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Stem Cells Rescue Nerve Cells by Direct Contact

Feb. 2, 2010 — Scientists at the Swedish medical university Karolinska Institutet have shown how transplanted stem cells can connect with and **rescue threatened neurons and brain tissue**. The results point the way to new possible treatments for brain damage and neurodegenerative diseases.

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"Many different molecules can be transported through gap junctions," says Eric Herlenius, who led the study. "This means that a new door to the possible future treatment of neuronal damage has been opened, both figuratively and literally."

The international team of scientist, beside Karolinska Institutet, included researchers from Sanford-Burnham Medical Research Institute, Harvard Medical School and Université Libre de Bruxelles.

Their report is published in the *Proceedings of the National Academy of Sciences* (Online Early Edition).

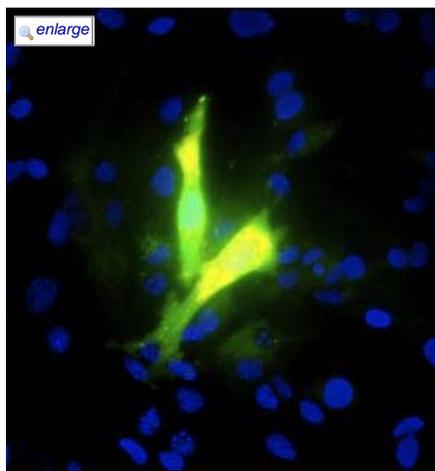
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Two exogenous murine neural stem cells (NSCs) filled with the gap junction-permeable dye Calcein (green) and the gap junction-impermeable dye Dil (red) following engraftment to an organotypic striatal tissue culture. Cell nuclei are displayed by DAPI nuclear counterstain (blue). (Credit: Copyright Johan Jäderstad and Eric Herlenius)

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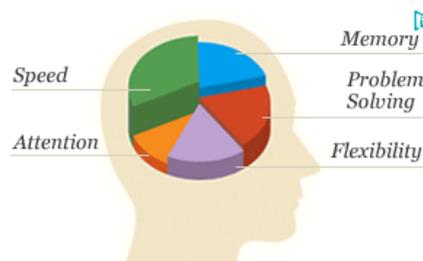
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- Johan Jäderstad, Linda M. Jäderstad, Jianxue Li, Satyan Chintawar, Carmen Salto, Massimo Pandolfo, Vaclav Ourednik, Yang D. Teng, Richard L. Sidman, Ernest Arenas, Evan Y. Snyder and Eric Herlenius. Communication via gap junctions underlies early functional and beneficial interactions between grafted neural stem cells and the host. *Proceedings of the National Academy of Sciences*, 2010; (in press)

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