Title of module	Modular Advanced Practical and Seminar in the Focal Point Programme "Molecular Medicine" VZ: 185780, 183781 **"Allergy Research – from the production of allergen extract to allergen characterization"**

Credit points	4	***Available in semester(s)***	1
Hours per week	5.25	***Compact course***	☒

Lecturer(s)	M. Raulf, S. Kespohl
Teaching methods	Two weeks advanced laboratory course with an intergrated seminar.
Evaluation of learning progress	Active participation in the laboratory tasks and seminar, feedback during the experiment.
Mode of examination	Assessment of active and successful participation in the practical (50%) and a written project report (50%)
Learning objectives	After completion of the course students will have acquired basic practical skills in the preparation of extracts from different allergen sources including proteinchemical techniques like protein extraction, protein determination, quantification of protein content, dialysis, SDS-PAGE, silver staining, IgE immunoblotting, IgG immunoblotting, inhibition analysis, enzymatic digestion of allergen extracts, ELISA procedure, determination of cross-reactivity.
Soft skills	Collaboration in a small team of 2-3 students and interaction with the members of a research laboratory as well as the team of the Center Allergology/Immunology of the IPA, presentation of results.

Contents of module	Topics: "Allergy Research – from the production of allergen extract to allergen characterization" Questions addressed: How to prepare an allergen extract? How to detect allergens? How to check for allergenicity? How to characterize IgE binding sites? How to determine cross-reactivity? How to quantify allergen content in several allergen extract preparations? Methods: Preparation of protein extract by using different protein extraction procedures, protein determination by different methods, SDS-PAGE, electrophoresis, silver-staining, IgE immunoblotting (allergogram with sera from sensitized patients), IgG immunoblotting with sera from immunized rabbits, inhibition immunoblot, performance of ELISA measurements, characterization of cross-reactivity, allergen quantification in of allergens in processed extracts.