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Needle-in-a-haystack search identifies potential brain disease drug

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Scientists who examined more than 10,000 chemical compounds during the last year in search of potential new drugs for a group of untreatable brain diseases, are reporting that one substance shows unusual promise. The early positive signs for so-called prion diseases come from research in laboratory mice and cell cultures, they say in a report in ACS' *Journal of Medicinal Chemistry*.

Adam Renslo and colleagues, who include Nobel Laureate Stanley B. Prusiner, explain that prion diseases include conditions like mad cow disease in animals and Creutzfeldt-Jakob Disease in humans, result from deposits of abnormal prion protein in brain tissue. Prion diseases are invariably fatal and no treatments are yet available.

The scientists describe narrowing their search among the 10,000 candidate drugs to a few dozen of the most promising and then synthesizing new variations of the compounds, termed aminothiazoles. Tests on laboratory mice showed that the new compounds can reach the brain and reach high concentrations when taken orally and do not appear toxic. Tests on prion-infected mouse brain cells showed that the compounds reduced the amount of the abnormal prion protein. The compounds appear to be among the most promising potential treatments for prion diseases yet discovered, the report suggests.

More information: "2-Aminothiazoles as Therapeutic Leads for Prion Diseases", *Journal of Medicinal Chemistry*.