

Long-term memory controls discovered

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Harvard biologists say research on the long-term memory in fruit flies may lead to new therapeutics to treat human memory loss.

A molecular pathway active in neurons interacts with RNA to regulate the formation of long-term memory in fruit flies. The same pathway is also found at mammalian synapses, researchers said.

"This pathway, called RISC, interacts with RNA at synapses to facilitate the protein synthesis associated with forming a stable memory. In fruit flies, at least, this process makes the difference between remembering something for an hour and remembering it for a day or more," said Professor Sam Kunes.

The findings are published in the online version of the journal Cell.

Using a classical learning test that simultaneously exposes the insects to an odor and an electric shock, the researchers found that long-term memory could be greatly increased by adjusting the activity of the RISC pathway in the fruit flies.

Kunes says the various proteins that comprise the RISC pathway are also found at synapses in mice and humans, suggesting it could be a target for new medications to boost human memory, the university said.

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