

Special Issue

Nephrology in the 21st Century: Native Kidney Diseases and Impact of Artificial Intelligence, and Advances in Renal Transplantation

Message from the Guest Editors

- Artificial Intelligence (AI) is transforming nephrology, enhancing care through predictive analytics, diagnostics, and treatment optimization. AI predicts chronic kidney disease (CKD) progression, diabetic kidney disease outcomes, and hospitalization risks in end-stage renal disease (ESRD). It also improves diagnostic accuracy in renal tumors and glomerular diseases through digital pathology and optimizes dialysis sessions by monitoring electrolytes and urea.
- Renal transplantation has advanced with improved surgical techniques and immunosuppressants. Desensitization, Kidney Paired Donation (KPD), and swap programs address donor shortages. Machine Perfusion Technology preserves donor organs, while artificial kidney technology and stem cell-derived organs hold future promise.
- Gene editing enables xenotransplantation, with genetically engineered pigs (10-GE pigs) showing reduced rejection risks. Experiments using pig-to-human xenografts achieved compatibility without hyperacute rejection, though thrombotic microangiopathy poses challenges.
- This Special Issue invites original research and reviews on related advancements.

Guest Editors

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