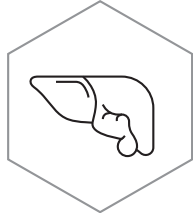
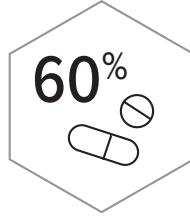


# Importance of Monitoring Drug Interactions Between Your Patients' Medications and Cannabis Products



The **cytochrome P-450 (CYP) system** is one of the most important systems for drug metabolism



Approximately **60%** of all clinically prescribed drugs are metabolized via CYP3A4



**Cannabinoid products** are cleared by the CYP-450 system, including CYP3A4

**Cannabinoid products can be inducers or inhibitors of the various CYP enzymes; therefore, healthcare providers should consider monitoring patient's use of cannabis products to reduce the risk of adverse events and to maintain the effectiveness of other concomitant medications.**

**Based on the 4 FDA-approved cannabinoid drugs, CBD and THC may have the following side effects and drug-drug interactions.**

CANNABIDIOL (CBD)*			TETRAHYDROCANNABINOL (THC)*
<p>CBD is a substrate for CYP3A4 and CYP2C19. Therefore, drugs that inhibit or induce these 2 enzymes will affect the plasma concentration of CBD</p> <p>CBD can function as an inhibitor, an inducer, or both</p>			<p>THC is a substrate for CYP3A4 and CYP2C9. Therefore, drugs that inhibit or induce these 2 enzymes will affect the plasma concentration of THC</p>
CBD	INHIBITION	INDUCTION	<ul style="list-style-type: none"> <li>✓ THC is highly protein bound. May displace other drugs, increasing the risk of adverse events</li> <li>✓ Added CNS effects (dizziness, sedation, confusion) when taken with CNS depressants</li> <li>✓ Hypotension, hypertension, and tachycardia may occur when taken with drugs that also affect the cardiac system</li> <li>✓ THC may lower seizure threshold. May affect anticonvulsants therapy</li> </ul>
CYP1A2	+	+	
CYP2B6	+	+	
CYP2C8	+		
CYP2C9	+		
CYP2C19	++		
UGT1A9	+		
UGT2B7	+		

## Potential drug interactions may occur with CBD and/or THC and the following medications:

- > Proton pump inhibitors
- > Antibiotics
- > Antidepressants
- > Anticonvulsants
- > Antifungals
- > Antivirals
- > Induction/anesthesia
- > Antihypertensives
- > Antiarrhythmics
- > Antipsychotics
- > Benzodiazepines
- > Chemotherapy
- > Opioids
- > Sympathomimetics
- > Anticoagulants
- > Antiplatelets
- > Others

Monitoring for safety and effectiveness is recommended.

\*Not a complete list of all drug-drug interactions.

**Advise patients to talk to their healthcare providers about their current medications and OTC products they are taking at their next visit.**

**Pharmacists should talk to their patients at their next visit about possible drug interactions with concomitant cannabinoid therapy.**

If you have additional questions, Greenwich Biosciences Medical Information department may be reached by email [medinfo@greenwichbiosciences.com](mailto:medinfo@greenwichbiosciences.com) or by calling 1-833-424-6724.

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