Eighty Nobel laureates were among those who signed a letter to President Bush urging funding for research on human embryo cells.

To the Honorable George W. Bush,
President of the United States

We the undersigned urge you to support Federal funding for research using human pluripotent stem cells. We join with other research institutions and patient groups in our belief that the current National Institutes of Health (NIH) guidelines, which enable scientists to conduct stem cell research within the rigorous constraints of federal oversight and standards, should be permitted to remain in effect. The discovery of human pluripotent stem cells is a significant milestone in medical research. Federal support for the enormous creativity of the US biomedical community is essential to translate this discovery into novel therapies for a range of serious and currently intractable diseases.

The therapeutic potential of pluripotent stem-cells is remarkably broad. The cells have the unique potential to differentiate into any human cell type. Insulin-producing cells could be used to treat - or perhaps even cure - patients with diabetes, cardiomyocytes could be used to replace damaged heart tissue, chondrocytes could be used for arthritis, and neurons for Parkinson's, Alzheimer's, ALS and spinal cord injuries to name a few examples. There is also the possibility that these cells could be used to create more complex, vital organs, such as kidneys, livers, or even entire hearts.

Some have suggested that adult stem cells may be sufficient to pursue all treatments for human disease. It is premature to conclude that adult stem cells have the same potential as embryonic stem cells -- and that potential will almost certainly vary from disease to disease. Current evidence suggests that adult stem cells have markedly restricted differentiation potential. Therefore, for disorders that prove not to be treatable with adult stem cells, impeding human pluripotent stem cell research risks unnecessary delay for millions of patients who may die or endure needless suffering while the effectiveness of adult stem cells is evaluated.

The therapeutic promise of pluripotent stem cells is based on more than two decades of
research in mice and other animal models. This research confirms that pluripotent stem cells are capable of generating all of the cell types of the body. Most importantly, the therapeutic potential of these cells has already been demonstrated. Cardiomyocytes generated in the laboratory from these cells have been transplanted into the hearts of dystrophic mice where they formed stable intracardiac grafts. Nerve cells have successfully reversed the progression of the equivalent of multiple sclerosis in mice and have restored function to the limbs of partially paralyzed rats; and insulin-secreting cells have normalized blood glucose in diabetic mice. These findings suggest that therapies using these cells may one day provide important new strategies for the treatment for a host of currently untreatable disorders.

While we recognize the legitimate ethical issues raised by this research, it is important to understand that the cells being used in this research were destined to be discarded in any case. Under these circumstances, it would be tragic to waste this opportunity to pursue the work that could potentially alleviate human suffering. For the past 35 years many of the common human virus vaccines -- such as measles, rubella, hepatitis A, rabies and poliovirus -- have been produced in cells derived from a human fetus to the benefit of tens of millions of Americans. Thus precedent has been established for the use of fetal tissue that would otherwise be discarded.

We urge you to allow research on pluripotent stem cells to continue with Federal support, so that the tremendous scientific and medical benefits of their use may one day become available to the millions of American patients who so desperately need them.

Yours respectfully,

Kenneth J. Arrow*, Stanford University
Julius Axelrod*, National Institute of Mental Health, Education Welfare
Baruj Benacerraf*, Dana-Farber Cancer Institute
Paul Berg*, Stanford University
J. Michael Bishop*, University of California, San Francisco
Nicolaas Bloembergen*, Harvard University
Herbert C. Brown*, Purdue University
Jose Cibelli, Advanced Cell Technology
Stanley Cohen*, Vanderbilt University School of Medicine
Leon N. Cooper*, Brown University
E. J. Corey*, Harvard University
James W. Cronin*, University of Chicago
Robert Curl, Jr.*, Rice University
Peter Doherty*, St. Jude Children's Research Hospital
Johann Deisenhofer*, University of Texas Southwestern Medical Center
Reneto Dulbecco*, Salk Institute
Edmond H. Fischer*, University of Washington
Val L. Fitch*, Princeton University
Robert Fogel*, University of Chicago
Jerome I. Friedman*, Massachusetts Institute of Technology
Milton Friedman*, Hoover Institute
Robert F. Furchgott*, State University of New York Health Sciences Center
Murray Gell-Mann*, Santa Fe, NM
Walter Gilbert*, Harvard University
Alfred Gilman*, University of Texas, Southwestern Medical Center
Donald Glaser*, University of California, Berkeley
Sheldon Lee Glashow*, Boston University
Ronald M. Green, Dartmouth College
Paul Greengard*, The Rockefeller University
Roger Guillemin*, The Salk Institute
Leonard Hayflick, University of California, San Francisco
Herbert A. Hauptman*, Hauptman-Woodward Medical Research
James J. Heckman*, University of Chicago
Alan Heeger*, University of California, Santa Barbara
Dudley Herschbach*, Harvard Medical School
David H. Hubel*, Harvard Medical School
Russell Hulse*, Plasma Physics Laboratory
Eric Kandel*, Columbia University
Jerome Karle*, Washington, D.C.
Lawrence R. Klein*, University of Pennsylvania
Walter Kohn*, University of California, Santa Barbara
Arthur Kornberg*, Stanford University School of Medicine
Edwin G. Krebs*, University of Washington
Robert P. Lanza+, Advanced Cell Technology
Robert Laughlin*, Stanford University
Leon Lederman*, Illinois Institute of Technology
David M. Lee*, Cornell University
Edward Lewis*, California Institute of Technology
William Lipscomb, Jr.*, Harvard University
Rudolph A. Marcus*, California Institute of Technology
Daniel McFadden*, University of California, Berkeley
R. Bruce Merrifield*, The Rockefeller University
Robert Merton*, Harvard University Graduate School of Business Administration
Franco Modigliani*, Massachusetts Institute of Technology
Mario J. Molina*, Massachusetts Institute of Technology
Ferid Murad*, University of Texas Medical School
Marshall W. Nirenberg*, NIH National Heart, Lung Blood Institute
Douglass C. North*, Washington University
George A. Olah*, University of Southern California
Douglas Osheroff*, Stanford University
Nobelists' Letter to President Bush Supporting Embryonic Stem Cell Research

George E. Palade*, University of California, San Diego
Martin Perl*, Stanford University
Norman F. Ramsey*, Harvard University
Burton Richter*, Stanford University
Richard J. Roberts*, New England Biolabs
Paul A. Samuelson*, Massachusetts Institute of Technology
Melvin Schwartz*, Columbia University
Phillip A. Sharp*, Massachusetts Institute of Technology
Richard E. Smalley*, Rice University
Hamilton O. Smith*, Celera Genomics
Robert M. Solow*, Massachusetts Institute of Technology
Horst Stormer*, Columbia University
Henry Taube*, Stanford University
Richard Taylor*, Stanford University
E. Donnall Thomas*, University of Washington
James Tobin*, Yale University
Susumu Tonegawa*, Massachusetts Institute of Technology
Charles Townes*, University of California, Berkeley
James D. Watson*, Cold Spring Harbor Laboratory
Steven Weinberg*, University of Texas
Thomas H. Weller*, Harvard School of Public Health
Michael D. West+, Advanced Cell Technology
Eric F. Wieschaus*, Princeton University
Torsten N. Wiesel*, The Rockefeller University
Robert W. Wilson*, Harvard-Smithsonian Center for Astrophysics

* Nobel Laureate
+ Corresponding Author