

5F-MDMB-PICA (5F-MDMB-2201)

Introduction:

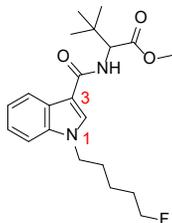
Synthetic cannabinoids, often referred to as "Spice" or "K2," are laboratory-made chemicals designed to mimic the effects of Δ^9 -tetrahydrocannabinol (Δ^9 -THC), the major psychoactive compound found in marijuana. 5F-MDMB-PICA is a potent synthetic cannabinoid that was first encountered in 2014 by law enforcement and the most prevalent synthetic cannabinoid encountered in the United States in 2019. It has been found to be laced on plant materials and present in vaped products. 5F-MDMB-PICA has also been marketed under the guise of herbal incense products.

Licit Uses:

There are no commercial or medical uses for 5F-MDMB-PICA.

Chemistry:

The chemical structure for 5F-MDMB-PICA¹ is shown below:



5F-MDMB-PICA is based on an indole core structure, where the 1- and 3-positions of the indole ring system are substituted. The 1-position of 5F-MDMB-PICA is substituted with a linear five 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 5F-MDMB-PICA binds to and acts as a potent agonist at the cannabinoid type 1 (CB1) receptor. Pharmacokinetic studies in male rats have detected only two metabolites in plasma: 3,3-dimethylbutanoic acid and 5OH-MDMB-PICA. In drug discrimination studies in rats, 5F-MDMB-PICA fully generalized to Δ^9 -THC (i.e., produced subjective effects similar to those of Δ^9 -THC), but it was 120 times more potent than Δ^9 -THC. Acute and repeated treatment of 5F-MDMB-PICA in adolescent mice resulted in alterations in dopamine transmission, and long-term behavioral consequences including increased anxiety and compulsion.

There are no published studies on the safety of 5F-MDMB-PICA for human use. However, 5F-MDMB-PICA abuse is linked to serious adverse health and behavioral effects. Physical effects include balance issues, ocular effects, tachycardia, hypertension, myocardial infarction, arrhythmias, dizziness,

somnolence, and impaired driving ability. 5F-MDMB-PICA abuse has also been associated with mental and behavioral effects including changing moods, aggression, confusion, erratic behavior, disorientation, slowed reaction, slurred speech, agitation, hallucinations, perceptual alterations, maniac behavior, suicidal ideation, memory issues, attention difficulties, amnesia, psychosis, seizures, cerebral ischemia, encephalopathy, and coma. Tolerance to 5F-MDMB-PICA may develop quickly following high consumption and repeated use. The Drug Enforcement Administration's Toxicology Testing Program (DEA TOX) is a surveillance program aimed at detecting new psychoactive substances in the United States through analyses of biological samples. DEA TOX detected 5F-MDMB-PICA or its metabolite in four overdose cases of those submitted for testing since September 2019.

In addition, America's Poison Centers have reported adverse health effects in response to the abuse of synthetic cannabinoids, and this abuse is both a public health and safety concern. Serious adverse health effects, including overdose death, have been reported following the use of 5F-MDMB-PICA.

Illicit Uses:

5F-MDMB-PICA has been identified in "legal high" synthetic cannabinoid products, such as herbal smoking mixtures, vape liquids, and infused papers.

User Population:

Information on user population in the United States is limited; however, studies suggest that adolescents and young adults (15 - 24 years old) may be the most likely users of synthetic cannabinoid products containing 5F-MDMB-PICA. 5F-MDMB-PICA abuse is not monitored by any national drug abuse surveys.

Illicit Distribution:

DEA's National Forensic Laboratory Information System (NFLIS) Drug database collects scientifically verified data on drug items and cases submitted to and analyzed by participating federal, state, and local forensic drug laboratories. NFLIS-Drug received over 10,400 reports of 5F-MDMB-PICA since it was first reported in 2014, with a peak of over 5,702 reports in 2019, followed by 3,066 reports of 5F-MDMB-PICA in 2020, 499 in 2021, 102 in 2022, 33 in 2023, and 8 in 2024 (reports still pending).

Control Status:

As of April 16, 2019, 5F-MDMB-PICA is controlled as a schedule I substance under the Controlled Substances Act (84 FR 15505).

Comments and additional information are welcomed by the Drug and Chemical Evaluation Section; Fax 571-362-4250, Telephone 571-362-3249, or E-mail: DPE@dea.gov.

¹ Chemical name: Methyl 2-(1-(5-fluoropentyl)-1H-indole-3-carboxamido)-3,3-dimethylbutanoate

