

## Brave Horse Blog – Endocannabinoid System

Horses have a biological signaling system within their bodies called the endocannabinoid system (ECS). This system is not unique to horses and is shared by mammals and some other animals. It functions as a regulator of homeostasis within the body and is comprised of three main components. These components are 1) endocannabinoids, 2) cannabinoid receptors, and 3) activating and deactivating enzymes. Understanding this signaling system can provide insights to the possible ways in which CBD can work to produce potentially therapeutic effects in horses as well as other animals.

### 1) Endocannabinoids

The prefix “-endo” means inside, and the word “cannabinoids” refers to molecules that have structures similar to those of the active components of the cannabis plant. Endocannabinoids are the physical molecules that bind to the receptors that are located on the surface of cells within the body. The two most well-known endocannabinoids are 2-arachidonoylglycerol (2-AG) and N-arachidonylethanolamine (AEA), and they both are both lipids with structural similarities to compounds found in cannabis plants.

### 2) Endocannabinoid receptors

The two most well-known endocannabinoid receptors are CB1 and CB2. They are both proteins located on the surfaces of cells in different tissues throughout the body. While the two receptors are distributed differently across different tissues, they both contain locations in which endocannabinoids can bind to cause effects that perpetuate homeostasis in cells and across the body.

### 3) Activating and deactivating enzymes

These enzymes are proteins that either synthesize or break down endocannabinoids in response to different mechanical or biochemical triggers. Different endocannabinoids have separate activating and deactivating enzymes from other endocannabinoids.

The three components described above work together to convert biochemical signals into physiological responses that contribute to the maintenance of homeostasis throughout the body. Knowledge about this system and its components provides valuable insight to the potential effects that CBD can have when introduced to this system.

References:

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