

Entourage effect: New clues on how low-dose CBD products work

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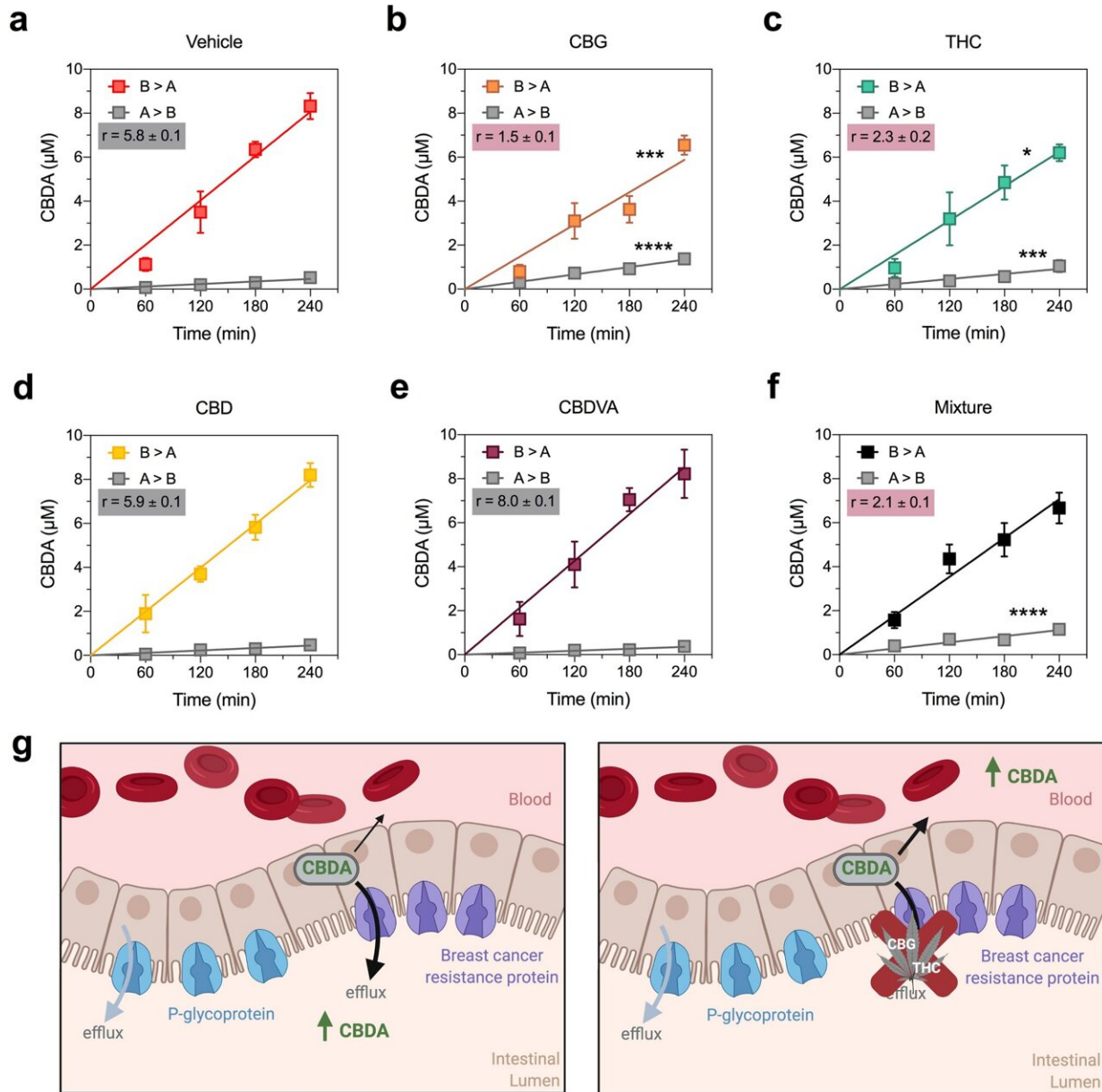


Figure 3 From: [Cannabis constituents interact at the drug efflux pump BCRP to markedly increase plasma cannabidiolic acid concentrations](#)

Research from the Lambert Initiative for Cannabinoid Therapeutics shows that hemp extracts deliver high concentrations of cannabinoid acids in mice due to a 'pharmacokinetic entourage' mechanism.

Pharmacologists at the University of Sydney have found tantalizing clues as to why low-dose CBD products containing a full-spectrum of cannabinoids seem to have therapeutic impacts at relatively low doses.

Associate Professor Jonathon Arnold from the Lambert Initiative for Cannabinoid Therapeutics said their study shows cannabinoids in a cannabis extract interact to produce much higher concentrations of cannabidiolic acid (CBDA) in the bloodstream than when CBDA is administered alone as a single molecule.

In fact, the [cannabis extract](#) delivered 14-times higher CBDA concentrations in the bloodstream when administered orally to mice.

"Our study has shown how this operates pharmacologically for the first time. Hemp extracts provide a natural vehicle to increase the absorption of CBDA into the bloodstream via the interaction of cannabinoids at specific transport proteins in the gut," he said.

"The entourage hypothesis holds that cannabis constituents interact to engender greater effects but there is little scientific evidence to support such an assertion. Our study shows that different cannabinoids interact to alter plasma levels of cannabinoids themselves due to what we call a 'pharmacokinetic entourage' effect."

Low-dose CBD products appear to reduce anxiety and are anticonvulsant agents against seizures. But it remains unclear how these products produce these results.

Lead author of the study, Dr. Lyndsey Anderson, said: "Our results suggest CBDA might play a greater role in the effects of these low-dose CBD products than previously thought. Our own preclinical studies show CBDA reduces anxiety and seizures. This result provides us with a pathway to explore why some cannabis extracts yield pharmacological effects in humans at lower doses."

The scientists will continue to work on how this "pharmacokinetic entourage effect" might lead to observed therapeutic outcomes for cannabinoids in people.

The study is published today in *Scientific Reports*.

More information: Lyndsey L. Anderson et al, Cannabis constituents interact at the drug efflux pump BCRP to markedly increase plasma cannabidiolic acid concentrations, *Scientific Reports* (2021). [DOI: 10.1038/s41598-021-94212-6](https://doi.org/10.1038/s41598-021-94212-6)

Provided by University of Sydney

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