**Workshop Description**

**Title** **Immune Monitoring**

Immune monitoring comprises the combination of various diagnostic tools that are intended to provide information about the immune status of a patient. Depending on the clinical application, humoral factors or complement components, the cellular composition of the blood, functional cellular parameters or a combination of these can be determined. A prerequisite for disease- and/or therapy-specific immune monitoring is the identification of suitable biomarkers, which can be measured qualitatively and quantitatively, for example, by flow cytometry at the single cell level. Immune monitoring is the basis for developing personalized treatment options in the long run. In the field of biomedical research, multiparameter flow cytometry represents an indispensable tool for the elucidation of fundamental immunobiological processes as a basis for the development of new therapeutic approaches. Immunological aspects in the most diverse directions of research are brought to the fore, such as in the fields of neurology, aging and trauma research as well as in oncological basic and translational research - focus of the research site Ulm. Multiparameter flow cytometry opens up opportunities to fulfil complex and innovative research approaches in order to achieve therapeutically relevant scientific results.

In this workshop, the participants will get an insight into immune monitoring and the analysis of immune checkpoint molecules. The participants will be introduced to the devices and methods used for immune monitoring in our Core Facility. The participants will dissociate tissue with the gentleMACS Octo Dissociator, measure differential blood counts with a hematocytometer and stain different panels for subsequent multiparameter spectral/conventional flow cytometric analyses. Shortly before the workshop, there will be a short online meeting with all participants to consider their individual wishes in order to adapt the workflow to their requirements. It is also possible for participants to bring their own samples, which they would like to analyze.

**Major topics** of the workshop are:

- Introduction to immune monitoring and immune checkpoints
- Practical introduction to devices and techniques used for immune monitoring
- Sample preparation and staining of human and/or murine tissues for subsequent immune cell phenotyping
- Introduction to the technology of spectral cytometry
- Measurement of stained samples at the spectral and/or conventional flow cytometer
- Analysis of acquired spectral/conventional cytometry data