NANOSCIENCE AND NANOTECHNOLOGY PROGRAM

Michael Schnoor, PhD

Research Interests

- Inflammation
- Leukocyte recruitment
- Vascular permeability
- Intestinal permeability
- Actin cytoskeleton and ABP
- Tight and adherens junctions
- In vivo inflammation models
- Intravital microscopy

Dr. Schnoor is Professor in the Department of Molecular Biomedicine. He completed his MSc and PhD at the University of Münster, Germany. He did post-doctoral training at Emory University, Atlanta, GA, USA, in the laboratory of Dr. Parkos; and at the Max-Planck Institute for Molecular Biomedicine, Münster, Germany in the group of Dr. Vestweber. During this time he developed a deep interest for vascular and mucosal inflammation. In 2012, he accepted an offer for a PI position at Cinvestav, Mexico City. Dr. Schnoor is author of more than 40 publications that received approx. 1000 citations. Dr. Schnoor has received independent grants to develop his own unique lines of research on investigating the role of actin-binding proteins (ABP) in inflammation. Dr. Schnoor has guest-edited a special issue on this topic with the journal *Mediators of Inflammation* and he is editorial board member of the journal *Tissue Barriers*.

Selected Honours and Awards

- DFG Postdoctoral Fellow Award 2006-2008
- ASIP Pathologist-in-Training Merit Award 2012
- AAI Travel-for-Techniques Award 2017

Selected Funding

- Conacyt, BMBF, AAI

Research Project: ABP in the regulation of tissue barriers and leukocyte recruitment

My lab has the overarching interest of understanding the molecular mechanisms of inflammatory diseases. In particular, I am interested in the processes regulating vascular and mucosal barrier functions and neutrophil recruitment. At Cinvestav, I have established my lines of research focusing on the roles of ABP such as cortactin and HS1 (the cortactin-homologue in leukocytes) in the regulation of endothelial and epithelial barrier functions and leukocyte recruitment. Although the functions of ABP in this context have largely been neglected, our published data have contributed to the establishment of ABP as critical regulators of endothelial and epithelial cell contacts and leukocyte recruitment. Additionally, I have published review articles about the importance of ABP in this context. The high numbers of citations reflect that the scientific community is now accepting this new emerging concept in vascular and mucosal inflammation. We routinely apply in vivo models of inflammation such as sepsis and colitis in mice deficient for ABP. At Cinvestav, we are currently studying mice deficient for cortactin, HS1, myosin-1E, WIP and α-adducin in collaboration with national and international scientists. Moreover, we have established xenograft models to study the role of ABP in the progression and infiltration of leukemic cells, a process that is also triggered by pro-inflammatory signals. We routinely analyze leukocyte extravasation in the inflamed cremaster muscle induced by different stimuli. Also, we analyze the effects of systemic or secondary inflammation on leukocyte recruitment in the cremaster. Emerging data from these studies are solidifying the critical roles that various ABP play in the regulation of tissue barrier integrity in health and disease and leukocyte recruitment from the blood into inflamed organs.