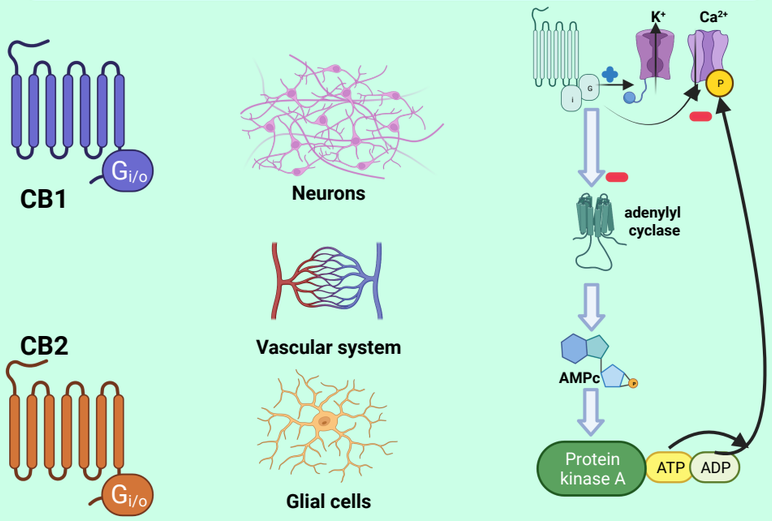
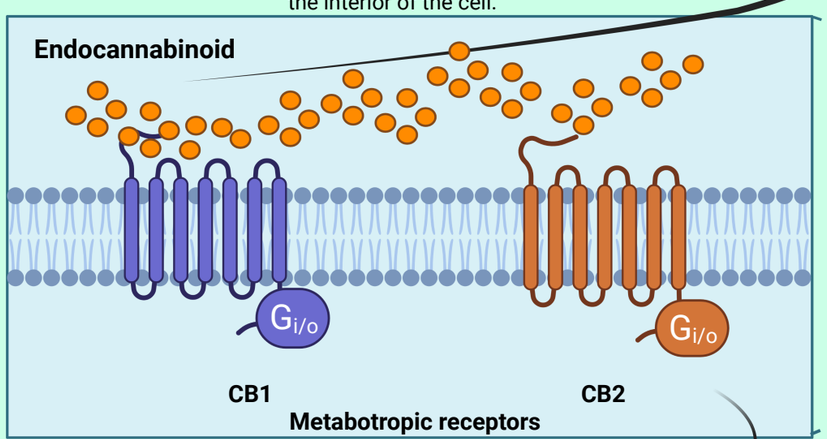
ENDOCANNABINOID SYSTEM

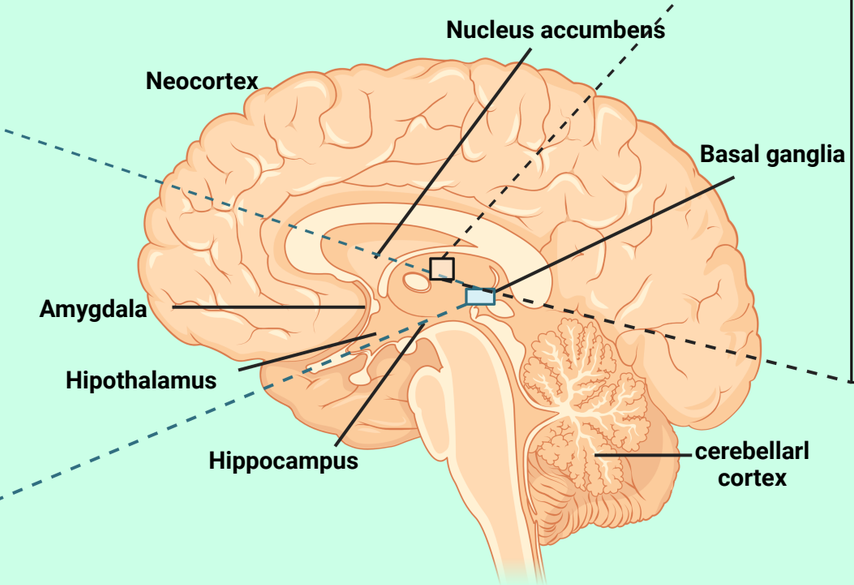
Type	Predominant location	Mechanism action



The two main receptors that make up the endocannabinoid system are the CB-1 and CB-2 cannabinoid receptors. These receptors are transmembrane proteins, capable of transmitting an extracellular signal to the interior of the cell.



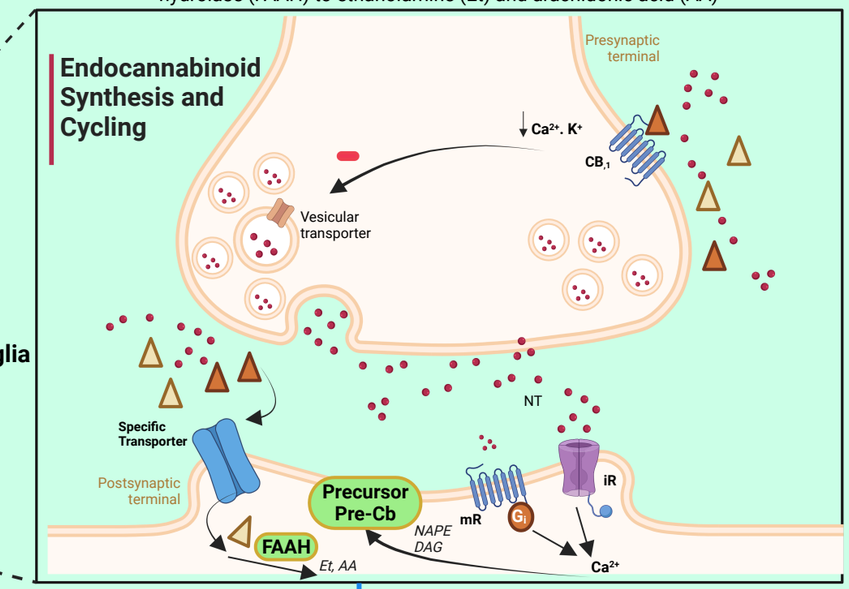
These receptors can be activated by two types of cannabinoids



Brain regions that express cannabinoid receptors.
The presence of the receptors of this system is not only located in neuronal bodies, they are also present in glial cells.

The main function of the endocannabinoid system is the regulation of the body's homeostasis. This system plays important roles in many aspects of neural functions, including learning and memory, emotion, addictive behavior, eating and metabolism, pain, and neuroprotection.

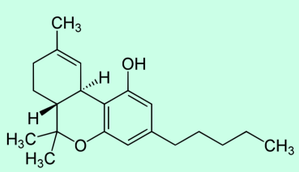
Endocannabinoids are synthesized from membrane lipids (NAPE, N-araquidonoilfosfatidiletanolamina and DAG, Diacilglicerol), are produced on demand, and are not stored in vesicles like other neurotransmitters (NT). Endocannabinoids are produced as a consequence of increases in intracellular Ca^{2+} and interact with CB1 and CB2 receptors located on presynaptic neurons, modulating NT release. It activates ionotropic (iR) and/or metabotropic (mR) receptors. Endocannabinoids are removed from the synaptic cleft by a specific transporter (T); already in the cytoplasm, they are degraded by fatty acid amide hydrolase (FAAH) to ethanolamine (Et) and arachidonic acid (AA)



- Huntington's disease
- Cerebral ischemia
- Epilepsy
- Parkinsons's disease
- Chronic pain

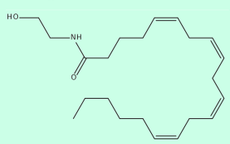
Pharmacological intervention can modulate the alterations

Plant-derived cannabinoids

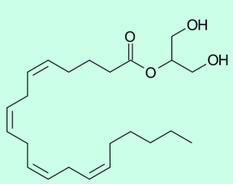


Δ^a-tetrahydrocannabinol (THC)

Endogenus cannabinoids

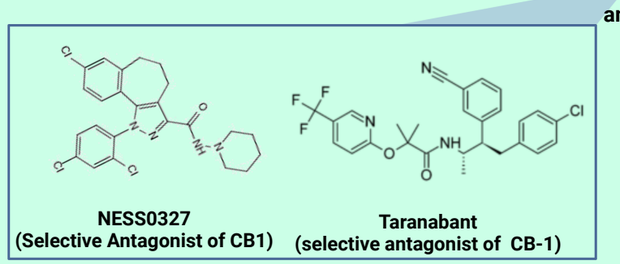


Anandamide (AEA)



2-arachidonyl-glycerol (2-AG)

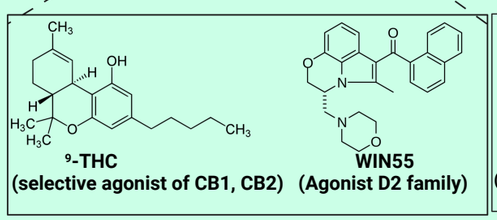
antagonist



NESS0327 (Selective Antagonist of CB1)

Taranabant (selective antagonist of CB-1)

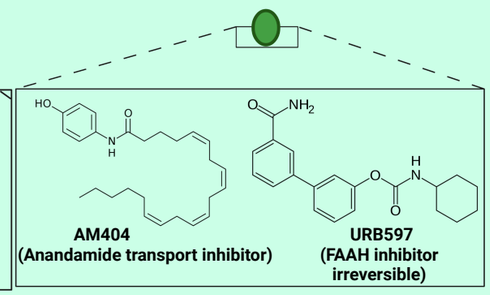
Agonist



^{9}-THC (selective agonist of CB1, CB2)

WIN55 (Agonist D2 family)

Selectives modulators



AM404 (Anandamide transport inhibitor)

URB597 (FAAH inhibitor irreversible)