

June 20, 2005

RIKEN Brain Science Institute  
The Laboratory for Neural Cell Polarity  
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## **Discovery of a Protein Essential for Growth of Glial Cells which in turn Support Neurons**

The Laboratory for Neural Cell Polarity (Laboratory Head: Dr. Mineko Kengaku), RIKEN Brain Science Institute and the Japan Science and Technology Agency (JST) have announced on June 17 that they have discovered that a membrane protein "DNER" expressed in developing neurons in the mouse brain is essential for growth of glial cells supporting the function of neural circuitry.

Although it has been known that neurons and glial cells are generated from the same neural stem cells and form the neural network in a concerted manner, the mechanism has not been elucidated so far.

The research team focused on DNER function in the mouse cerebellar neurons. They found that immature glial cells are induced to form processes by contacting with neurons expressing DNER on the cell surface. They also showed that the development of the cerebellar neural circuitry is markedly delayed in mice deficient of DNER. DNER thus acts as a molecular switch controlling cell differentiation.

The results of the research were published on the online version of the U.S. science journal, "*Nature Neuroscience*" dated June 19.

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