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Illinois Wesleyan University NEWS RELEASE

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Student Researches Alzheimer-like Deficiencies in Rats

BLOOMINGTON, Ill. – Illinois Wesleyan University student Andrew Tharp and Renee Countryman, assistant professor of psychology, have been conducting research related to newer pharmaceutical treatments for Alzheimer's disease.

Tharp, a senior psychology major from Lake in the Hills, Ill., and Countryman are studying the effects of the drug Guanfacine on rats with induced memory deficiencies similar to Alzheimer's.

Alzheimer's disease, a brain disorder that usually affects people age 65 and older, causes memory loss and behavioral issues associated with dementia.

A known cause of Alzheimer's symptoms is a decrease of acetylcholine in the brain. Acetylcholine, a chemical neurotransmitter, carries messages between neurons and other cells. In order to mimic this condition in rats Tharp and Countryman administered a drug that decreases acetylcholine thereby affecting the rats' memory.

According to Countryman, current drugs are designed to increase the level of acetylcholine in the brain by inhibiting an enzyme that normally functions to destroy any excess amounts of acetylcholine. However, as Alzheimer's disease progresses, acetylcholine naturally becomes less available in the brain. Drugs that inhibit this enzyme eventually become ineffective when there is little or no acetylcholine left to prevent from being destroyed.

"The problem is Alzheimer's treatments just don't work for humans in the long-term, they may work for a short period, but they always stop working over time," says Countryman.

The drug that Tharp and Countryman are studying, however, takes a different approach to improving memory loss by focusing on a different neurotransmitter. Guanfacine increases the levels of the neurotransmitter norepinephrine, associated with attention and awareness. By increasing norepinephrine levels in the brain, the drug boosts attention and awareness thereby enhancing perceptions and hopefully improving memory.

"We can see how this idea works using college students as an example. If a student comes to class awake and pays attention he retains more information than a student who shows up and does not focus on the lecture," says Countryman.

Current results from Tharp and Countryman's study show that Guanfacine may be effective at improving memory impairments caused by decreased acetylcholine function as seen in Alzheimer's disease.

Tharp will present the research in the poster session of IWU's John Wesley Powell Conference on April 12. He will also present at the Midwestern Psychological Association – Psi Chi Conference in Chicago, Ill. on May 1.

For additional information, contact the Office of University Communications at (309) 556-3181.

About Illinois Wesleyan

Founded in 1850, Illinois Wesleyan is a private liberal arts institution located in Bloomington, Illinois, with an enrollment of 2,045 students from 39 states and 22 countries. With 184 faculty scholars, the student-faculty ratio is 11 to 1 and the average class size is 17. The University offers 41 major areas of study, plus programs in pre-med, pre-law, pre-dentistry, pre-engineering, pre-veterinary science, pre-seminary studies, and professional programs in business, the fine arts and nursing.

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