NYSCF
The New York Stem Cell Foundation

Contact: David McKeon
212-365-7440
dmckeon@nyscf.org

NYSCF APPLAUDS NOBEL PRIZE WIN FOR STEM CELL RESEARCH

For their landmark achievements, Shinya Yamanaka and John Gurdon win the 2012 Nobel Prize in Physiology or Medicine for stem cell research

NEW YORK, NY (October 8, 2012) – The New York Stem Cell Foundation (NYSCF) congratulates Shinya Yamanaka, MD, PhD, at Kyoto University in Japan, and John Gurdon, PhD, at the Gurdon Institute in the UK, for being awarded the Nobel Prize in Physiology or Medicine by the Nobel Assembly at Karolinska Institute. Although almost fifty years separate their discoveries, the scientists share the prize for their stem cell research breakthroughs. Both Yamanaka and Gurdon showed a mature cell could be reprogramed into a pluripotent cell, a cell that may become any cell type in the body.

"Dr. Yamanaka and Dr. Gurdon are stem cell pioneers, whose work has laid the foundation of an entire field," commented Susan L. Solomon, CEO of The New York Stem Cell Foundation. "The entire field of medical research has been accelerated by these scientists. Their discoveries have vast implications for the future of medicine and bring scientists closer to the discovery of new therapies and treatments for disease."

The NYSCF Laboratory is but one of a few research institutions in the world where scientists conduct investigations using all types of stem cells. Last year, NYSCF researcher Dr. Dieter Egli was the first to demonstrate that a human egg could reprogram an adult cell into a pluripotent cell. This significant discovery builds on the work of Gurdon and colleagues.

In 1962, Gurdon demonstrated that committed adult cells retain information to create all other cell types. His now classic experiment revealed that a viable frog may be produced by replacing the nucleus of a frog egg cell with that of an adult cell. Gurdon was the first scientist to clone an animal from adult cells. Although this discovery was initially met with skepticism, Yamanaka's stem cell research illustrated the underlying cellular mechanisms of specialized cell "reprogramming."

Yamanaka uncovered the genetic factors that contribute to cellular pluripotency, or an immature cell state. Yamanaka and his team systematically tested combinations of genes that turn-back the clock in mature skin cells, until they identified the four genes, or Yamanaka factors, that rendered the cells into an embryonic-like state. These induced pluripotent stem (iPS) cells may develop into any other cell type.

Based off of Yamanaka's discovery, NYSCF scientists conduct cutting-edge research on induced pluripotent stem (iPS) cells. NYSCF Laboratory Director, Dr. Scott Noggle, announced earlier this year that he and his team developed an iPS cell-based model of Alzheimer's disease by reprogramming the skin cells of Alzheimer's patients to become the brain cells affected in Alzheimer's. NYSCF scientists are also generating stem cell-derived disease models of diabetes, Parkinson's disease, multiple sclerosis, and mental health disorders as well as creating bone from iPS cells.

The New York Stem Cell Foundation (NYSCF) conducts cutting-edge translational stem cell research in its laboratory in New York City and supports research by stem cell scientists at other leading institutions around the world. More information is available at www.nyscf.org.