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New research tracks effects of addictive drugs on brain

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Mount Sinai researchers may have unlocked the key to better understanding the effect addictive drugs have on the human brain. Researchers have just published the new breakthrough study, “Design Logic of a Cannabinoid Receptor Signaling Network that Triggers Neurite Outgrowth,” in the latest issue of *Science* on May 16th, 2008.

“The research findings give us a new window into the brain, helping us to better understand the role addictive drugs have on the inner workings of brain cells ,” said Ravi Iyengar Ph.D., study author and Dorothy H. and Lewis Rosenstiel Professor and Chair, Department of Pharmacology and Systems Therapeutics at Mount Sinai School of Medicine. “This type of research provides may clues for targets within brain cells against which drugs that block addiction may be targeted.”

Mount Sinai researchers looked at the systems biology approach in order to study molecular networks underlying addiction. The findings start to unravel the complex interactions within brain cells, which are involved in processing signals from receptors in the brain that recognize the addictive drugs.

Researchers discovered that a drug that works through the cannabinoid 1 receptor recognizing the active ingredient of marijuana activates many different transcription factors, triggering the differentiation of neurons, causing permanent changes in a person’s brain. Another result of study was the discovery of a new role of the breast cancer gene BRCA 1 in neuronal differentiation and the effects of addictive drugs upon them.

Source: The Mount Sinai Hospital