New fluorescent label sheds light on brain diseases

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In an advance that may speed progress toward new diagnostic tests for Alzheimer's disease (AD) and Parkinson's disease (AD), scientists in New York are reporting development of the first direct method for measuring a key enzyme implicated in both of those chronic brain disorders. The study is scheduled for the Nov. 21 issue of ACS' *Journal of the American Chemical Society*.

Dalibor Sames and Mary K. Froemming point out that the enzyme — 17B-HSD10 — has stirred excitement among researchers as a potential biomarker that could be used to diagnose AD and PD and chronicle the effectiveness of treatments.

Other studies have found that PD patients have reduced levels of the enzyme, while increased levels seem to protect laboratory mice from the disease. 17B-HSD10 also attaches to the abnormal brain protein in AD, perhaps contributing to the loss of brain cells. "Despite the importance of this emerging physiological and pathological marker, there are no agents for direct imaging of 17B-HSD10 in living cells and tissues," the report states.

In the new study, researchers describe development of a compound with all the required properties for serving as such an agent. In laboratory tests on human cells, they showed that the new imaging agent lit up in the presence of 17B-HSD10 to permit non-invasive, real-time monitoring of the enzyme's activity. "This new imaging agent will be used to elucidate the biological functions of this important physiological

marker," the study reported.

Source: ACS