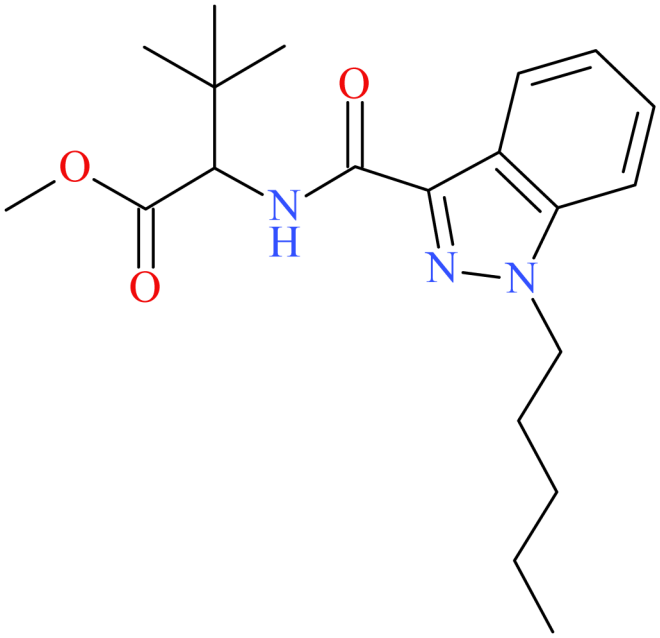
MDMB-PINACA



NPS SUBCLASS
Cannabinoid
REPORT DATE
February 17, 2026
SAMPLE RECEIVED
January 23, 2026
SAMPLE TYPE
Toxicology

Preferred Name	MDMB-PINACA				
Synonyms	N/A				
Formal Name	3-methyl-N-[(1-pentyl-1H-indazol-3-yl)carbonyl]-valine methyl ester				
Chemical Formula	$C_{20}H_{29}N_3O_3$				
Molecular Weight	359.5	**Molecular Ion [M⁺]**	359	**Exact Mass [M+H]⁺**	360.2282

About: In collaboration with medical examiner and coroner offices, crime laboratories, clinical partners, and other stakeholders, the Center for Forensic Science Research and Education (CFSRE) is documenting first confirmations of NPS through analysis of drug materials and/or toxicology samples. These reports are generated using comprehensive analytical techniques (e.g., GC-MS, LC-QTOF-MS, NMR) and include available information about the new substances identified at the time of reporting, as well as the analytical data generated during testing. Our new drug monographs are intended to assist with the rapid identification of NPS, and should not be used for confirmatory purposes alone.

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Analytical Notes: All identifications were made based on evaluation of analytical data (GC-MS and LC-QTOF-MS) in comparison to analysis of acquired reference material.

Acknowledgements: This report was prepared by Brianna Stang, Sara E. Walton, Isabella Buttacavoli, Savannah Baker, Lauren Eccarius, Barry K. Logan, and Alex J. Krotulski at the Center for Forensic Science Research and Education (CFSRE) at the Fredric Rieders Family Foundation. The authors acknowledge scientists at the CFSRE for their involvements and contributions. For more information, contact npsdiscovery@cfsre.org or visit www.npsdiscovery.org.

Suggested Citation: Stang BN, Walton SE, Buttacavoli I, Baker S, Eccarius LK, Logan BK, Krotulski AJ. (2026) *MDMB-PINACA — NPS Discovery New Drug Monograph*, Center for Forensic Science Research and Education, United States.

Characterization & Intelligence

The following information was compiled in February 2026 and is subject to change as new research is conducted and as new information becomes available:

Description: MDMB-PINACA is a synthetic cannabinoid bearing structural resemblance to other indazole-core synthetic cannabinoids (e.g., MDMB-4en-PINACA, 5F-MDMB-PINACA [also known as 5F-ADB]). MDMB-PINACA is a cannabinoid receptor agonist with higher potency and efficacy (CB_1: pEC_{50}=8.59±0.07, E_{max}=66%; CB_2: pEC_{50}=9.89±0.09, E_{max}=68%) compared to delta-9-THC (CB_1: pEC_{50}=7.47±0.16, E_{max}=51%; CB_2: pEC_{50}=6.62±0.25, E_{max}=21%).[1,2] MDMB-PINACA was first identified by our laboratory in January 2026 in a postmortem blood specimen originating from Louisiana and confirmed after acquiring standard reference material. MDMB-PINACA has since been detected in nine oral fluid specimens collected from New Orleans, LA, and has been identified alongside THC, cocaine, methamphetamine, fentanyl, and other synthetic cannabinoids and synthetic cannabinoid precursors (e.g., MDMB-4en-PINACA, MDMB-5Me-INACA, MDMB-INACA, 5F-ADB). MDMB-PINACA has not yet been identified in drug materials at the CFSRE. MDMB-PINACA is not currently scheduled in the United States.

References:

- Cayman Chemical: MDMB-PINACA
- [1]Gioe-Gallo et al. (2023): Pharmacological insights emerging from the characterization of a large collection of SCRAs ...
- [2]Banister et al. (2016): Pharmacology of valinate and tert-leucinate synthetic cannabinoids 5F-AMBICA, 5F-AMB, ...

Gas Chromatography Mass Spectrometry (GC-MS)

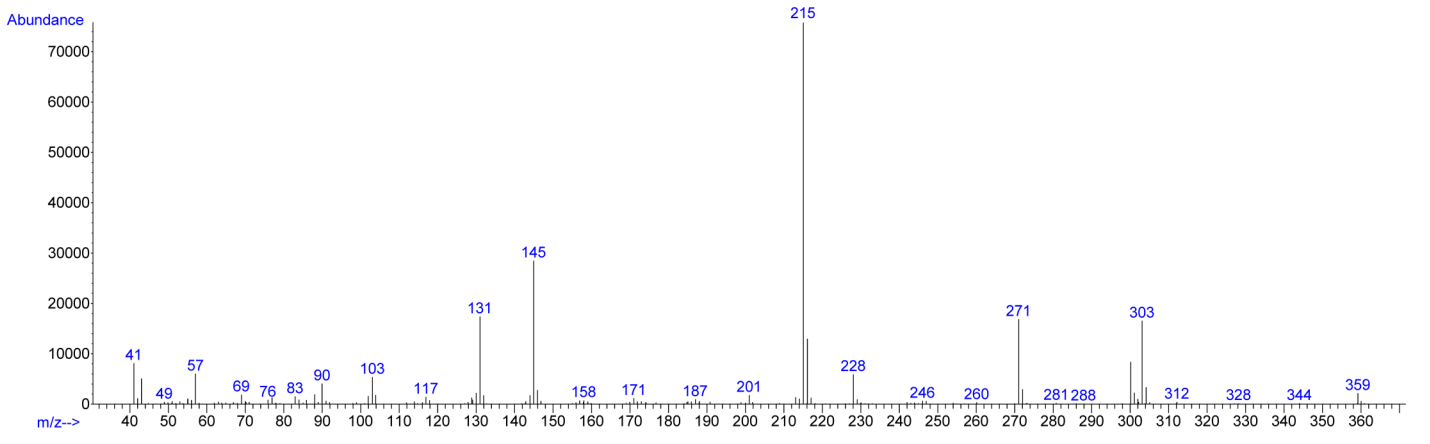
Laboratory: Center for Forensic Science Research and Education (CFSRE, Horsham PA, USA)

Instrument: Agilent 5975 Series GC/MSD

Sample Preparation: Standard diluted in methanol

Methods: GC-MS Method Details & Monographs

GC-MS: Mass Spectrum (EI 70 eV)



Liquid Chromatography Quadrupole Time-of-Flight Mass Spectrometry (LC-QTOF-MS)

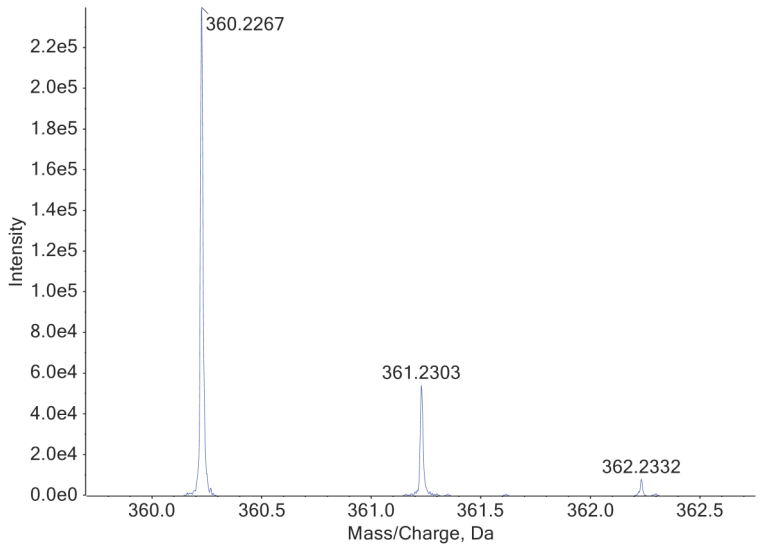
Laboratory: Center for Forensic Science Research and Education (CFSRE, Horsham, PA, USA)

Sample Preparation: Liquid-liquid extraction

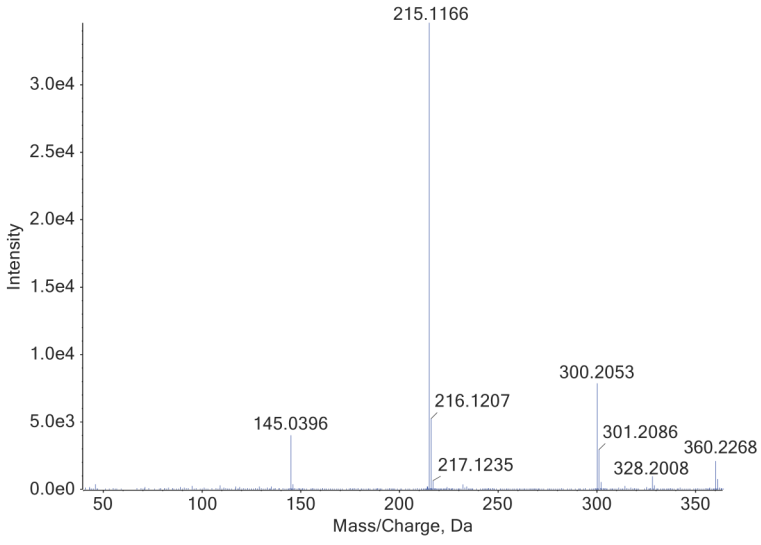
Instrument: Sciex X500R LC-QTOF-MS

Methods: LC-QTOF-MS Method Details & Monographs

LC-QTOF-MS: TOF-MS Precursor Ion Mass Spectrum



LC-QTOF-MS: TOF-MS/MS Product Ion Mass Spectrum



Confirmation Using Drug Standard: *Reference material for MDMB-PINACA (Batch: 0689485-5) was purchased from Cayman Chemical (Ann Arbor, MI, USA). The analyte was confirmed to be MDMB-PINACA based on retention time (sample: 10.12 min vs. standard: 10.39 min) and mass spectral data comparisons.*