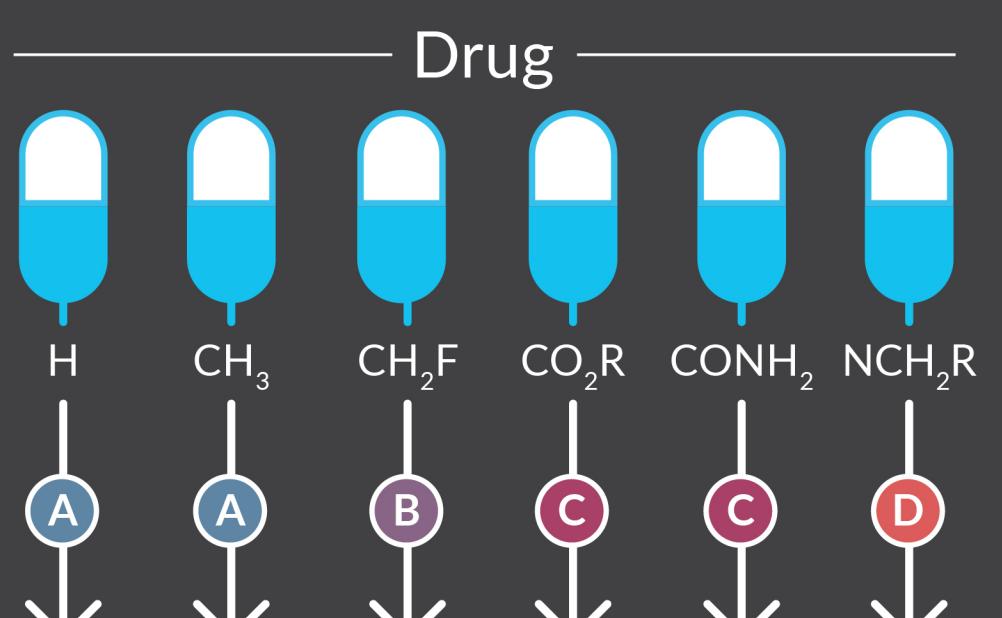
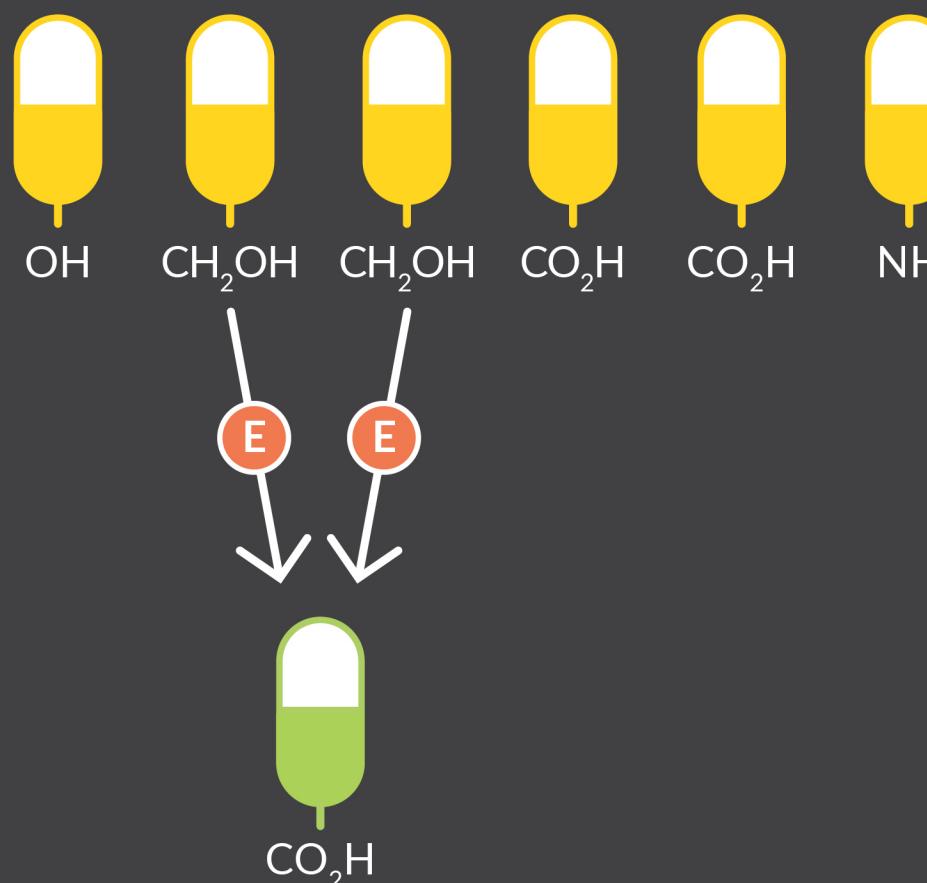


# SYNTHETIC CANNABINOID METABOLISM LAB GUIDE

## Biotransformation Pathway



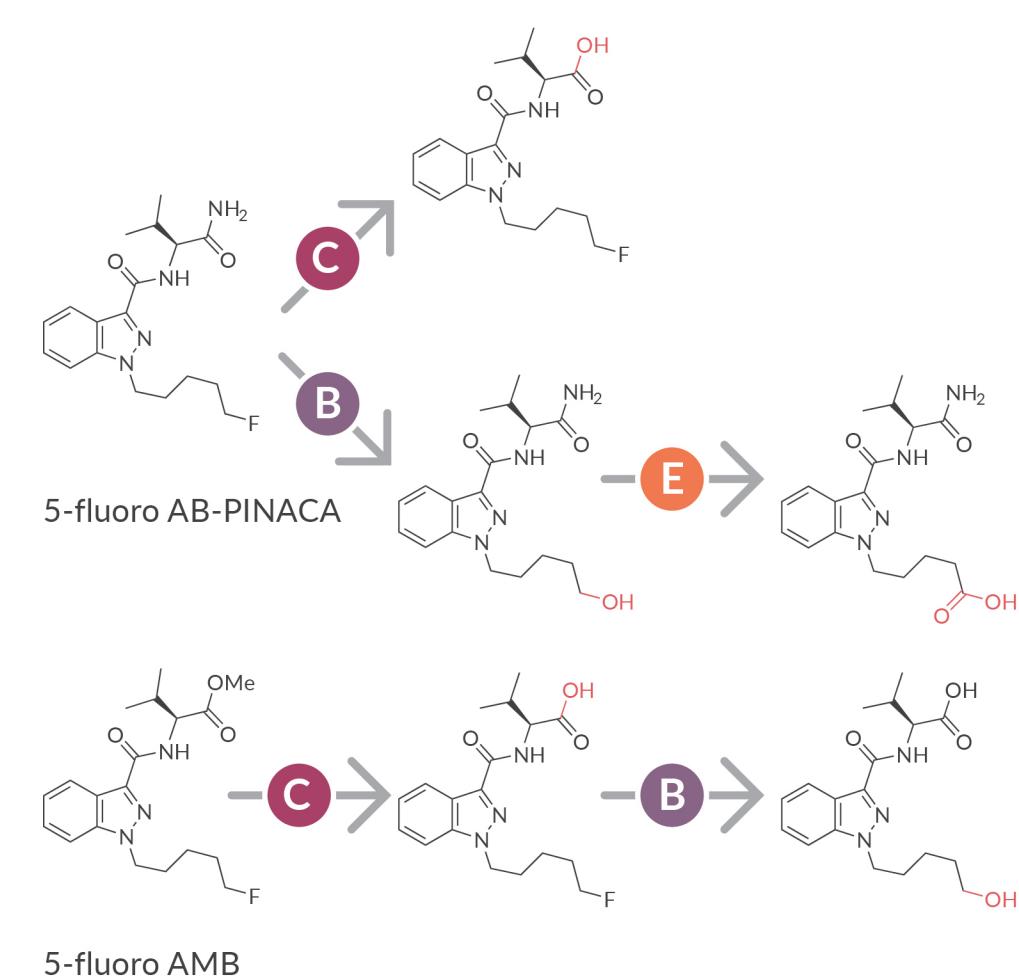
## Phase I Metabolite



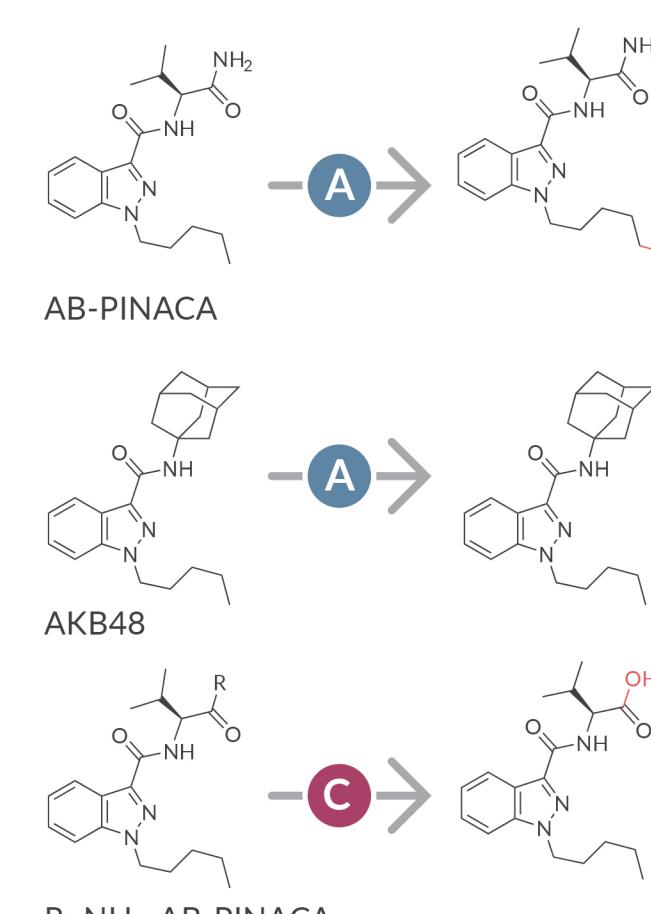
- (A) Hydroxylation (MW plus 16)
- (B) Hydrolytic Dehalogenation (MW minus 2)
- (C) Hydrolysis
- (D) Dealkylation
- (E) Oxidation

View primary resources used to collate this guide  
at [www.caymanchem.com/SCmetabolism](http://www.caymanchem.com/SCmetabolism)

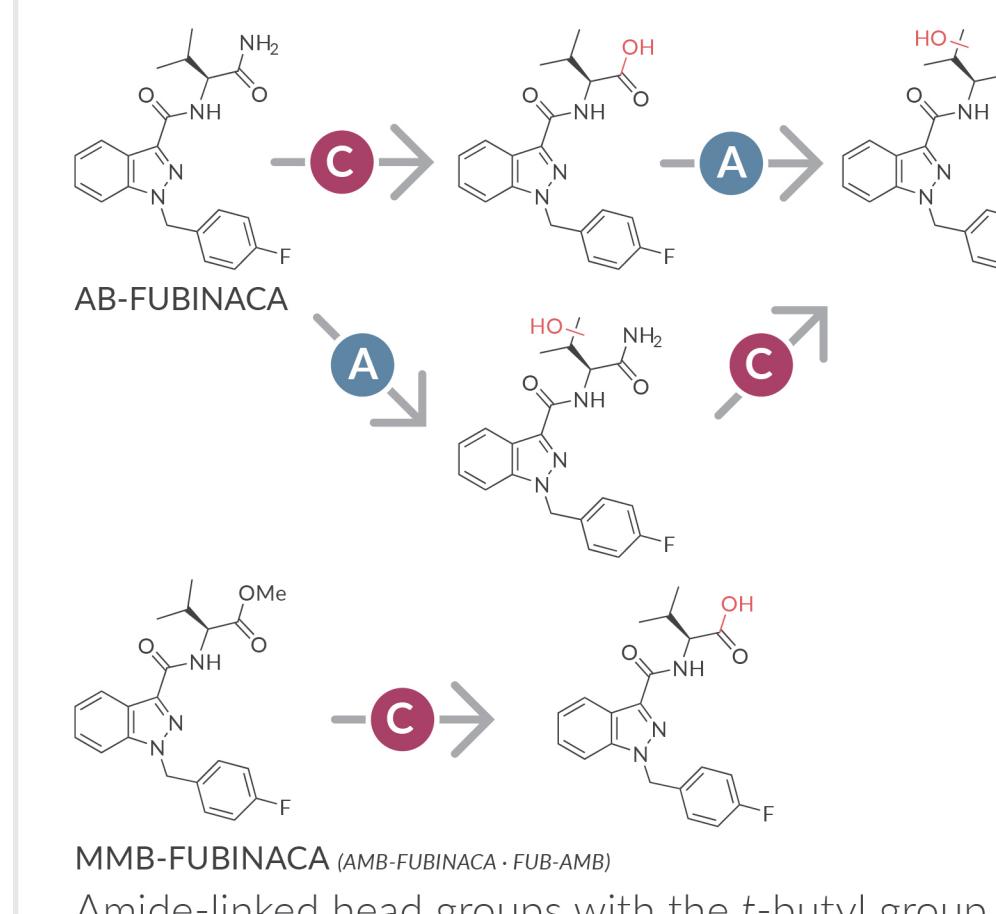
### Amide Linker/Fluoropentyl Tail



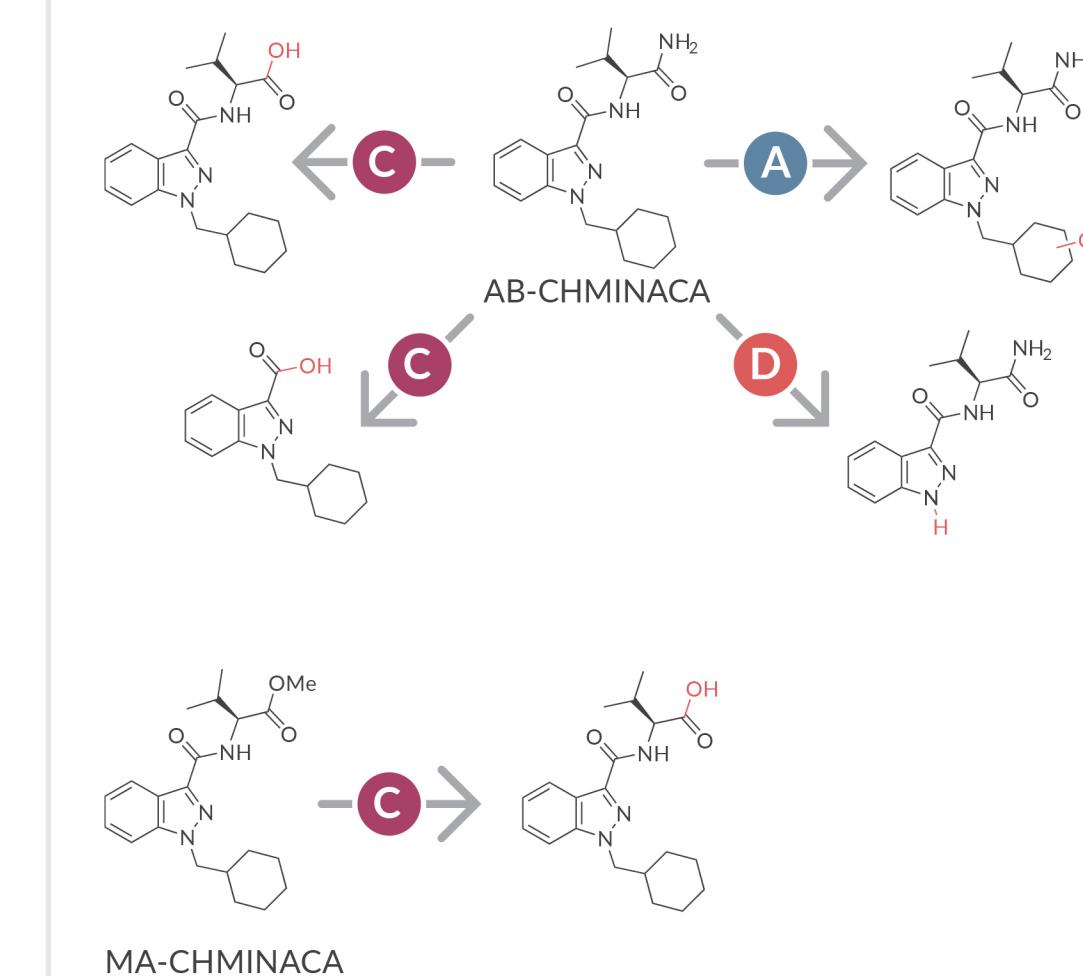
### Amide Linker/Pentyl Tail



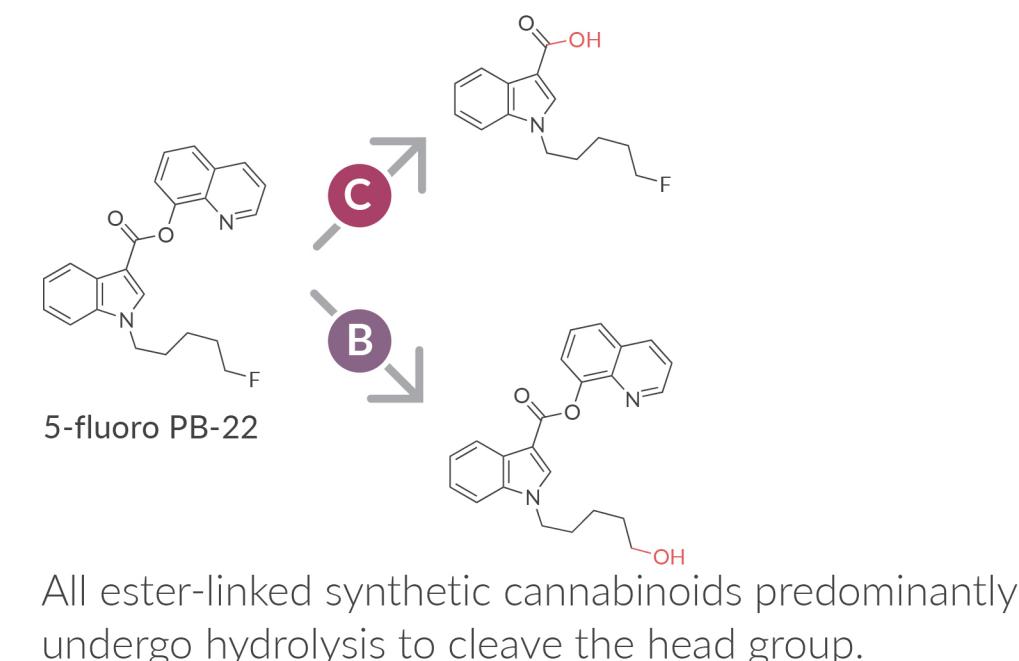
### Amide Linker/Fluorobenzyl Tail



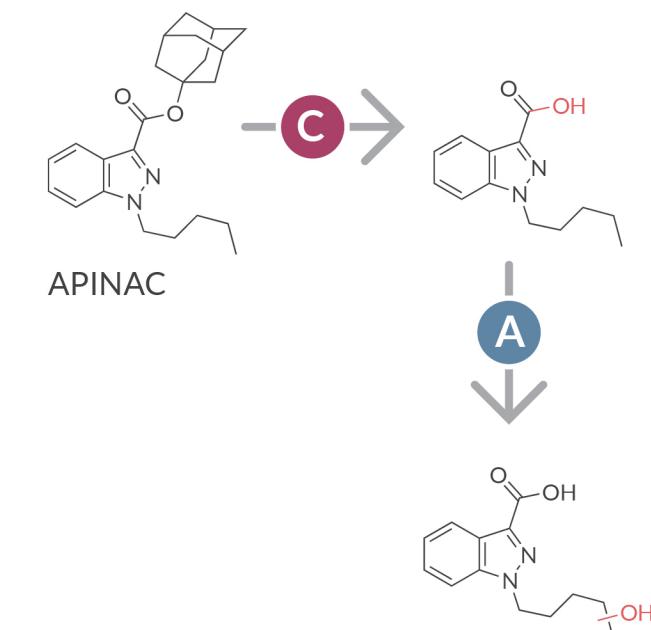
### Amide Linker/Cyclohexylmethyl Tail



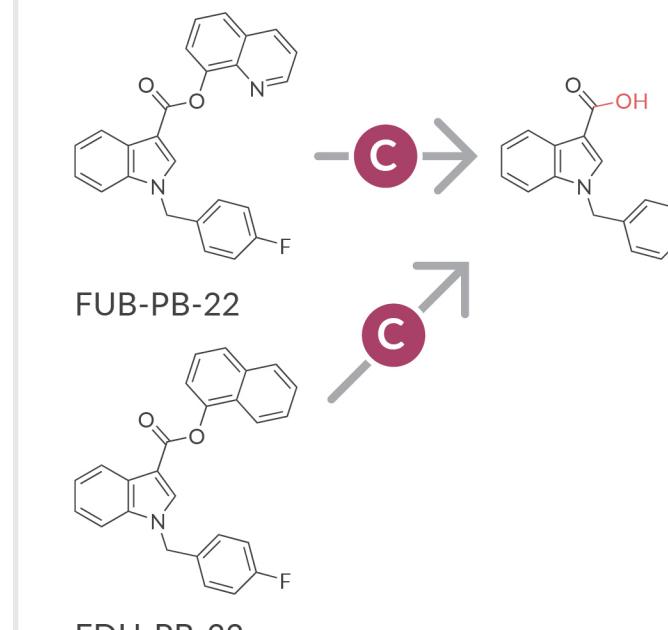
### Ester Linker/Fluoropentyl Tail



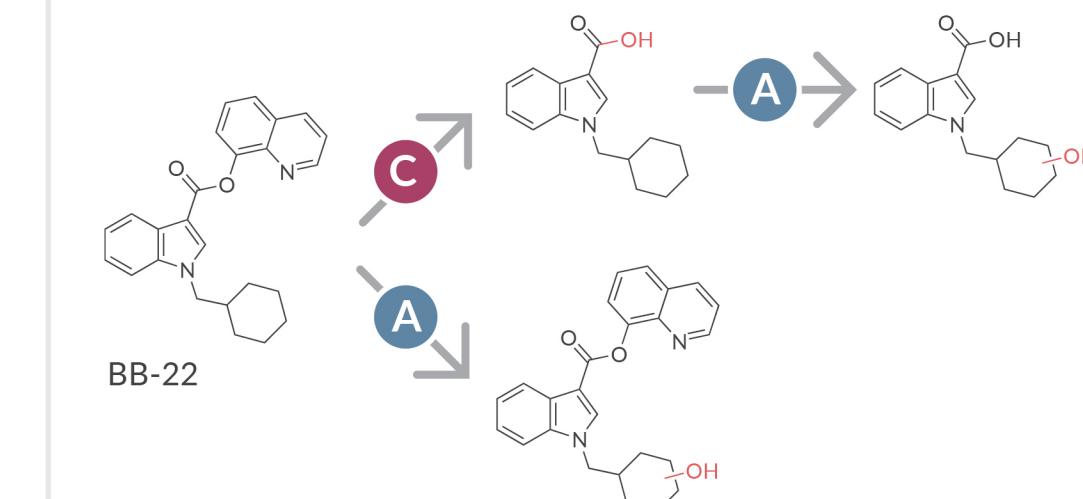
### Ester Linker/Pentyl Tail



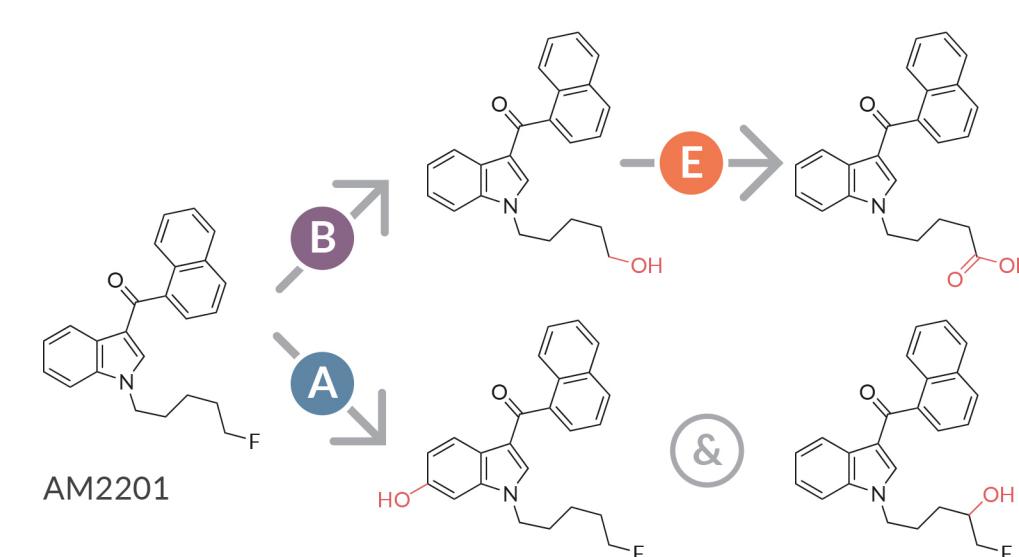
### Ester Linker/Fluorobenzyl Tail



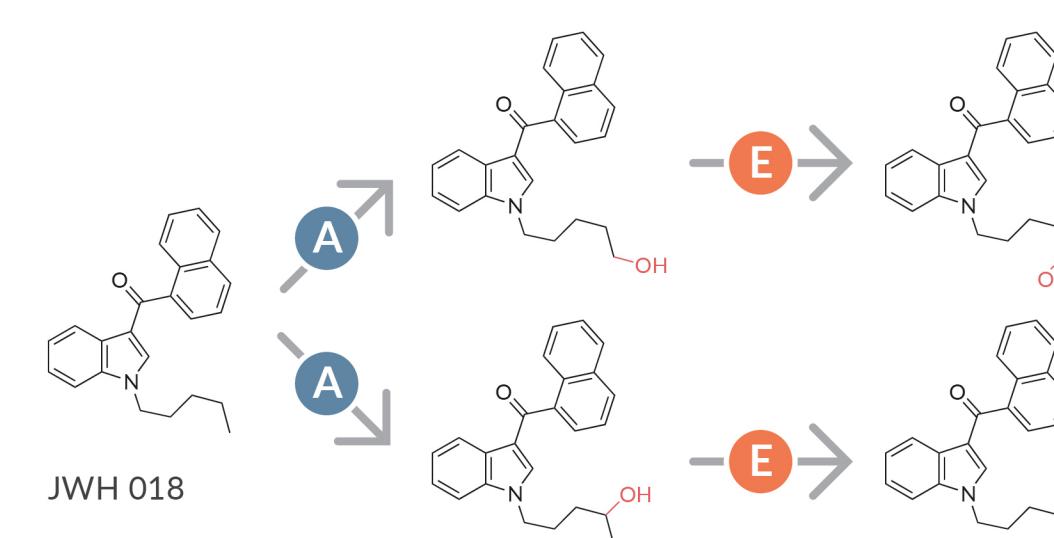
### Ester Linker/Cyclohexylmethyl Tail



### Carbonyl Linker/Fluoropentyl Tail



### Carbonyl Linker/Pentyl Tail



### Typical Metabolism Patterns

- All regions (head/core/tail) of classic synthetic cannabinoids can undergo metabolism.
- All hydroxylated metabolites can be further oxidized.
  - Internal secondary alcohols can oxidize to their corresponding ketones.
  - Terminal hydroxy metabolites can oxidize to the carboxylic acid.
- The nature of amide-linked head groups (terminal amide vs. terminal ester) dictates metabolic fate.
- All indole/indazole cores can be hydroxylated, although these are minor products.
- All synthetic cannabinoids containing *N*-alkyl chains can undergo hydroxylation on the chain.
- The 4-fluorobenzyl tail does not undergo metabolism.
- 5-Fluoropentyl tails can be hydroxylated at the *ω*-1 site. They can also undergo oxidative defluorination to form the same 5-hydroxypentyl metabolite as *N*-pentyl tail synthetic cannabinoids.
- All initial metabolites can undergo further biotransformations.