

Our brains make their own marijuana: We're all pot heads deep inside

April 20 2009

U.S. and Brazilian scientists have just proven that one of Bob Dylan's most famous lines—"everybody must get stoned"— is correct. That's because they've discovered that the brain manufactures proteins that act like marijuana at specific receptors in the brain itself. This discovery, published online in The *FASEB Journal*, may lead to new marijuana-like drugs for managing pain, stimulating appetite, and preventing marijuana abuse.

"Ideally, this development will lead to drugs that bind to and activate the THC receptor, but are devoid of the side effects that limit the usefulness of marijuana," said Lakshmi A. Devi of the Department of Pharmacology and Systems Therapeutics at Mount Sinai School of Medicine in New York and one of the senior researchers involved in the study. "It would be helpful to have a <u>drug</u> that activated or blocked the THC receptor, and our findings raise the possibility that this will lead to effective drugs with fewer side effects."

Scientists made their discovery by first extracting several small proteins, called peptides, from the brains of mice and determining their amino acid sequence. The extracted proteins were then compared with another peptide previously known to bind to, but not activate, the receptor (THC) affected by marijuana. Out of the extracted proteins, several not only bound to the brain's THC receptors, but activated them as well.

"The War on Drugs has hit very close to home," said Gerald Weissmann, M.D., Editor-in-Chief of The <u>FASEB Journal</u>. "Last year, scientists



found that our skin makes its own marijuana-like substance. Now, we see that our brain has been making proteins that act directly on the <u>marijuana</u> receptors in our head. The next step is for scientists to come up with new medicines that eliminate the nasty side of pot—a better joint, so to speak."

More information: Ivone Gomes, Julia S. Grushko, Urszula Golebiewska, Sascha Hoogendoorn, Achla Gupta, Andrea S. Heimann, Emer S. Ferro, Suzanne Scarlata, Lloyd D. Fricker, and Lakshmi A. Devi. Novel endogenous peptide agonists of cannabinoid receptors. FASEB J. doi:10.1096/fj.09-132142 www.fasebj.org/cgi/content/abstract/fj.09-132142v1

Source: Federation of American Societies for Experimental Biology (<u>news</u> : <u>web</u>)

Citation: Our brains make their own marijuana: We're all pot heads deep inside (2009, April 20) retrieved 27 April 2024 from <u>https://medicalxpress.com/news/2009-04-brains-marijuana-pot-deep.html</u>

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