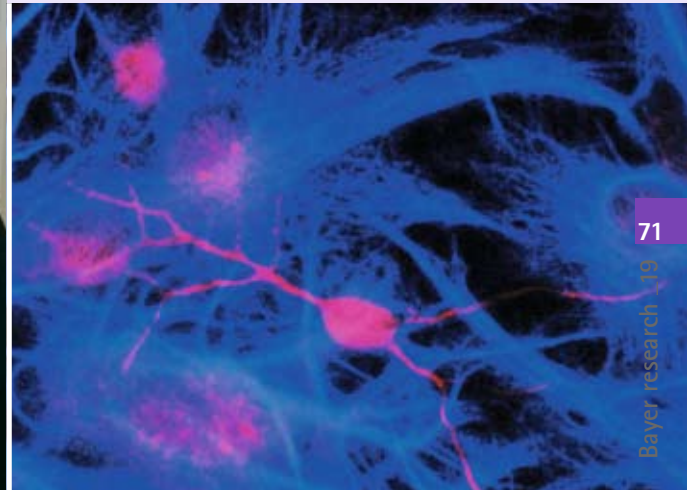


The brain as a **source of neurons**



The work of brain researcher Professor Magdalena Götz (left) has shown that functional neurons can be derived from stem cells (below) and used to replace brain cells damaged in accidents.



Nearly ninety percent of the brain consists of what are known as glial cells. Neurobiologist Professor Magdalena Götz recently discovered that these can change into nerve cells when needed, a finding that will pave the way for new approaches to the treatment of brain damage. The 2007 Hansen Family Prize was bestowed on Professor Götz for her discovery.


Glial cells were discovered in the brain by Rudolf Virchow in the mid-19th century. He misinterpreted their function, however. The pathologist believed them to be a type of tissue that held together the nerve cells, also known as neurons. Based on this misconception, he named the substance after the Greek word for glue, "glia". This "nerve cement" then went virtually ignored for many years. Not until recently have scientists once again begun to take a closer look at the cells, discovering that they are more than just glue holding the brain together. Glial cells primarily serve as helpers for the nerve cells, protecting and supporting them in the transmission of signals, for example by supplying the neurons with nutrients and transporting their waste. Glial cells also channel excess water and potassium into the blood vessels.

Thanks to research conducted by Professor Magdalena Götz of the Institute of Stem Cell Research at the National Research Center for Environment and Health (GSF) in Neuherberg near Munich, we now know that certain glial cells can also transform themselves into neurons during cerebral development, and in some cases following injuries as well. This differentiation process is of special interest in light of the fact that the nerve cells themselves lack the potential for self-regeneration. Should it in the future prove possible to stimulate the targeted transformation of glial cells into neurons in adult brains, this would be the first step on the way to using the process for treatment of brain damage.

The 44-year-old neurobiologist, who is also a teaching professor in the Department of Physiological Genomics at Ludwig-Maximilians University in

Munich, was honored with the Hansen Family Prize endowed with €50,000 for her discovery. Professor Götz's work has proved that the natural sciences in Germany are fit for international comparison, said Bayer Board of Management Chairman Werner Wenning at a ceremony in Leverkusen.

The award, sponsored by the late former Chairman of the Board of Management and Supervisory Board of Bayer AG, Professor Kurt Hansen, was bestowed for the fourth time in 2007. "Professor Götz's work has fundamentally transformed our knowledge of stem cells and glial cells, as well as opening up entirely new approaches to possible regenerative therapies," said Dr. Wolfgang Plischke, the Bayer Management Board member responsible for Innovation, Technology and Environment in his congratulatory speech. During a ceremony in Leverkusen, the researcher said that the award money would provide her with a flexible resource for her work.

 www.gsf.de/neu/isf
The homepage of the Institute of Stem Cell Research from the National Research Center for Environment and Health (GSF) provides further information on this topic.