Dr. Lakisha

# Understanding the Endocannabinoid System

*The body's balancing network, and why it matters for the future of medicine*

A primer by Dr. Lakisha, Ph.D., RH (AHG)

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## Why this matters

Most people have never heard of the system inside them that keeps the rest in balance. It has no daily headline and no household name, yet it touches nearly every process that keeps a body steady: how you sleep, how you feel pain, how you digest, how you respond to stress, and how your immune system decides when to act and when to stand down.

It is called the endocannabinoid system. Understanding it changes how we think about health, about plants, and about the kind of evidence medicine should require before it decides who gets care. This primer is a plain-language introduction to what the system is, what it does, and why it sits at the center of my work in pharmacognosy and novel botanical drug discovery.

## What the endocannabinoid system is

The endocannabinoid system, often shortened to the ECS, is a signaling network that runs throughout the body. Think of it less as an organ and more as a communication layer, a set of messengers and receivers that helps your cells stay coordinated. It has three working parts:

- **The messengers.** Your body makes its own cannabinoid molecules, called endocannabinoids. The two best understood are anandamide and 2-AG, produced on demand rather than stored in advance.
- **The receivers.** These messengers dock onto receptors on the surface of cells. The two most studied are CB1, concentrated in the brain and central nervous system, and CB2, found mostly in immune cells and peripheral organs. A wider family, including TRPV1, GPR55, GPR18, and GPR119, extends the system's reach into blood, bone, skin, kidney, liver, and the gut.
- **The recyclers.** A set of enzymes builds these messengers when needed and breaks them down when the signal is complete, so the system can respond and then reset.

## What it does: the work of balance

Scientists describe the ECS with one word above all others: homeostasis, the body's drive to hold itself in a stable, workable middle. When something pushes a system too far in one direction, the ECS is one of the mechanisms that helps bring it back.

Because its receptors are distributed so widely, its influence is broad. It participates in the regulation of mood and stress, sleep, appetite and digestion, pain perception, and inflammation and immune balance. It is not a single switch. It is a network that helps many systems talk to each other and settle. This is why a system most people cannot name may matter so much.

## When the system runs low: a question worth studying

One of the most important ideas in this field is that the ECS itself can become under-resourced, a state researchers have described as clinical endocannabinoid deficiency. The hypothesis is that when the body does not produce or maintain enough endocannabinoid signaling, a range of conditions may become more likely or more severe.

I want to be precise. This is an active area of research, not a settled diagnosis. It deserves rigorous, community-anchored study rather than either dismissal or overclaiming. It is part of why the Kiona Foundation's IRB-registered research, KF-ECS-2025, examines endocannabinoid system function across general, clinical, and medically authorized populations, with informed consent offered in English, Spanish, and Haitian Creole.

## Where plants come in

This is where pharmacognosy, the study of medicines derived from natural sources, enters. Certain plant compounds can interact with the same receptors your endocannabinoids use. These plant compounds are called phytocannabinoids.

Cannabis Sativa, or C. Sativa L., is the most famous source, producing a large family of cannabinoids alongside aromatic compounds called terpenes. But it is not the only plant that speaks this language. Compounds in other botanicals, for example the beta-caryophyllene found in black pepper and cloves, can engage cannabinoid-related pathways as well. And your diet matters: certain fats, including omega-3 fatty acids, are the raw material your body uses to build its own endocannabinoids. This is the basis of feeding the endocannabinoid system through nutrition, a theme at the heart of my work.

The important shift is how we treat the plant. Not as a folk remedy, and not as a single isolated molecule, but as a complex, characterizable system worthy of the full rigor of drug discovery. That is what novel botanical drug discovery means, and it is why the FDA Botanical Drug Development pathway matters: it lets a botanical be developed and evaluated as a genuine therapeutic, held to a recognized standard of evidence and quality.

## Why the standard is the point

It would be easier to make bold promises. I do not, and I will not. The value of this science depends on the standard we hold it to.

Evidence generated with the communities most affected, and held to a recognized regulatory bar, is how botanical medicine earns a permanent place in the systems that decide who receives care. Health equity, agricultural equity, and Indigenous knowledge are not an afterthought to that science. They are the reason for the standard.

## What you can do next

- Learn more about the research at the Kiona Foundation and the KF-ECS-2025 study.
- Read the writing on endocannabinoid system modulation and botanical drug discovery as it is published.
- Consider membership in The Alkemist Mother, where the fuller arc of this work lives.

Balance is not a slogan. It is a system, and it can be understood, studied, and honored. Thank you for beginning that with me.

*With care, Dr. Lakisha*

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