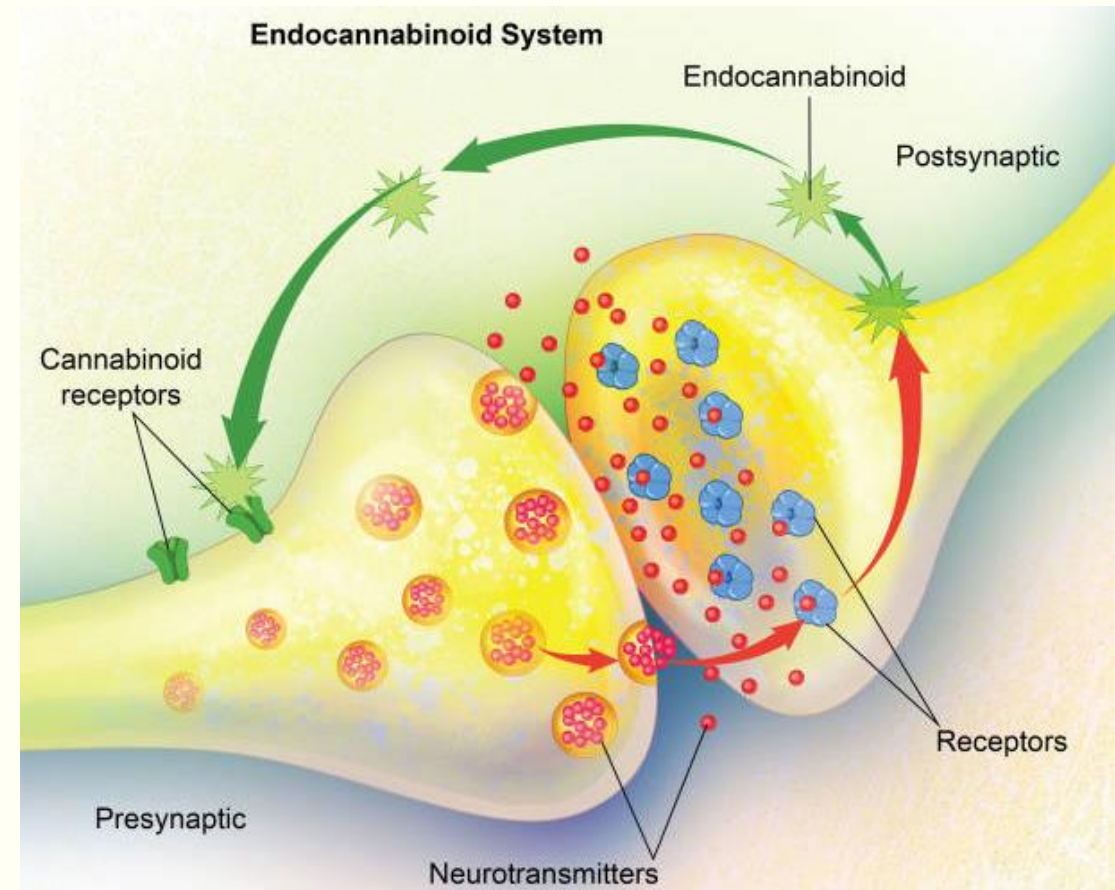


THE ENDOCANNABINOID SYSTEM

Treva L. Zyna, MS



The Endocannabinoid System: (ECS)

- Complex cell signaling system
- Identified in 1988 – not fully understood
- Biologic network of receptors and signaling proteins
- Evolved 600 million years ago
- All mammals (and some others!) have a naturally occurring ECS
 - Composed of:
 - ❖ Receptor sites
 - ❖ Activating molecules
 - ❖ Degrading enzymes - breaks down endocannabinoids once function is complete

The Endocannabinoid System: (ECS)

- Experts have identified 2 key endocannabinoids:
 - Anandamide (AEA)
 - 2-arachidonoylglycerol(2-AG)
- Purpose is homeostasis – achieve balance – keeps internal functions stable such as sleep, appetite, mood – produce as needed
- Similar to cannabinoids found in the cannabis sativa plant, but naturally produced in body
- "Lock and key" analogy

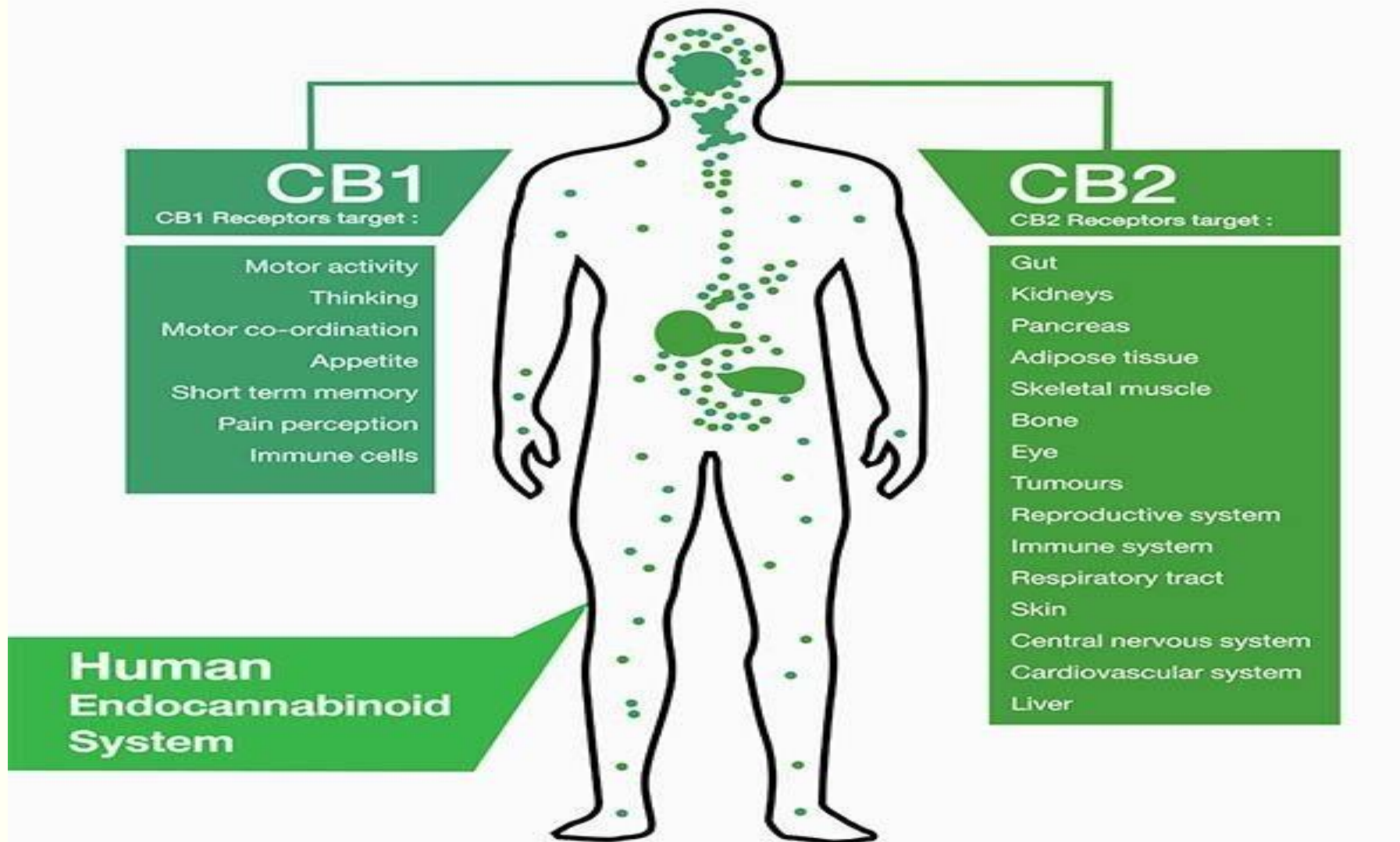
The Endocannabinoid System: (ECS)

- Current research suggests endocannabinoids may regulate the following functions:
 - Appetite and digestion
 - Sleep
 - Pain sensation
 - Inflammation
 - Mood
 - Metabolism
 - Learning and memory
 - Reproduction

- May be a target for pathological functions such as:
 - Parkinson's
 - Huntington's disease,
 - Alzheimer's
 - Multiple Sclerosis

- 2 main receptor sites of direct action (so far) CB1 –densely concentrated in the CNS, but also located throughout the body.

Endocannabinoid Receptor Sites

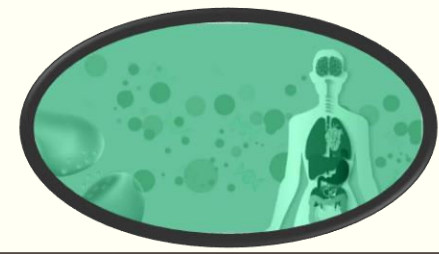


Endocannabinoid Deficiency

- New researched theory known as **Clinical Endocannabinoid Deficiency (CECD)** that has been thought to contribute to certain conditions
- A 2016 article suggests why some develop irritable bowel syndrome, migraines, and fibromyalgia
- If this is true...targeting the ECS could be beneficial
- MORE RESEARCH IS NEEDED!



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