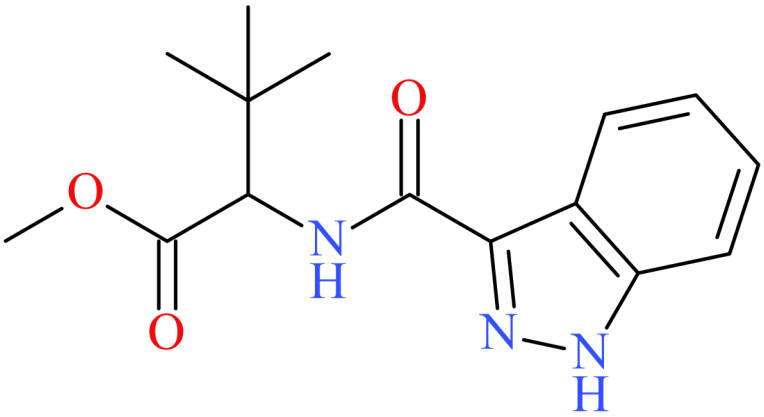
# MDMB-INACA




| NPS SUBCLASS |
| --- |
| Synthetic Cannabinoid |
| **REPORT DATE** |
| June 26, 2023 |
| **SAMPLE RECEIVED** |
| April 3, 2023 |
| **SAMPLE TYPE** |
| Drug Material |

| | |
| --- | --- |
| **Preferred Name** | MDMB-INACA |
| **Synonyms** | None Available |
| **Formal Name** | methyl 2-(1H-indazole-3-carbonylamino)-3,3-dimethyl-butanoate |
| **InChI Key** | QEXPVGIGOZJEOO-UHFFFAOYSA-N |
| **CAS Number** | 2709672-58-0 |
| **Chemical Formula** | $C_{15}H_{19}N_3O_3$ |
| **Molecular Weight** | 289.33 |
| **Molecular Ion [M⁺]** | 289 |
| **Exact Mass [M+H]⁺** | 290.1499 |

# 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-INACA is a synthetic cannabinoid precursor that can be used to produce MDMB-4en-PINACA, MDMB-BINACA, MDMB-PINACA, 4F-MDMB-BINACA, and other structurally related synthetic cannabinoids. To date, MDMB-INACA has appeared alongside MDMB-4en-PINACA and MDMB-BINACA in drug materials and/or toxicology samples tested by our laboratory in the United States. Synthetic cannabinoid precursors (e.g., ADB-INACA, MDMB-5'Br-INACA) began to appear after the implementation of a national class-wide synthetic cannabinoid scheduling action imposed by China in July 2021.

**Sample Source:** Drug material – United States (e.g., New York).

**Sample Appearance:** Drug material – impregnated paper.

**Pharmacology:** The activity and potency of MDMB-INACA are unknown; however, based on structurally similar synthetic cannabinoid precursors, MDMB-INACA is expected to be inactive or have low potency.

**Toxicology:** MDMB-INACA has been detected in seven toxicology cases at the CFSRE.

**Drug Materials:** MDMB-INACA has been detected in one drug material at the CFSRE.

**Demographics / Geographics:** Cases originated from three states, including Texas, New York, and Maryland. In death investigations, decedents were predominantly male, ranging in age from 20s-40s.

**Legal Status:** MDMB-INACA is not explicitly scheduled in the United States.

**References:**


- Cayman Chemical: MDMB-INACA
- National Forensic Laboratory (Slovenia): MDMB-INACA (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 (GC-MS and LC-QTOF-MS) in comparison to analysis of acquired reference material.


**Acknowledgements:** This report was prepared by Alex J. Krotulski, Nicole Lattanzio, Bridget McGinty, 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 scientists at the CFSRE and NMS Labs for their involvements and contributions. For more information, contact npsdiscovery@cfsre.org or visit www.npsdiscovery.org.

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# Gas Chromatography Mass Spectrometry (GC-MS)

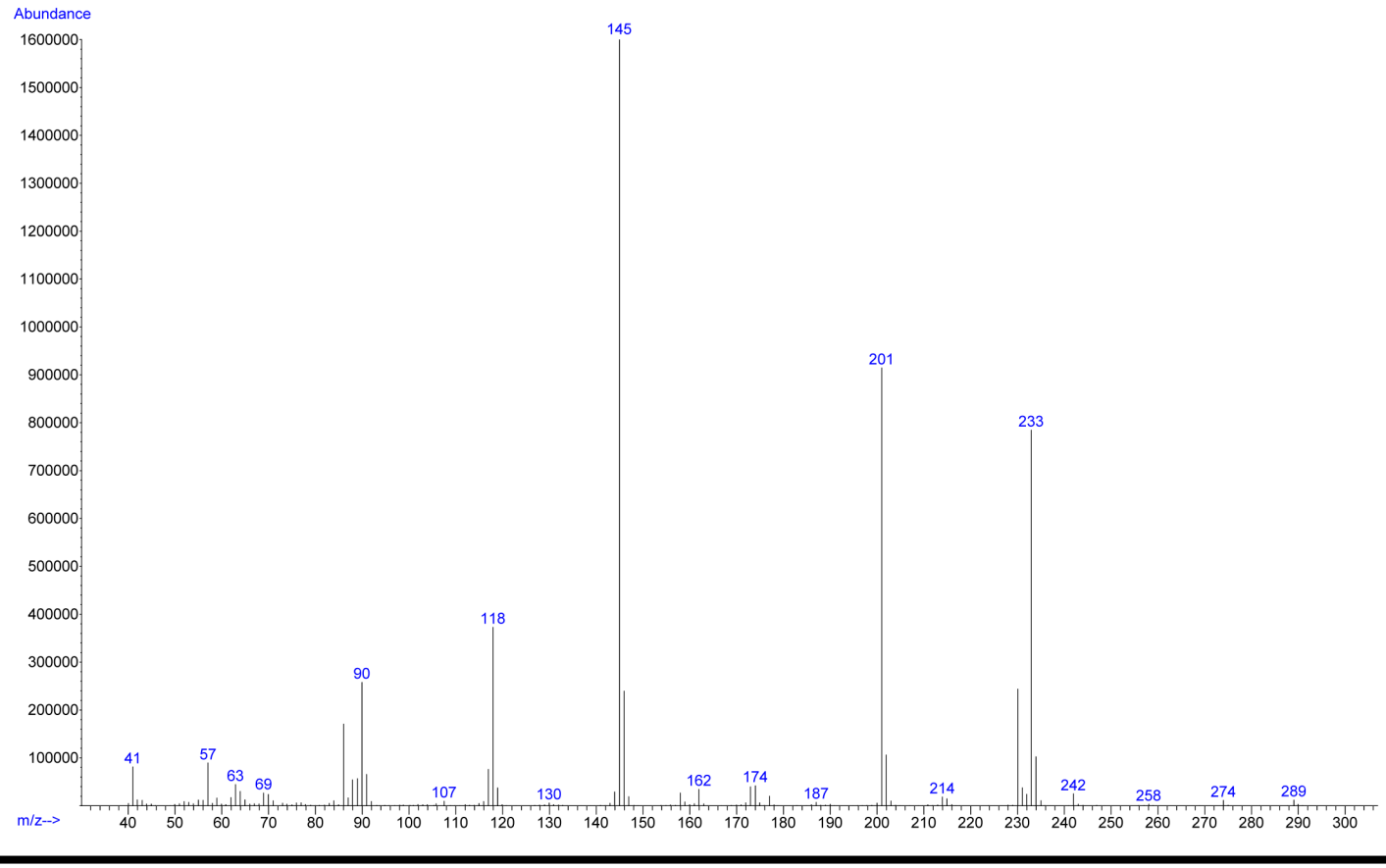
**Laboratory:** Center for Forensic Science Research and Education (CFSRE, Willow Grove, PA, USA)

**Sample Preparation:** Acid / base extraction

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

**Methods:** www.cfsre.org/nps-discovery/monographs

**GC-MS:** Mass Spectrum (EI 70 eV)




***Confirmation Using Drug Standard:*** *Reference material (Batch: 0552665-6) was purchased from Cayman Chemical (Ann Arbor, MI, USA). The analyte was confirmed to be MDMB-INACA based on retention time (sample: 7.007 min vs. standard: 6.997 min) and mass spectral data comparisons.*

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

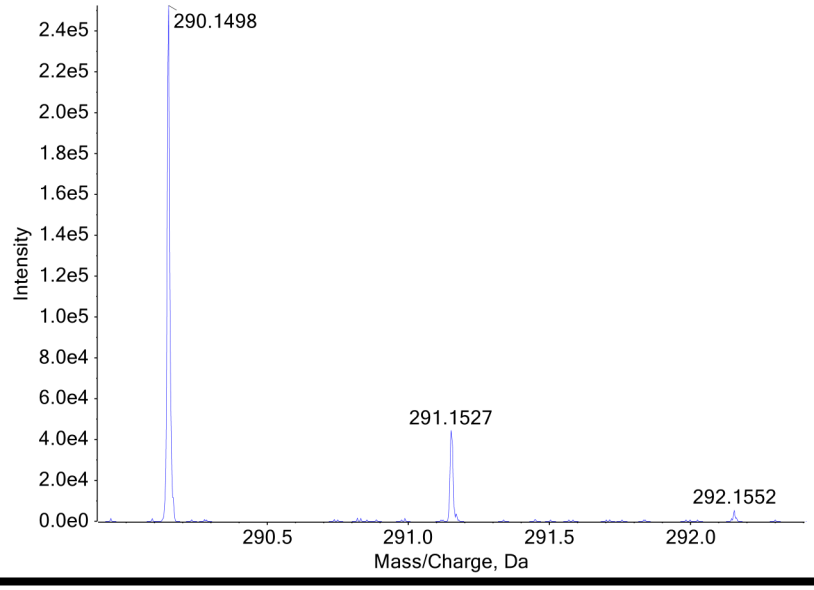
**Laboratory:** Center for Forensic Science Research and Education (CFSRE, Willow Grove, PA, USA)

**Sample Preparation:** Acid / base extraction

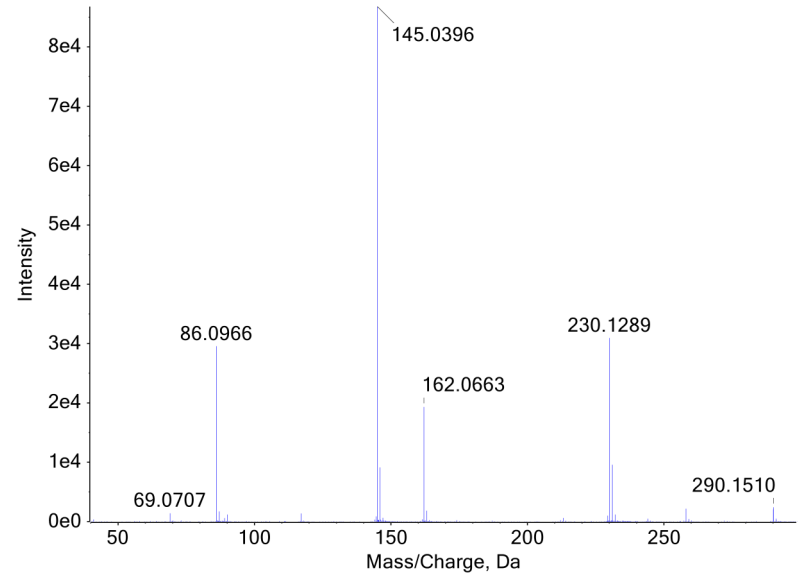
**Instrument:** Sciex TripleTOF® 5600+ LC-QTOF-MS

**Methods:** www.cfsre.org/nps-discovery/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 (Batch: 0552665-6) was purchased from Cayman Chemical (Ann Arbor, MI, USA). The analyte was confirmed to be MDMB-INACA based on retention time (sample: 7.95 min vs. standard: 7.95 min) and mass spectral data comparisons.*