

Emerging Designer Drug Monograph

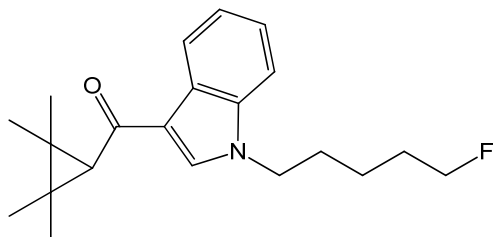
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Author(s): Gregory W. Endres, Sumandeep Rana

Drug Name: XLR-11

Synonyms: 5-fluoro UR-144

Structure:



Formula: C₂₁H₂₈FNO

Molecular Weight: 329.5

Pharmacological Drug Class: Synthetic cannabinoid, dual CB1/CB2 agonist.

Metabolism: More than 25 oxidative products were identified through *in vitro* metabolism by incubating XLR-11 in human hepatocytes (1). The predominant products from this study on the basis of MS peak area were 2'-carboxy-XLR-11, UR-144 pentanoic acid, and 5-hydroxy UR-144. It was also reported that the cyclopropyl ring-opened thermal degradation product is in higher concentration than XLR-11 in pyrolysis studies (2, 3), therefore metabolic studies of pure XLR-11 may not fully represent the *in vivo* metabolites where the mode of delivery is smoking.

Blood Concentrations: Toxicological analysis of seven clinical specimens identified XLR11 and/or its metabolites in blood: XLR-11 N-pentanoic acid metabolite (42ng/mL) serum: XLR-11 (33-35ng/mL), XLR-11 N-pentanoic acid metabolite (38-102ng/mL), or urine: XLR-11 N-pentanoic acid metabolite (529ng/mL) was reported in multiple cases where XLR-11 was attributed to acute kidney injury (4).

Effects and Toxicity: XLR-11 is the 5-fluoro analog of UR-144, a synthetic cannabinoid designed by Abbott Laboratories as a CB2 selective agonist for pain management and other indications (5). In drug discrimination studies in mice, XLR-11 generalized to Δ9-THC as well as JWH018 and *in vitro* studies show it XLR11 binds to CB1 similarly to JWH 018 and AM2201 (6).

Analysis: Based on user reports and crime lab statistics XLR-11 is predominantly smoked as an adulterant in herbal smoking mixtures; aka K2/spice. XLR-11 became a widely abused synthetic cannabinoid in spice/K2 herbal mixtures beginning in early 2012 and has been linked to acute kidney injury. Analytical data are available in the references cited in the Forendex database (7), SWGDRUG (8), and Forensic Drug Review monographs (9).

References:

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3. Thomas, B. (29 June 2006) Analysis of smoke condensate from herbal cigarettes with fluorinated synthetic cannabinoids. SOFT annual conference, oral presentation.
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