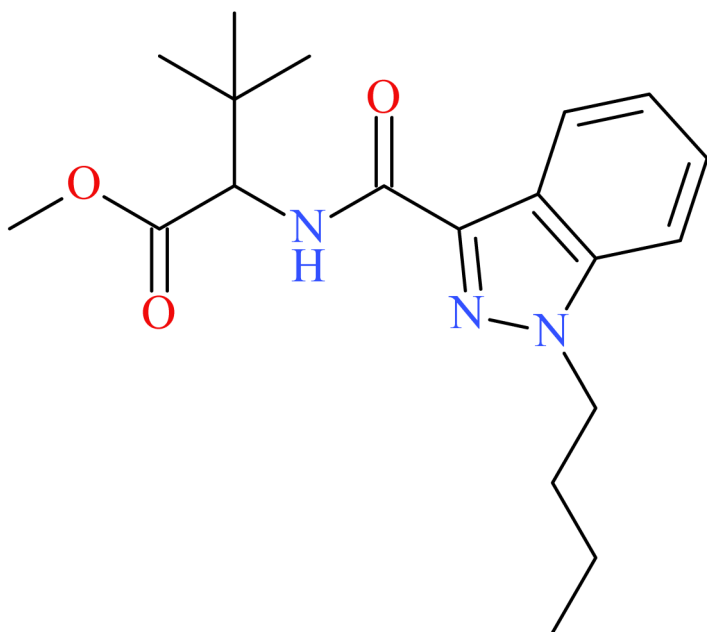




## MDMB-BINACA



NPS SUBCLASS	Synthetic Cannabinoid
REPORT DATE	June 27, 2023
SAMPLE RECEIVED	April 12, 2023
SAMPLE TYPE	Toxicology

Preferred Name	MDMB-BINACA
Synonyms	MDMB-BUTINACA
Formal Name	methyl 2-[(1-butylindazole-3-carbonyl)amino]-3,3-dimethyl-butanoate
InChI Key	YHAWFWPNIXPRDT-UHFFFAOYSA-N
CAS Number	Not Available
Chemical Formula	C <sub>19</sub> H <sub>27</sub> N <sub>3</sub> O <sub>3</sub>
Molecular Weight	345.43
Molecular Ion [M <sup>+</sup> ]	345
Exact Mass [M+H] <sup>+</sup>	346.2125

# Characterization & Intelligence

The following information was compiled in June 2023 and is subject to change as new research is conducted and as new information becomes available:

**Description:** MDMB-BINACA (also referred to as MDMB-BUTINACA) is a novel synthetic cannabinoid with structural similarity to MDMB-PINACA, 4F-MDMB-BINACA, ADB-BINACA (ADB-BUTINACA) and other synthetic cannabinoids. MDMB-BINACA was first detected in April 2023 by our laboratory in the United States in a blood sample submitted from the United Kingdom.

**Sample Source:** Toxicology case – United Kingdom.

**Sample Appearance:** Toxicology specimen – blood.

**Pharmacology:** The activity and potency of MDMB-BINACA are unknown. Based on structural similarity, MDMB-BINACA is expected to have similar effects to other biologically active synthetic cannabinoids.

**Toxicology:** MDMB-BINACA has been detected in one toxicology case at the CFSRE.

**Drug Materials:** MDMB-BINACA has not been identified in drug materials at the CFSRE to date. Reports from partnering laboratories indicate that MDMB-BINACA has been detected in samples collected in the United States.

**Demographics / Geographics:** Limited information is available at this time; however, communications with colleagues indicate that MDMB-BINACA has been identified in North America, Europe, and Asia.

**Legal Status:** MDMB-BINACA is not explicitly scheduled in the United States. MDMB-BINACA is within the scope of the national class-wide synthetic cannabinoid scheduling action imposed by China in July 2021.

## References:

- ▶ Cayman Chemical: [MDMB-BUTINACA](#)
- ▶ National Forensic Laboratory (Slovenia): [MDMB-BUTINACA \(reference material\)](#)

**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 in forensic casework and related disciplines, and should not be used for confirmatory purposes alone.

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

**Acknowledgements:** This report was prepared by Alex J. Krotulski, Simon Elliott, Kerry Taylor, Sara E. Walton, Melissa F. Fogarty, and Barry K. Logan at the Center for Forensic Science Research and Education (CFSRE) at the Fredric Rieders Family Foundation. The authors acknowledge colleagues for their involvements and contributions. For more information, contact [npsdiscovery@cfsre.org](mailto:npsdiscovery@cfsre.org) or visit [www.npsdiscovery.org](http://www.npsdiscovery.org).

**Funding:** CFSRE's NPS Discovery is supported by the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice (Award Number 15PNIJ-22-GG-04434-MUMU, "Implementation of NPS Discovery – An Early Warning System for Novel Drug Intelligence, Surveillance, Monitoring, Response, and Forecasting using Drug Materials and Toxicology Populations in the US"). The opinions, findings, conclusions and/or recommendations expressed in this publication are those of the author(s) and do not necessarily represent the official position or policies of the U.S. Department of Justice.

**Suggested Citation:** Krotulski, AJ; Elliott, S; Taylor, K; Walton, SE; Fogarty, MF; Logan, BK. (2023) MDMB-BINACA — *NPS Discovery New Drug Monograph*, Center for Forensic Science Research and Education, United States.

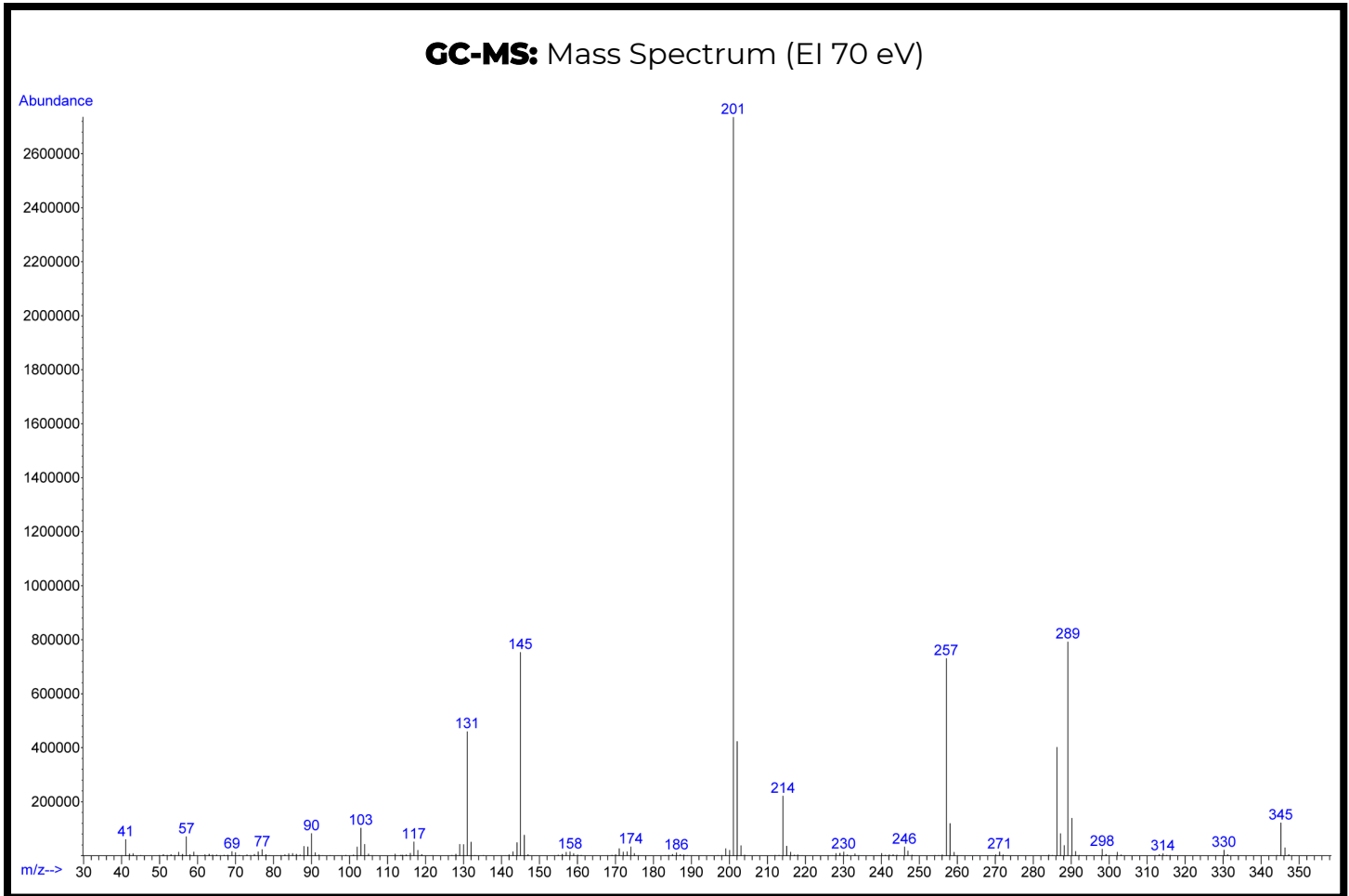
# Gas Chromatography Mass Spectrometry (GC-MS)

**Laboratory:** Center for Forensic Science Research and Education (CFSRE, Willow Grove, PA, USA)

**Instrument:** Agilent 5975 Series GC/MSD

**Methods:** [www.cfsre.org/nps-discovery/monographs](http://www.cfsre.org/nps-discovery/monographs)

**Sample Preparation:** Standard diluted in methanol



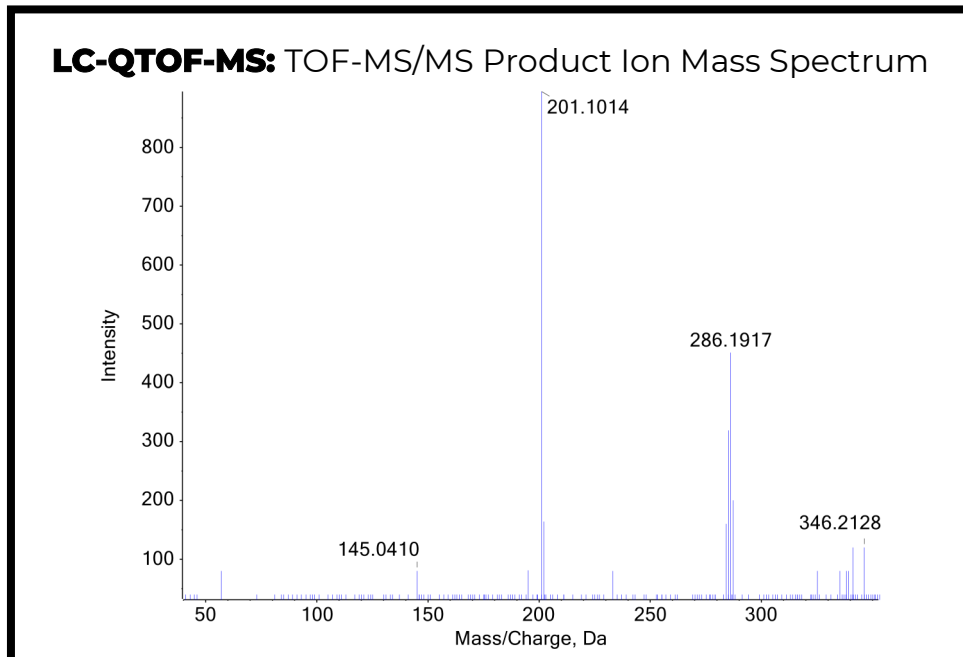
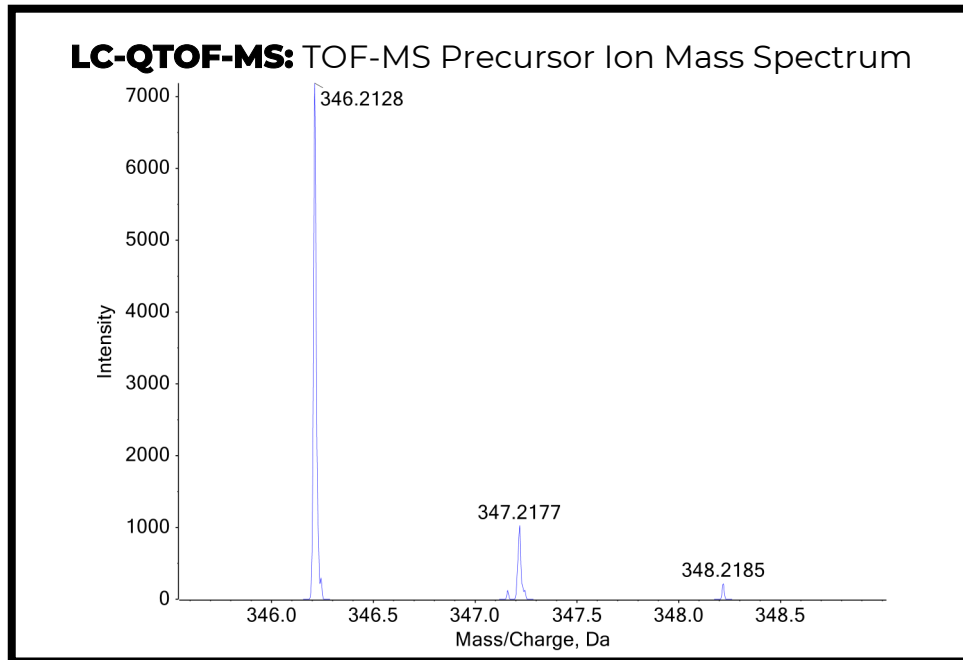
# Liquid Chromatography Quadrupole Time-of-Flight Mass Spectrometry (LC-QTOF-MS)

**Laboratory:** Center for Forensic Science Research and Education (CFSRE, Willow Grove, PA, USA)

**Instrument:** Sciex X500R LC-QTOF-MS

**Methods:** [www.cfsre.org/nps-discovery/monographs](http://www.cfsre.org/nps-discovery/monographs)

**Sample Preparation:** Liquid-liquid extraction



**Confirmation Using Drug Standard:** Reference material (Batch: 0573684-15) was purchased from Cayman Chemical (Ann Arbor, MI, USA). The analyte was confirmed to be MDMB-BINACA based on retention time (sample: 9.84 min vs. standard: 9.94 min) and mass spectral data comparisons.