
Organ replacement, support and regeneration

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Research activities are focused on several areas: replacement and support of the function of vital organs in critical conditions, kidney transplantation, uremic toxicity and biocompatibility of dialysis therapy. Kidney transplantation replaces all renal functions and is currently the best method of treatment of chronic renal failure. The main problem of transplantation is the development of chronic graft dysfunction and subsequent graft failure and therefore we focus, in randomised clinical and molecular biology studies, on the influence of viral infection on graft function in particular and we propose new preventive and pre-emptive procedures based on our results. The dominant topic of research in the area of compensation for organ function is the biocompatibility of extracorporeal circulation and uremic toxicity. The long-term goal is to understand the molecular mechanisms responsible for bio-incompatibility of extracorporeal methods and to identify new toxic substances of peptide and protein nature in acute and chronic renal failure using advanced proteomic methods. Unexplained pathophysiology of sepsis and the lacking causal treatment of sepsis are the starting point of systematic translation (which uses clinically relevant large mammalian biomodels) and clinical research focusing on organ, cellular and molecular mechanisms of sepsis, including the development and evaluation of new therapeutic strategies.

Selected outputs

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