IRTG 914 - Advanced Methods Course – summer semester 2018

Methods to study platelet functions *in vitro* and *in vivo*

In addition to their essential role in hemostasis and thrombosis, platelets have important functions in inflammatory processes and immune defense. Upon activation platelets release a number of inflammatory mediators (such as platelet-derived growth factor (PDGF), platelet factor 4 (PF-4) or RANTES) and upregulate adhesion molecules (such as P-selectin or CD40L) which are stored in their granules. Hereby they directly or through interaction with other cells can influence thrombotic, inflammatory and immunological processes [1, 2].
In the Advanced Methods Courses we will show you several methods to analyze platelet function *in vitro* (i.e. platelet aggregation, adhesion and activation assays) and demonstrate you models to assess thrombus formation *in vivo* [3, 4].

Speakers and supervisors
Joachim Pircher and Tobias Petzold (Medizinische Klinik und Poliklinik I, LMU)

Literature
[1] Semple, J.W., Italiano, J.E., Jr. & Freedman, J. Platelets and the immune continuum. Nature reviews. Immunology 11, 264-274 (2011).
[2] Engelmann, B. & Massberg, S. Thrombosis as an intravascular effector of innate immunity. Nature reviews. Immunology 13, 34-45 (2013).
[3] Petzold, T., et al. Oral thrombin inhibitor aggravates platelet adhesion and aggregation during arterial thrombosis. Science translational medicine 8, 367ra168 (2016).
[4] Pircher, J., et al. Hydrogen sulfide-releasing aspirin derivative ACS14 exerts strong antithrombotic effects in vitro and in vivo. Arterioscler Thromb Vasc Biol 32, 2884-2891 (2012).