

Special Issue on
**Xenotransplantation: The Way Beyond and Ahead
toward Clinical Application**

CALL FOR PAPERS

Modern transplantology has started at its adventure in the beginning of the 20th century an unprecedented era for medical therapeutics. The opportunity to successfully transplant allogeneic cells, tissues, or organs derived from a donor opened for the first time the possibility to rescue and prolong the recipient's life.

Nowadays, during the time of prolonged human lifespan, but also of increasing incidence of organ insufficiency, allogeneic transplantation is, unfortunately, not always a viable option due to the unavailability of compatible donors.

In the dramatic scenario of human donor shortage and increasing transplantation waiting lists, the recourse to animals might provide therapeutic solutions for a larger population of patients affected by organ failure. Despite the possible similarities in anatomy and physiology to human tissues and organs, animal equivalents are able to trigger the onset of immunological reactions in the settings of xenotransplantation.

Breakthroughs in glycoimmunology, transplantation, proteomics, and molecular signaling have started to shed light on the culprits and interplays causing the failure of xenotransplantation approaches. Thanks to these new insights, novel modalities to prevent immunological responses have been designed. Innovative strategies have been devised to modulate the recipient's response to xenografts, to create an interface barrier between human blood and animal equivalent or to reduce the immunogenic power of transplanted cells, tissues, and organs.

In a continuous cross-talk between fundamental and applied research, the translation of novel therapeutic solutions based on animal equivalents into the clinical scenario is closer. However, the route to the clinical application of xenografts presents still many hurdles before reaching such an ambitious therapeutic goal. With this special issue, we aim to offer an overview of the state of the art in xenotransplantation with reference to the continuous advancements and potential issues in this medical field.

Potential topics include but are not limited to the following:

- ▶ Definition of pathophysiologic pathways and interplays involved in xenotransplantation immunology
- ▶ Glycoimmunology of xenogeneic tissues
- ▶ Animal models
- ▶ Stem cell xenotransplantation
- ▶ Solid organ xenotransplantation
- ▶ Pharmaceutical strategy to modulate tolerance to xenotransplant
- ▶ Gene engineering strategies to prevent xenotransplant rejection
- ▶ Bioengineering strategies to circumvent xenotransplant rejection
- ▶ Basic research
- ▶ Clinical research
- ▶ Medical and ethical issues related to xenotransplantation experimental investigation and use of xenogeneic organs in human therapy

Authors can submit their manuscripts through the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/jir/xwba/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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