

How Cannabis Works as a Medicine



Officer Dick Downey's Re-education Protocol

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The Endocannabinoid System & Cannabis

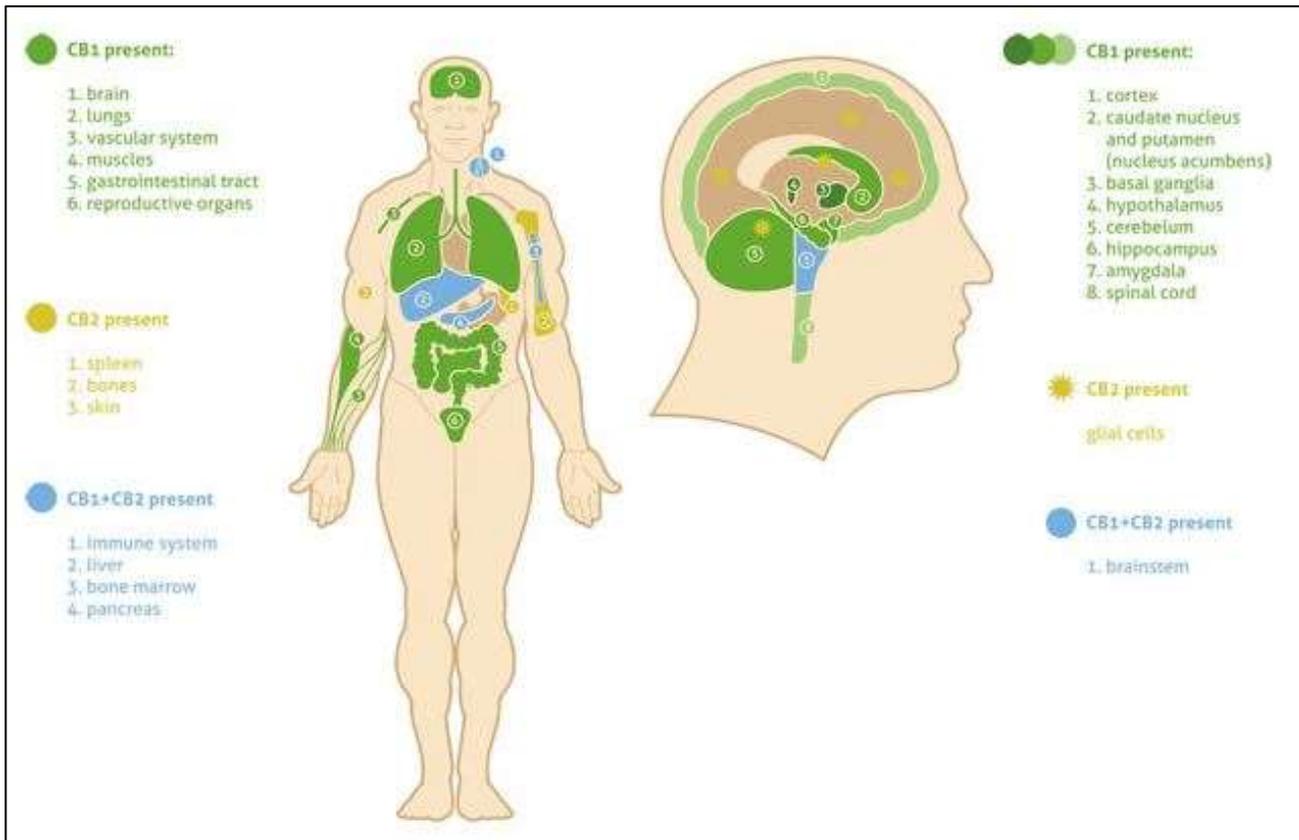
The ways in which cannabis works as a medicine in your body at the molecular level are very complex. Cannabis helps many people as a medicine because of the 'Endocannabinoid System', which exists in all humans and animals. The Endocannabinoid System (ECS) is a relatively recent scientific discovery that occurred between 1992 and 1995. The ECS is one of the most critical systems in the human body because its primary function is to establish and maintain internal balance, or homeostasis, in part, by reducing inflammation throughout the body. The ECS functions at the molecular and cellular levels.

Components of the ECS: Cannabinoids, Receptors & Enzymes

The ECS consists of certain fatty acids called 'endocannabinoids', which are chemical compounds that occur naturally in your body. These endocannabinoids modulate and regulate systems in the brain and body by binding to and stimulating at least two types of receptors named 'CB1' and 'CB2'. Both of these receptors are a type of protein referred to scientifically as a 'G protein' and are embedded in cell membranes throughout the body and are distributed in different areas throughout the body. The ECS also consists of the enzymes Fatty Acid Amide Hydrolase (FAAH) and Monoacylglycerol Lipase (MAGL), which ultimately degrade the cannabinoids.

CB1 receptors are primarily located on nerve cells in the brain and central nervous system, but they are also found in some organs and tissues such as the spleen, white blood cells, endocrine gland and parts of the reproductive, gastrointestinal and urinary tracts.

CB2 receptors are found mainly on peripheral organs and throughout your immune system on white blood cells.



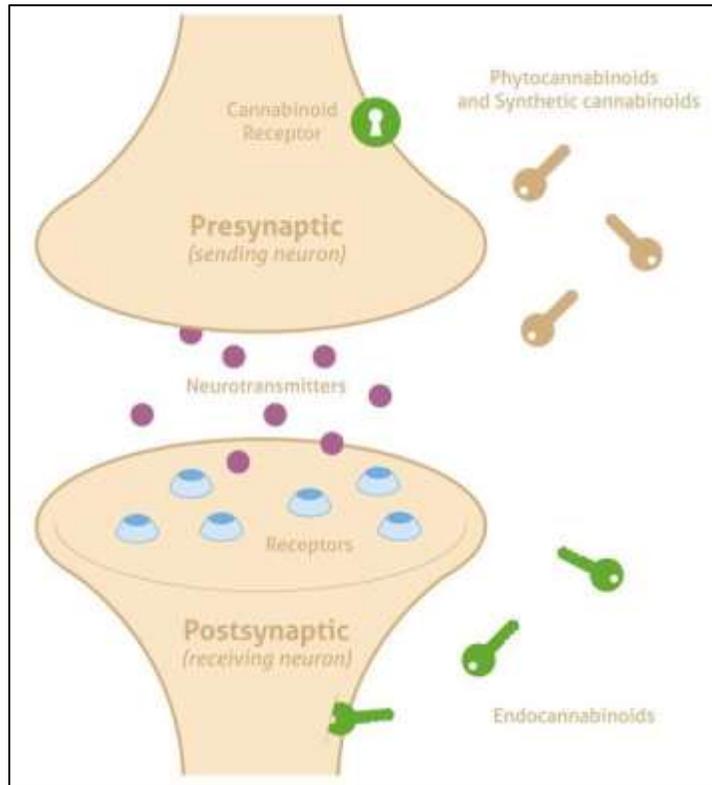
Source: Fundacion Canna

How the Endocannabinoids & Receptors Interact to Create Balance

Now that you know the components of the Endocannabinoid System, here's how these parts interact to create internal balance throughout the body.

As shown in this graphic, you can see that the ECS acts like a molecular signal system of sorts – an “intercellular communication system”, so to speak.

The cannabinoid receptors and endocannabinoids have an analogous lock-and-key relationship, with the endocannabinoids acting as the keys that bind, or lock, to the receptors. When this binding occurs and the receptors are activated, this triggers an intricate series of signaling and cell changes that ultimately results in the ECS creating internal balance, or homeostasis.



Source: Fundacion Canna

Cannabis & the Endocannabinoid System

At this point, you're probably wondering what cannabis' function is in all of this as a medicine. In the simplest terms, the cannabis plant, like the human Endocannabinoid System, also has its own naturally occurring cannabinoids referred to technically as 'phytocannabinoids' (phyto = of a plant). THC and CBD are probably the two most recognized cannabinoids in the cannabis plant, though over 80 different cannabinoids have been identified in the cannabis plant. As with human's naturally occurring endocannabinoids, cannabis' cannabinoids also bind to the CB1 and CB2 receptors to stimulate and activate them, similar to the body's own endocannabinoids.

It's worth mentioning that not all of cannabis' cannabinoids bind to the CB receptors. For example, unlike THC, CBD has very little binding properties to CB1 or CB2. Instead, CBD indirectly stimulates cannabinoid signaling by suppressing the enzyme Fatty Acid Amide Hydrolase (FAAH) – the enzyme that breaks down anandamide, which is one of the naturally occurring endocannabinoids. “By inhibiting the enzymes that metabolizes and degrades anandamide, CBD enhances the body's innate protective endocannabinoid response.” (Project CBD).

Ultimately, cannabis' cannabinoids and the body's own endocannabinoids share the same goal: activate the Endocannabinoid System to establish internal balance, or homeostasis, in the human body and promote good health.