

New path for possible Alzheimer's drugs

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Findings presented in new research by a team of West Virginia University scientists could eventually lead to innovations in the treatment of memory loss caused by Alzheimer's disease. Han-Ting Zhang, M.D., Ph.D., WVU School of Medicine assistant professor, was the lead author of the study published in the January 5, 2011 edition of the weekly *Journal of Neuroscience*. He said the results may be the foundation for the development of new memory-preserving drugs.

Scientists had previously isolated an enzyme they believed contributed to [memory loss](#) in Alzheimer's patients. Called phosphodiesterase-4 (PDE4), the enzyme breaks down a cellular molecule important for maintaining memory. That molecular substance acts as a signaling pathway in the brain that "turns on" memory genes. Previous studies found that drugs blocking PDE4 improved the function of these pathways, but caused nausea and vomiting. One of four subtypes of the enzyme, PDE4D, seemed to be responsible for the unwanted side effect.

With the support of the National Institute of Aging, Dr. Zhang's group altered the genes of mice to remove the PDE4D subtypes that led to the nausea and vomiting.

"PDE4D is the important target for memory," Dr. Zhang said. "There's potential here for development of new treatments for memory loss associated with central nervous system disorders like Alzheimer's disease, Parkinson's disease, and depression."

Though Zhang says there's far more study needed before PDE4D

inhibitors will be formulated and approved for use with humans, the WVU study leaves scientists around the world very optimistic memory-enhancing drugs that do not cause nausea and vomiting could be on the horizon.

Zhang was recently recognized as one of the most outstanding Chinese scientists in the United States during Chinese President Hu Jintao's January visit to Washington, D.C. Based on his research achievements and influence in the Chinese community, Zhang was invited by the Chinese embassy to join other top Chinese professionals and students to meet President Hu. Meeting attendees were praised for their significant contributions to their respective fields, and were applauded for strengthening the relationship between China and the United States through their work.

More information: www.jneurosci.org/cgi/content/abstract/31/1/172

Provided by West Virginia University

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