

## **AMB-FUBINACA & Other Synthetic Cannabinoids – Background**

### **What is AMB-FUBINACA?**

The drug AMB-FUBINACA (methyl 2-(1-(4-fluorobenzyl)-1*H*-indazole-3-carboxamido)-3-methylbutanoate), is a synthetic cannabinoid, commonly known as “K2”, “spice”, “kronic” or “fake weed”. It was first synthesized by Pfizer in 2009, along with numerous other related compounds. It is also known as FUB-AMB and MMB-FUBINACA. Other related synthetic cannabinoids in the Fubinaca family include AB-FUBINACA, ADB-FUBINACA, AB-PINACA, ADB-PINACA, 5F-AB-PINACA, APINACA, ADB-CHMINACA, MDMB-CHMIINACA, and many others. These cannabinoids usually have similar parent chains that make up their chemical structure. They are designed to mimic the effects of delta-9-tetrahydrocannabinol (THC) contained in marijuana.

AMB-FUBINACA is most commonly created as a powder and then dissolved and sprayed on dehydrated plant material and smoked. It has also been sold in pill form and as a liquid than can be smoked in vaporizer pens and e-cigarettes. AMB-FUBINACA and related compounds, act as an agonist on the cannabinoid receptors in the central nervous system. Both THC and synthetic cannabinoids stimulate CB-1 receptors; however, most synthetic cannabinoids are full agonists and THC is only a partial agonist, making synthetic cannabis much stronger than botanical marijuana. Potential side effects of these synthetic cannabinoids include decreased body temperature, decreased or irregular heart rate, agitation, drowsiness, unresponsiveness, lightheadedness, and other neurological, cardiovascular, and renal complications.

### **What is it used for?**

Pfizer was working on developing a synthetic cannabinoid to treat pain in cancer patients, as synthetic cannabinoids may be more likely to ease pain without the effects of THC (i.e., producing a high in the user). During the clinical trials, Pfizer discontinued their research into properties of the drug. Currently, there are no approved medical uses in humans for AMB-FUBINACA or its related compounds.

### **Why is it dangerous?**

The US National Drug Early Warning System (NDEWS) released 2016 data from the Drug Enforcement Agency (DEA) indicating that 37 different types of synthetic cannabinoids had been identified in 2016; AMB-FUBINACA accounted for the majority (almost 23%) of those identifications. By spring 2017, AMB-FUBINACA accounted for 51% of all synthetic cannabinoids identified. There is now evidence that more than 240 different synthetic cannabinoids exist.

Synthetic cannabinoids are the most rapidly growing class of designer recreational drugs. With this rise in new cannabinoids, users may be unaware of what they are consuming. Declared ingredients and potency of these products are usually inaccurate or false and additional ingredients like caffeine, nicotine, vitamin E, and synthetic opioids have been found within synthetic cannabinoids. AMB-FUBINACA is anywhere from 30 to 500 times more potent than THC and 50 times as potent as older variations of synthetic marijuana, like JWH-18. Inconsistency among ingredients between products creates wide variation in the strength and side effects synthetic cannabinoids. Side effects associated with long-term use or large doses include psychosis, delirium, cardiotoxicity, seizures, hypothermia and death.

## Fatalities and treatment

There have been multiple instances in the United States between 2015 and 2017 where mass hospitalizations and deaths have occurred related to synthetic cannabinoids. In Europe, 29 deaths recorded between 2014 and 2016 have been due to MDMB-CHMIINACA overdoses. Currently, there are no treatments to reverse an overdose of synthetic cannabinoids; symptoms can only be managed with supportive treatment. The use of benzodiazepines and antipsychotics have been reported to be useful in detoxification services, but their effectiveness across strains and individuals has yet to be determined.

## AMB-FUBINACA and the law

On August 24, 2017, Health Canada sent out an advisory warning Canadians that unauthorized synthetic cannabinoid products had been available for purchase in Edmonton tobacco stores and head shops, despite them being illegal. Many drugs in the FUBINACA family are classified as a Schedule II drugs in the Canadian Controlled Drugs and Substances Act. Possession and trafficking of a Schedule II drug are both punishable by a maximum of 5 years imprisonment; production or exportation of schedule II drug is punishable by a maximum of lifetime imprisonment.

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