

**GUEST EDITORIAL**

Over the past two decades, antibody-mediated rejection (AMR) has become one of the most intensely studied topics within transplant medicine. Two seminal discoveries made in the early 1990s have contributed greatly to the growing interest in this fascinating and highly relevant field: the description of distinct morphological patterns reflecting antibody-mediated graft injury and the landmark discovery of capillary C4d deposition as a marker of rejection. A broad array of studies published during the last years has led to a continuous refinement of diagnostic AMR criteria. This and the development of innovative tools for precise characterization of HLA antibody patterns have paved the way for the establishment of efficient anti-humoral treatment strategies.

From September 14 to 17, 2011, the 8<sup>th</sup> World Congress of the International Society for Apheresis (ISFA) was held in Vienna, Austria. AMR and the pivotal role of apheresis in this specific context were major topics addressed during this conference. The meeting prompted the Editors of *Transplant International* to take a closer look at this important aspect.

For this focus issue, internationally renowned experts in the field were invited to comment on essential aspects of diagnosis, prevention and treatment of AMR, providing their own points of view on the subject. Michael Mengel and colleagues start with a review of the morphological presentation of AMR. The authors give us an excellent update discussing innovative diagnostic concepts, such as the definition of C4d-negative AMR as a diagnostic entity, or the increasingly recognized potential of molecular profiling to define antibody-mediated injury. Preformed donor antigen-specific antibodies are well known to pose a risk of rejection. Never-

theless, despite detailed characterization of HLA antibody patterns, precise assessment of individual risks remains a big challenge. Dave Roelen, Ilias Doxiadis, and Frans Claas discuss the manifold repertoire of HLA antibody detection techniques. They take a critical look at new solid-phase assay systems that are increasingly used in clinical routine, including bead array technology for detection of antibody binding or complement deposition to HLA antigen-coated microbeads. Thomas Fehr and Adriana Gaspert provide a well-balanced survey of currently available anti-humoral treatment strategies, including innovative treatment concepts such as proteasome inhibition to target alloantibody-producing plasma cells or complement blocking agents to counteract the deleterious effect of complement activation. They outline the particular therapeutic challenge of chronic AMR, and, based on current evidence, they propose a step-wise algorithm for the treatment of acute AMR. Christian Morath and colleagues review the various approaches for prevention of AMR, including strategies to avoid allosensitization, subtle pretransplant risk stratification to tailor organ allocation, or recipient desensitization to enable transplantation across major immunological barriers. The authors provide a comprehensive and critical discussion of the various desensitization strategies, including antibody elimination by peritransplant immunoadsorption, the use of complement blocking agents, and interference with sensitization by proteasome inhibition.

We thank the authors for their time, experience, and insights into these important topics, and wish that this issue will be a valuable resource for your clinical practice.



Georg A. Böhmig and Kurt Derfler  
Division of Nephrology and Dialysis,  
Department of Medicine III,  
Medical University Vienna, Vienna, Austria  
e-mail: georg.boehmig@meduniwien.ac.at