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## **Time Magazine Recognizes ALS Stem Cell Research as No. 1 Medical Breakthrough in 2008**

Time magazine has named the creation of motor neurons using ordinary skin cells from people with ALS as the No. 1 medical breakthrough in 2008. The research was reported last summer by The ALS Association.

“Researchers at Harvard and Columbia reported a milestone experiment in July, using a new method — one that doesn't require embryos at all — to generate the first motor neurons from stem cells in two elderly women with Lou Gehrig's disease, or ALS,” wrote Alice Park in the magazine's Top 10 Everything of 2008 issue published in December.

“The technique, developed by Kyoto University scientist Shinya Yamanaka in 2006, involves reprogramming a patient's ordinary skin cells to behave like stem cells, then coaxing them into the desired tissue-specific cells,” continued Park. “Using the motor neurons created from ALS patients, scientists can now study the progress of the disease as the affected cells develop, degenerate and die in a dish — something researchers could never do before for such slow-moving conditions. Once scientists understand the development of ALS, they may be able to create more effective treatments, or perhaps even a cure.”

"The recognition by a major news organization of the importance of this research is gratifying," said Dr. Lucie Bruijn, science director and vice president of The ALS Association. "Advances such as this make it possible to achieve a more detailed understanding of the ALS disease process, which we need in order to design therapies."

In an article dated August 1, The Association described how stem cells had been generated from individual patients with ALS, and that the accomplishment was likely to lead to development of new models of ALS and new understanding of disease mechanisms. “They will also provide a potential resource for drug discovery and the development of new treatments for ALS,” Bruijn said at the time.

“Model systems to date have focused on the SOD1 mutations linked to 2 percent of ALS. These findings enable the development of cell lines from ALS patients, even those for which the specific causative genes remain unknown,” continued Bruijn. “The ability to generate human motor neurons from ALS patients carrying genes linked to the disease is a very exciting

accomplishment building on novel technology and the work of several groups.” Motor neurons are the nerve cells that die in ALS.

In the study recognized by Time magazine, researchers at Harvard University and Columbia University took skin cells from patients with a genetic form of ALS, caused by mutation in the superoxide dismutase (SOD1) gene. The skin cells were treated with a small set of genes that scientists have recently learned will reprogram adult cells to become stem cells capable of developing into many cell types.

The researchers showed that the genes “deprogrammed” the skin cells, reverting them to an earlier stage in their development, turning them into stem cells. Stem cells, which are formed normally during human development, have the ability to become many different kinds of cells. The researchers showed the new stem cells could transform into motor neurons.