Master Thesis

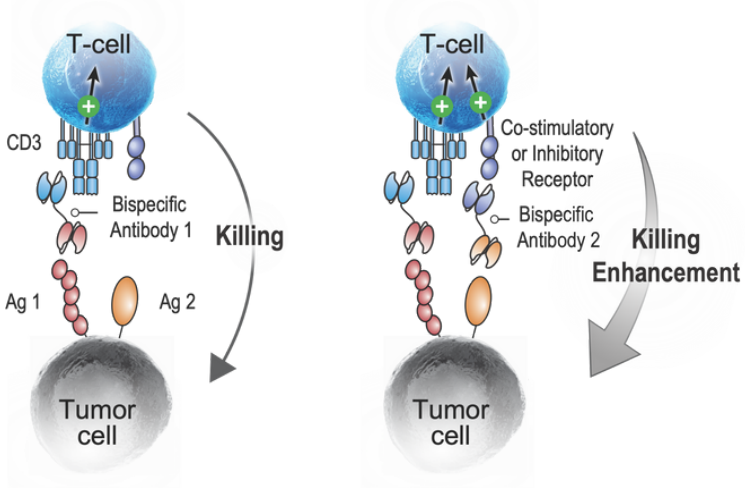
Guiding T-cell Selectivity by Novel Targeted Therapeutics

Experimental Hematology Lab, Department of Medical Oncology and Hematology (Prof. Markus G. Manz)

Background

Our research is focused on hematopoietic and immune system development, homeostasis, and function, as well as on hemato-lymphoid disease. We aim to develop practical new strategies for clinical intervention in states of malignancy and transplantation of hematopoietic cells.

T-cell engaging and activating bispecific antibodies are biopharmaceuticals able to simultaneously binding two different antigens, bridging together target (e.g. tumor) cells and effector T-cells. The cross-linking leads to T cell activation and elicits a potent and selective TCR/MHC-independent cytolytic activity. The technology has been successfully used to generate several products in clinical development.



Project Objective

Therapies based on TCR/MHC-independent recruitment of T-cells are first-in-class proof of principle achievements and represent a major leap forward towards cure of cancer. However, they also frequently lack sufficient efficacy and are associated with on-target/off-tumor toxicity. In this project, we propose to generate novel, targeted small immuno-modulatory antibodies, capable of preferential localization at the tumor site, that would serve both needs, effector enhancement as well as on-target/off-tumor tissue protection.

Methods and Techniques

- Cloning
- Antibody production, purification, and analysis (SDS Page, Chromatography)
- Cell culture and Cytotoxic Assays
- Flow cytometry Analysis

Team and Contact

Interested candidates should contact

Markus Manz, MD (markus.manz@usz.ch)

Laura Volta, PhD (laura.volta@usz.ch)

Starting upon agreement. Duration 6-12 months.