

**The American Society of Transplantation would like to call your attention to the critical need for a NIH study section specifically dedicated to transplantation research.**

### Why is this a problem?

- Prolonged lack of innovation in transplantation: The success of clinical transplantation in saving the lives of individuals with life-threatening diseases is due to advances made through basic and patient-oriented scientific research in the fields of immunology, molecular biology, biochemistry, genetics, and cell biology. Despite the ongoing need for improvement, there is an alarming lack of development of therapeutic interventions that promise to extend current trends in transplant survival. In order to enhance discovery and innovation in this field, there is continuing need to strengthen basic, translational, and clinical transplantation research efforts within the U.S. However, current research efforts in this area appears to be actually decreasing, in part due to the issues about NIH funding, described below. As a result, the number of transplantation-related studies submitted for peer-reviewed publication is declining in the U.S.
- Limited current opportunity for obtaining funding for transplantation-related grants: In part, this problem relates to the very limited availability of suitable NIH grant review groups (or 'study sections') for transplantation-oriented researchers. At present, there is only one NIH review group that evaluates the majority of basic and translational transplant grant applications and this is actually a 'hybrid' group evaluating applications from three different disciplines: Transplantation Biology, basic research in immune tolerance, and tumor immunology. Correspondingly, the direct funding for transplantation projects is diluted amongst these competing research areas. As a result, the number of transplantation-related studies submitted for peer-reviewed publication is declining in the U.S.

### Why does this matter?

- Decades-long inability to improve long-term transplant outcomes: Organ and tissue transplantation represent key life-saving procedures for patients with end-stage organ failure. While one-year graft and patient survival have markedly increased over the past twenty years, longer-term outcomes have not significantly changed over this same period for virtually any type of transplant (UNOS and SRTR data).
- Crucial role of NIH funding for innovation: Past findings obtained through NIH-funded transplant research have led to the development of new pharmaceutical agents such as immunosuppressants and anti-microbials, and exciting ventures into future innovative therapies, including novel immunomodulators, stem cells, strategies for promoting organ regeneration, and xenotransplantation. NIH-funded research has been the foundation for the development of an infrastructure supporting studies that serve to improve therapy and outcome of patients requiring organ transplants. The success of transplantation as a therapy, and the translation of research findings into the clinic, is crucially dependent upon the steady growth of basic and clinical science, and the training of basic scientists, clinical investigators, and expert clinicians. Moreover, NIH-supported research not only leads to increased innovation, but also generates an important return on investment to the U.S. economy<sup>i</sup>. Finally, the lack of adequate research support is currently resulting in the egress of U.S. scientific expertise overseas and the limited development of future domestic scientific innovators.
- Perspective of organ transplantation relative to Type 1 Diabetes (T1D): Probably the closest comparison of organ transplantation to another major disease is with Type 1 diabetes. The number of organ transplants performed each year has increased and since 2015 the annual number of transplant recipients (UNOS data) has matched and even exceeded the number of new-onset Type 1 diabetic patients (NIDDK data). However, there is a striking disparity of national and foundation research resources invested between these two areas. For example, in addition to standard NIH and JDRF/ADA funding, T1D has received \$30-150 million per year of *additional* NIH statutory since 1998 (totaling over \$2.75 billion to date). As a consequence of this, there have been dramatic advances in T1D research and treatment during this period while innovation in transplantation has been relatively stagnant. We would love to see similar investment and advancement in the field of transplantation.

**How Can We Solve This Problem? Support legislation that supports innovative research, including:**

- Establishment of a *dedicated* transplantation science grant review study section within the NIH Public Health Service. Such a short-term mechanism for peer-reviewed evaluation focused on transplantation-related projects would essentially triple the current number of funded transplant grants and form a strategic step for reinforcing much needed research efforts in the transplantation field.
- Sustained and increased funding of transplantation research through the NIH, DOD and other federal agencies. The AST strongly supports any and all initiatives to increase funding for basic and clinical research and for the training of scientists. These funds will provide the necessary foundation for the field of organ transplantation to realize its full potential for improving the length and quality of human life.

*Approved by the AST Executive Committee on April 4, 2017*

*Revised and approved by the AST Board of Directors on March 3, 2020*

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<sup>i</sup> Non-Defense Discretionary Science 2013 Survey, American Society for Biochemistry and Molecular Biology:  
<http://www.asbmb.org/uploadedFiles/Advocacy/Events/UPVO%20Report%20V2.pdf>