

PhD project No. 12, PD Dr. Rizzi

Scientific Area	Innate and adaptive immunity
Two project titles	A) Extrafollicular responses in autoantibody-mediated autoimmune diseases B) Break of tolerance in the B cell compartment: generation and maintenance of self-antigen specific memory B cells
Host country	Germany
Supervisor, institution	PD Dr. Marta Rizzi- Medical Center - University of Freiburg, Germany University of Freiburg, Germany
Co-Supervisor, institution	A) Anne-Sophie Korganow (Strasbourg) B)
Mentor, institution	To be determined later
Secondment institution	A) University of Strasbourg, France
Short description of the supervisor's lab with introduction to the topic	
<p>The research focus of the Rizzi lab is human B-lymphocytes development, maturation and activation in physiological and pathological conditions. We have unique expertise in <i>in vitro</i> modelling of early and late human B cell development, that we use:</p> <ul style="list-style-type: none"> -to uncover mechanisms of disease leading to autoimmunity (e.g. autoimmune lymphoproliferative syndrome with FAS mutation) -to study the B cell function in more complex rheumatological diseases (rheumatoid arthritis or ANCA-associated vasculitis) -to assess the specific impact on human B lymphocytes of novel targeted therapies (small molecules, inhibitors) and biologicals (chimeric antibodies) 	
Topic description, including techniques to be used	
<p>Project A) Extrafollicular responses are favoured in autoantibody mediated diseases (e.g. SLE). We plan to study extrafollicular responses in ANCA associated vasculitis <u>Techniques:</u> flow cytometry, scRNAseq, cell culture, VDJ sequencing/repertoire analysis, single cell immortalization, signaling studies, IF microscopy, mass cytometry.</p> <p>Project B) ANCA associated vasculitis are characterized by presence of autoantibodies and B cells specific for proteinase 3. We plan to study the frequency and BCR sequences of PR3 antibodies, their phenotype and signaling. To gain insight in mechanisms leading to break of tolerance <u>Techniques:</u> flow cytometry, scRNAseq, cell culture, VDJ sequencing/repertoire analysis, single cell immortalization, signaling studies, mass cytometry</p>	
Recommended applicant's training (technical expertise and knowledge)	
<p>Techniques: Cell culture, flow cytometry, molecular biology, biochemistry Knowledge: Immunology, Bioinformatics</p>	
Maximum two relevant publications	
<p>Kury, Staniek et al, 2021, Journal Allergology Clinical Immunol: JACI Agammaglobulinemia with normal B-cell numbers in a patient lacking Bob1 Janda et al, 2016, Blood: Disturbed B-lymphocyte selection in autoimmune lymphoproliferative syndrome</p>	

Ethics description

1. Humans	
This research involves human participants.	YES <input checked="" type="checkbox"/> / NO <input type="checkbox"/>
This research involves physical interventions on the study participants.	YES <input type="checkbox"/> / NO <input checked="" type="checkbox"/>
2. Human Cells /Tissues	
This research involves human cells or tissues, such as blood.	YES <input checked="" type="checkbox"/> / NO <input type="checkbox"/>
3. Personal Data	
This research involves personal data collection and/or processing.	YES <input checked="" type="checkbox"/> / NO <input type="checkbox"/>
This research involves further processing of previously collected personal data (secondary use).	YES <input checked="" type="checkbox"/> / NO <input type="checkbox"/>
4. Animals	
This research involves animals, such as mice.	YES <input type="checkbox"/> / NO <input checked="" type="checkbox"/>