Toward new medications for chronic brain diseases

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A needle-in-the-haystack search through nearly 390,000 chemical compounds had led scientists to a substance that can sneak through the protective barrier surrounding the brain with effects promising for new drugs for Parkinson's and Huntington's disease. They report on the substance, which blocks formation of cholesterol in the brain, in the journal, *ACS Chemical Biology*.

Aleksey G. Kazantsev and colleagues previously discovered that blocking cholesterol formation in the brain could protect against some of the damage caused by chronic brain disorders like Parkinson's disease. Several other studies have suggested that too much cholesterol may kill brain cells in similar neurodegenerative diseases. So they launched a search for a so-called "small molecules" — substances ideal for developing into medicines — capable of blocking formation of cholesterol.

They describe discovery of a small molecule that blocks the activity of a key protein involved in cholesterol production. It successfully lowered cholesterol levels in isolated nerve cells and brain slices from mice. If the molecule proves to be a good target for developing new drugs, the scientists note, "it could have a broader application in other neurological conditions, such as Alzheimer's disease, for which modulation of cholesterol and other associated metabolic pathways might be of therapeutic benefit."