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Could some forms of mental retardation be treated with drugs?

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Growth factors. They are the proteins that trigger a countless number of actions in cells. Drugs that increase or decrease certain growth factors have lead to treatments for cancer and cardiovascular diseases. Georgetown University Medical Center researchers say a new understanding of a growth factor implicated in some mental retardation disorders could lead to a novel treatment.

Abnormalities in the number and shape of dendritic spines, the protrusions that allow communication between brain neurons, have been observed in patients with mental retardation. Previous research led by Baoji Xu, PhD, associate professor in the department of pharmacology, has shown that brain-derived neurotrophic factor (BDNF), a growth factor synthesized in dendrites, regulates the number and shape of dendritic spines required for spatial learning and memory.

In this work, presented during a symposium at the 39th annual meeting of the Society for Neuroscience, Xu and his colleagues halted the transport of BDNF to dendritic spines in mice. They found similar abnormalities in dendritic spine development seen in humans with some forms of mental retardation, such as fragile X syndrome. The mice also exhibited impaired learning and memory.

These results highlight the role of BDNF in mental retardation, Xu says, and indicate that increasing the transport of these growth factors may be a way to treat these conditions.

Source: Georgetown University Medical Center (news : web)