CAMH protein discovery may lead to new treatment to prevent smoking relapse

October 22 2012

Scientists at the Centre for Addiction and Mental Health (CAMH) have identified a potential new approach to preventing smoking relapse, which occurs frequently in smokers who attempt to quit, despite current treatments.

"We have developed a protein peptide that may be a new type of highly targeted treatment to prevent smoking relapse," says Dr. Fang Liu, Senior Scientist in CAMH's Campbell Family Mental Health Research Institute and Professor in the Department of Psychiatry at the University of Toronto.

Dr. Liu and her team initially found that nicotine exposure can enhance binding between two types of brain receptors – a nicotinic receptor and a glutamate receptor. They identified the sites where the two receptors bind together. With this information, they were able to generate a protein peptide to disrupt the binding of the two receptors.

Working with CAMH Senior Scientist Dr. Anh Dzung Le, the peptide was then tested in an animal model of relapse. As anticipated, it had the effect of reducing attempts to seek nicotine.

"These discoveries present an avenue to develop an anti-smoking medication that directly targets the relapse process by focusing on this brain target," says Dr. Liu, whose study was published online in the Journal of Experimental Medicine today. "We hope that it will lead to an alternative treatment for smokers who aren't succeeding with current

[smoking cessation](link) medications." A year after treatment with current medications, only about 20 per cent of people remain abstinent, past research shows.

"As research continues, future steps are to determine how this discovery can be translated into a novel intervention for patients," says Dr. Liu. "We are optimistic that our findings will lead to new options for treatment for smoking, which is the leading preventable cause of disease, disability and premature death in our society."

Provided by Centre for Addiction and Mental Health