

Scientific Research Paper Abstract

PriStem – A Primate Resource for Developing Stem Cell Therapies

Stem cells and Regenerative Medicine offer a novel approach to the treatment of diseases and injuries that have otherwise been difficult to effectively treat with standard medical approaches. The advent of “induced pluripotent stem” cells (iPS cells) that can be derived from adult skin cells or blood cells offers an exciting alternative to the use of embryonic stem cells for this purpose, and the opportunity to develop “patient-specific” stem cells genetically and immunologically matched to each individual. Nevertheless, much research is still needed to optimize the efficacy and safety of stem cell-based therapeutic approaches before applying these to human patients. Nonhuman primates, such as baboons, are the most clinically relevant yet still experimentally manipulable animal model for studies of stem cell-based therapeutic approaches. We are developing “PriStem,” a comprehensive, user-friendly resource designed to provide nonhuman primate resources to foster the development, testing and optimization of therapeutic protocols involving patient-specific iPS cells prior to initiating tests in human patients. These resources include embryonic stem cells, induced pluripotent stem cells, and mesenchymal stem cells derived from baboons, plus access to matched living baboons from which each line of stem cells was derived. The Southwest National Primate Research Center in San Antonio is fully equipped to maintain living nonhuman primates and to perform experimental manipulations on these animals. PriStem is designed to function as a centralized, comprehensive resource that will complement work by researchers from many different institutions pursuing studies involving stem cells and their application to therapeutic treatments of diseases or debilitating conditions such as battlefield trauma. This resource is expected to accelerate the discovery, application and clinical translation of novel therapeutic approaches involving iPS and related types of stem cells.