV), will use both experimental SCLC models and clinical material to investigate a platform of engineered dendritic cell vaccines developed in the lab. If successful, the results of this TANDEM project may help to propel the clinical testing of this new form of cancer immunotherapy in patients with SCLC.

Prof. Michael Scharl & Prof Isabelle Arnold / USZ

Colorectal cancer (CRC) is the second most common cancer and cause of cancer-related deaths worldwide. Epidemiological studies have linked the presence of high intratumoral eosinophil levels to favourable prognosis and enhanced survival of CRC patients. However, the underlying mechanisms for this remain poorly understood. Within our project, we aim to understand whether alterations in the intestinal microbiota composition – a hallmark of CRC patients – might modulate eosinophil functions within the tumor microenvironment, thus affecting disease course, the development of metastasis and therapeutic response in CRC patients. We aim to provide new avenues for harnessing eosinophil activities in CRC and will foster personalized microbiota-based precision medicine strategies for patient care.

Prof. Giovanni Ciriello & Dr Igor Letovanec / UNIL & CHUV

Lung cancer is one of the most lethal tumor types and there is an urgent need to improve early diagnostic approaches. In our labs, we previously characterized the molecular fingerprints of tumor regions representative of early and advanced disease. Now, we will use cutting-edge molecular, technological, and computational approaches to search and identify the seeds of aggressive tumors already in the early phases of the disease. Ultimately, we will translate our discoveries into tools that help pathologists detect the seeds of aggressive tumors in patients to anticipate those more likely to benefit from specific treatments.

