

## 4F-MDMB-BINACA (4F-MDMB-BUTINACA)

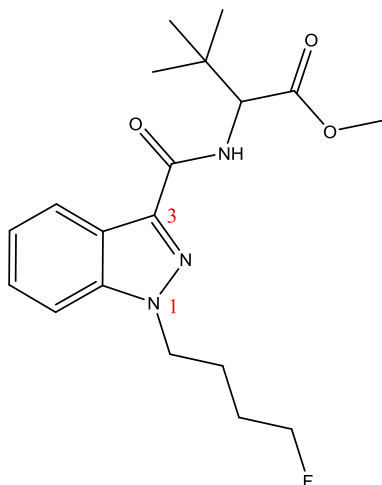
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DEA/DC/DP/DPE

### Introduction:

In recent years, various products containing synthetic cannabinoids (e.g., JWH-018, UR-144, AKB48, etc.) laced on plant material have been encountered by law enforcement and are smoked for their psychoactive effects. In response to Federal control of these synthetic cannabinoids, a transition to new synthetic cannabinoids laced on plant material has been observed. 4F-MDMB-BINACA is a synthetic cannabinoid recently encountered on the designer drug market and has been found laced on plant material and marketed under the guise of herbal incense products.

### Chemistry:

The chemical structure for 4F-MDMB-BINACA<sup>1</sup> is shown below.



4F-MDMB-BINACA is classified as an indazole. 4F-MDMB-BINACA is based on an indazole core structure, where the 1- and 3-positions of the indazole ring system are substituted. The 1-position of 4F-MDMB-BINACA is substituted with a linear four carbon chain terminated with a fluorine (F) atom. The 3-position is substituted with an amide linker, and the nitrogen (N) atom of this linker is further substituted with a 1-methoxy-3,3-dimethyl-1-oxobutan-2-yl group.

### Pharmacology:

Data from preclinical studies show that 4F-MDMB-BINACA binds to and acts as an agonist at the CB1

receptor.

There are no published studies on the safety of 4F-MDMB-BINACA for human use.

### Licit Uses:

There are no commercial or medical uses for 4F-MDMB-BINACA.

### Illicit Uses:

4F-MDMB-BINACA has been encountered in numerous synthetic cannabinoid products that are smoked for their psychoactive effects.

### User Population:

Information on user population in the U.S. is limited. 4F-MDMB-BINACA abuse is not monitored by any national drug abuse surveys. Poison control centers continue to report adverse health effects in response to the abuse of synthetic cannabinoids and this abuse is both a public health and safety concern. Serious adverse effects including death have been reported following the use of 4F-MDMB-BINACA.

### Illicit Distribution:

Multiple law enforcement encounters of 4F-MDMB-BINACA have been reported involving overdose deaths, illicit use, and seizures of drug evidence between December, 2018 and February, 2019.

### Control Status

4F-MDMB-BINACA is a positional isomer of 5F-AMB (methyl 2-(1-(5-fluoropentyl)-1H-indazole-3-carboxamido)-3-methylbutanoate), as defined by 21 CFR § 1300.01, and is therefore a Schedule I controlled substance under the Federal Controlled Substances Act as of April 10, 2017.

Comments and additional information are welcomed by the Drug and Chemical Evaluation Section; Fax 202-353-1263, telephone 202-307-7183, or E-mail [DPE@usdoj.gov](mailto:DPE@usdoj.gov).

<sup>1</sup> Chemical name: Methyl 2-(1-(4-fluorobutyl)-1H-indazole-3-carboxamido)-3,3-dimethylbutanoate