

Emerging Designer Drug Monograph

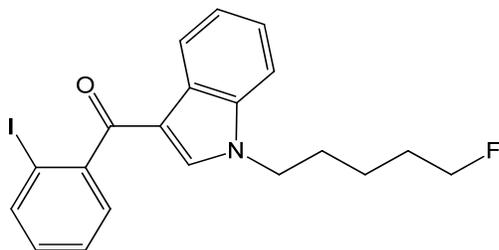
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Drug Name: AM-694

Synonyms: 1-[(5-fluoropentyl)-1H-indol-3-yl]-(2-iodophenyl)methanone; 1-(5-fluoropentyl)-3-(2-iodobenzoyl)indole

Structure:



Formula: C₂₀H₁₉FINO

Molecular Weight: 435.3

Pharmacological Drug Class: AM-694 is a potent synthetic cannabinoid (CB) that primarily acts as a selective agonist for the cannabinoid receptor CB₁ (K_i = 0.08 nM) (1). It also has affinity for CB₂ with a K_i value of 1.44 nM. Additionally, the EC₅₀ and CB₁ E_{max} (%) were reported as 52.8 nM and 63%, respectively with GTP binding assays (2).

Metabolism: Little is known about the metabolism of AM-694 in humans. GC-MS analysis of human urine samples after self-administration experiments identified six metabolites and no parent compound (3). Metabolites were hypothesized to be formed by 1) hydrolytic defluorination, 2) carboxylation, 3) monohydroxylation of *N*-alkyl chain, and 4) hydrolytic defluorination combined with monohydroxylation of *N*-alkyl chain. Major metabolites were hydrolytically defluorinated and carboxylated products. The hydrolytic defluorination metabolite also was identified in urine samples from two individuals admitted to the hospital for suspected drug overdose.

Blood Concentrations: Hermanns-Clausen *et al.* performed a retrospective study on patients seeking emergency treatment for synthetic cannabinoids (4). Authors quantified AM-694 in serum (0.20 µg/L) in only one patient. JWH-122 also was detected in this patient (9 µg/L). AM-694 also was detected in post mortem femoral blood (0.00009 µg/g) in combination with other synthetic cannabinoids and methoxetamine (5).

Oral Fluid Concentrations: One case was reported by Kneisel *et al.*, with a concentration of 0.43 µg/L (6). Additional synthetic cannabinoids also were quantified at higher concentrations in oral fluid than AM-694, most notably JWH-210 (457 µg/L).

Effects and Toxicity: AM-694 can be smoked or ingested orally. According to drug forums, 1-3 mg is sufficient to produce effects; however, in a self-administration experiment following oral (10 mg) and smoked (1 mg in 1mL acetone) administration, physiological effects were not noted (3). User accounts describe effects including euphoria, relaxation, sedation, dry mouth, internal auditory hallucinations, paranoia, terrifying hallucinations, dissociation, and schizophrenic-like behavior throughout the process (www.drugs-forum.com). AM-694 induced damage to cell membranes in human cell lines and primary cells with concentrations higher than those expected in human bodily fluids (7).

Analysis: Both GC-MS and LC-MS analytical methods can be utilized to detect AM-694 in a variety of matrices including blood, urine, oral fluid and hair (3, 6, 8-10). Additionally, SWGDRUG outlines parameters for GC-MS analysis.

References:

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AM-694 Drugs-Forum

<http://www.drugs-forum.com/forum/showwiki.php?title=AM-694>

SWGDRUG Monograph

<http://www.swgdrug.org/Monographs/AM694.pdf>

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