Natural Defense Against THC Overdose

Type-1 Cannabinoid Receptors and the Functional Effects of Pregnenolone

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Introduction
Cannabis, often referred to as marijuana, is a drug produced from the Cannabis plant. Recently, marijuana has become an often debated topic as people work to legalize its use for both recreational (as in Colorado) and medical purposes. Marijuana is able to help relieve pain, but it can also lower performance in everyday tasks.

Endocannabinoid System
The endocannabinoid system plays a role in diverse conditions such as anxiety, addiction, eating and memory disorders. When synaptic activity occurs in the brain, presynaptic neurons release neurotransmitter that activates postsynaptic neurons. In certain brain regions, endocannabinoids are then produced by postsynaptic neurons and travel back across the synapse to activate CB1 receptors on the presynaptic neuron. Activation of these receptors decreases neurotransmitter release.

THC, CB1 and Pregnenolone
Tetrahydrocannabinol (THC), the active ingredient in marijuana, also activates the CB1 receptor. THC and similar drugs have therapeutic potential in the treatment of pain, Alzheimer’s disease, anxiety, arthritis, and cancer. A downside to the medicinal use of THC is that it also induces psychotropic effects.

Recently, it was discovered that pregnenolone binds to CB1, where it acts as an allosteric modulator that decreases the effects of THC. An allosteric modulator is a molecule that modifies receptor function by binding somewhere other than the active site.

Positives:
• Can help control epileptic seizures
• May decrease anxiety
• Can slow progression of diseases such as Alzheimer’s disease
• Has been used to treat nausea
• Active components of marijuana, cannabinoids, can potentially kill cancer cells

Negatives:
• Poor coordination of movement
• Afterwards, users feel tired or depressed
• Increases heartbeat and risk of heart attack
• Inability to understand things clearly
• Personality and mood changes
• Long term: suppression of immune system

References