

# INTRODUCTION

**T**he Greek Titan, Prometheus, is a fitting symbol for regenerative medicine. As punishment for giving fire to Humankind, Zeus ordered Prometheus chained to a rock and sent an eagle to eat his liver each day. However, Prometheus' liver was able to regenerate itself daily, enabling him to survive. The scientific researchers and medical doctors of today hope to make the legendary concept of regeneration into reality by developing therapies to restore lost, damaged, or aging cells and tissues in the human body.

This report features chapters written by experts in several areas of enormous potential for regenerative medicine. Drs. Junying Yu and James A. Thomson

explain the basic features of embryonic stem cells, how they are being used in research, and how they may lead to human therapies. Drs. Jos Domen, Amy Wagers, and Irving Weissman describe the historical origins of blood-forming stem cell research, basic features of these adult stem cells, progress on using these cells for human therapies, and future possibilities. Dr. David Panchision explores ways to use cell-based therapies to restore lost function in the human nervous system. Dr. Thomas Zwaka explains how stem cells may be used for gene therapy, and Dr. Mark L. Rohrbach explains the current state of intellectual property issues associated with research using human embryonic stem cells.