

<i>Title of module</i>	Advanced Practical in the Focal Point Programme: "Molecular Medicine" VZ: 185881 "Molecular mechanisms of allergic disorders"		
<i>Credit points</i>	7.5 (of 15)	<i>Available in semester(s)</i>	2
<i>Hours per week</i>	9	<i>Compact course</i>	<input type="checkbox"/>
<i>Lecturer(s)</i>	M. Peters, M. Stiehm, P. Guidato		
<i>Teaching methods</i>	A five-week all-day practical lab course with a compulsory seminar presentation. Please note: A second Advanced Practical will have to be performed in the same semester to earn the full complement of 15 credits		
<i>Evaluation of learning progress</i>	Active participation, feedback during independently performed experiments, project discussions with the supervisor		
<i>Mode of examination</i>	Assessment of experimental skills during the practical (50%), a written project report (40%), and a seminar presentation of experimental results (10%).		
<i>Learning objectives</i>	The students will learn how the immune system acts in allergic disease like asthma. Modern methods to study immune responses in vivo and in vitro will be introduced and depending on the project actively performed by the students.		
<i>Soft skills</i>	Presentation and discussion of scientific results. Scientific writing.		

Contents of module

Depending on the project, the students will learn different immunological methods:

- Isolation and characterization of proteins and polysaccharides by biochemical methods like fast protein liquid chromatography (FPLC)
- In vitro generation of human and mouse dendritic cells, interaction studies with T-lymphocytes
- ELISA and Western Blot for detection of immunologic relevant molecules like cytokines and antibodies
- Flow cytometric analysis of leucocytes
- Isolation of lymphocyte subpopulations by magnetic or fluorescence activated cell sorting
- In vitro assays to analyze the influence of pathogen associated molecular patterns (PAMPs) on the immune response