



Recent Advancements in Organ Transplantation: From Organ Protection to Molecular Therapy

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Message from the Guest Editors

Organ transplantation (TX) is the best treatment for end-stage organ failure. However, crucial organ shortage and forcing clinicians to use higher-risk organs for TX, such as Extended Criteria Donors (ECD), which are very vulnerable to ischemia-reperfusion injury (IRI) associated with TX. IRI is the sum of damages accumulated during the complex TX process, including organ retrieval, static preservation, ex vivo dynamic perfusion and graft reperfusion. In all these steps, a “pleiade” of specific physiopathological mechanisms at a molecular level affects the organ's post-transplant function in the short and long term, which should be explored in depth. This special issue draws attention to new static preservation and dynamic perfusion machine strategies (HOPE and NMP) to increase organ protection, based on new pharmacological treatments, including single-cell transcriptomics and mi-RNAs. Overall therapeutic targets would allow a better understanding of the underlying molecular pathophysiology mechanisms involved in clinical and experimental transplantation scenarios when marginal organs are specially used.





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Message from the Editor-in-Chief

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