

Brain cell potassium regulator is studied

August 17 2006

U.S. scientists say proteins regulating brain-cell activity by controlling potassium ion flow behave more like volume controls than on-off switches.

The University of California-Davis researchers say the finding provides a new model for the behavior of critical gatekeeper proteins found in neuronal membranes.

"We've shown that brains cells regulate activity in an incremental way, with thousands of different possible levels of activity," explained Professor James Trimmer, senior author of the paper. He and his colleagues in the UC-Davis School of Medicine studied an ion channel that controls neuronal activity called Kv2.1, a type of voltage-gated potassium channel that is found in every neuron of the nervous system.

"Our work showed that this channel can exist in millions of different functional states, giving the cell the ability to dial its activity up or down depending on the what's going on in the external environment," said Trimmer. "It's an elegant feedback system."

The complete study is detailed in the current issue of the journal Science.

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Citation: Brain cell potassium regulator is studied (2006, August 17) retrieved 30 April 2024 from <https://medicalxpress.com/news/2006-08-brain-cell-potassium.html>

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