

The Molecular Cardiology Laboratory offers a

Master thesis (6 months)

The Working group “Thrombosis and Antiplatelet Therapy” at the Department of Internal Medicine I at the Klinikum rechts der Isar München, Munich is devoted to research concerning the mechanisms and treatment of coronary artery related diseases as well as the detrimental role of reticulated platelets (RPs) in different pathological settings. Our laboratory inside the hospital Klinikum rechts der Isar is perfectly suited for combining basic research with clinically relevant issues.

Topic: Platelet Heterogeneity in Patients with Coronary Syndromes

Background and question: RPs are promising novel biomarkers for the prediction of adverse cardiovascular events not only in cardiac patients but also during sepsis and after non-cardiac surgery. However, the reason for the intrinsic hyper-reactivity of RPs and for their association with ischemic adverse events has only recently been under investigation. The aim of this thesis is to validate the hyper-reactive behavior of RPs on the protein level via mass cytometry by time-of flight (CyTOF). Therefore, we will recruit different patients with chronic coronary syndrome (CCS) or myocardial infarctions. We will analyze platelet-rich plasma from healthy individuals and patients and compare different activation patterns. Data interpretation will be performed via the Cytobank software and in R. Thus, basic bioinformatic skills (e.g. python or R) and the willingness to learn and improve bioinformatic data analysis is required.

Methods: handling of human blood platelets; validation of antibodies with Flow Cytometry; cell surface staining with metal-tagged antibodies; platelet activation assays; bioinformatic analysis of the mass cytometry data with cytobank and R

Recent literature of our lab:

Bongiovanni et al. 2019: Thrombosis & Homeostasis, doi: 10.1055/s-0039-1695009
Bernlochner & Klug 2020: Platelets, doi: 10.1080/09537104.2020.1724923

Supervision: Dr. med Dario Bongiovanni and PD Dr. med Isabell Bernlochner

Applications comprising a curriculum vitae and relevant documentations should be sent within a single PDF file via email to

Dr. med Dario Bongiovanni, email: bongiovanni@tum.de

Dr. med. Dario Bongiovanni
I. Medizinische Klinik und Poliklinik, Klinikum rechts der Isar
Technische Universität München
Department of Medicine I- Molecular Cardiology
Ismaninger Str. 22
81675 München
E-Mail: bongiovanni@tum.de