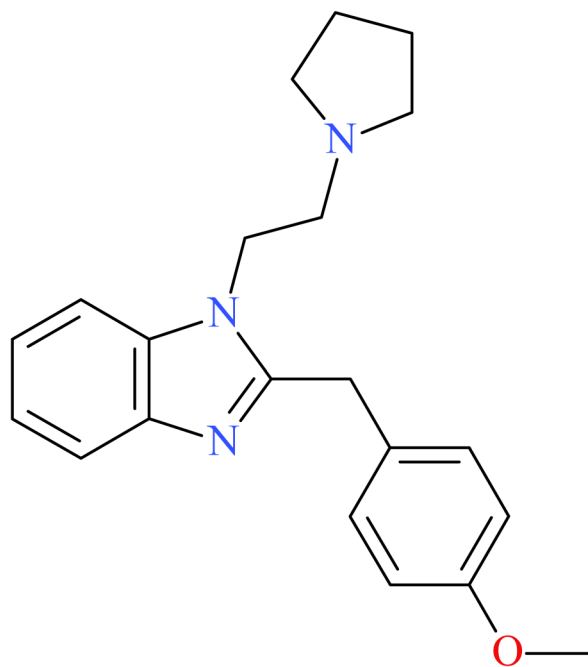




N-Pyrrolidino Metodesnitazene



NPS SUBCLASS
Opioid
REPORT DATE
June 27, 2025
SAMPLE RECEIVED
October 10, 2024
SAMPLE TYPE
Toxicology

Preferred Name	N-Pyrrolidino Metodesnitazene
Synonyms	N/A
Formal Name	2-[[4-methoxyphenyl)methyl]-1-(2-pyrrolidin-1-ylethyl)benzimidazole
InChI Key	XSEDKWRIABHQMI-UHFFFAOYSA-N
CAS Number	N/A
Chemical Formula	C ₂₁ H ₂₅ N ₃ O
Molecular Weight	335.4
Molecular Ion [M ⁺]	335
Exact Mass [M+H] ⁺	336.2070

Characterization & Intelligence

The following information was compiled in June 2025 and is subject to change as new research is conducted and as new information becomes available:

Description: N-Pyrrolidino metodesnitazene is a novel synthetic opioid bearing structural resemblance to metonitazene, metodesnitazene, N-pyrrolidino metonitazene, and other nitazene analogues. N-Pyrrolidino metodesnitazene was first identified by our laboratory in October 2024 and confirmed via standard reference material.

Sample Source: Drug Overdose Toxico-Surveillance (DOTS) Reporting Program, American College of Medical Toxicology (ACMT), University of California (San Francisco, CA)



Sample Appearance: Blood specimen

Pharmacology: *In vitro* pharmacological data available for N-pyrrolidino metodesnitazene show that this drug is an active opioid and is approximately 100x less potent than N-pyrrolidino metonitazene (its 5-NO₂ counterpart) and 30x less potent than fentanyl.¹

Toxicology: N-Pyrrolidino metodesnitazene has been detected in one toxicology case at the CFSRE.

Drug Materials: N-Pyrrolidino metodesnitazene has not been detected in drug materials at the CFSRE.

Demographics / Geographics: The toxicology specimen originated from California and N-pyrrolidino metodesnitazene was found alongside fentanyl and stimulants (e.g., methamphetamine, cocaine).

Legal Status: N-Pyrrolidino metodesnitazene is not currently a scheduled substance in the United States.

References:

- ▶ Cayman Chemical: [N-Pyrrolidino Metodesnitazene](#)
- ▶ ¹De Vrieze et al. [In vitro structure-activity relationships and forensic case series of emerging...](#)

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.

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Gas Chromatography Mass Spectrometry (GC-MS)

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

Instrument: Agilent 5975 Series GC/MSD

Methods: [GC-MS Method Details](#) & [Monographs](#)

Sample Preparation: Standard diluted in methanol

GC-MS: Mass Spectrum (EI 70 eV)



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

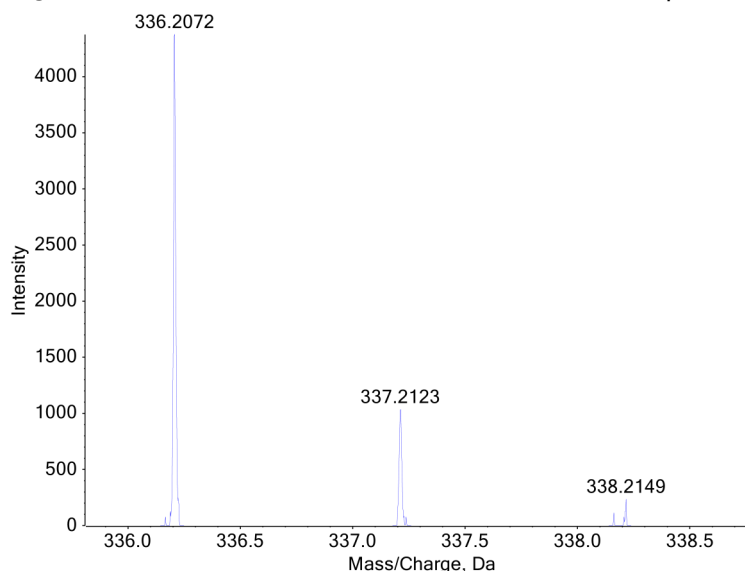
Laboratory: Center for Forensic Science Research and Education (CFSRE, Horsham, PA, USA)

Instrument: Sciex X500R LC-QTOF-MS

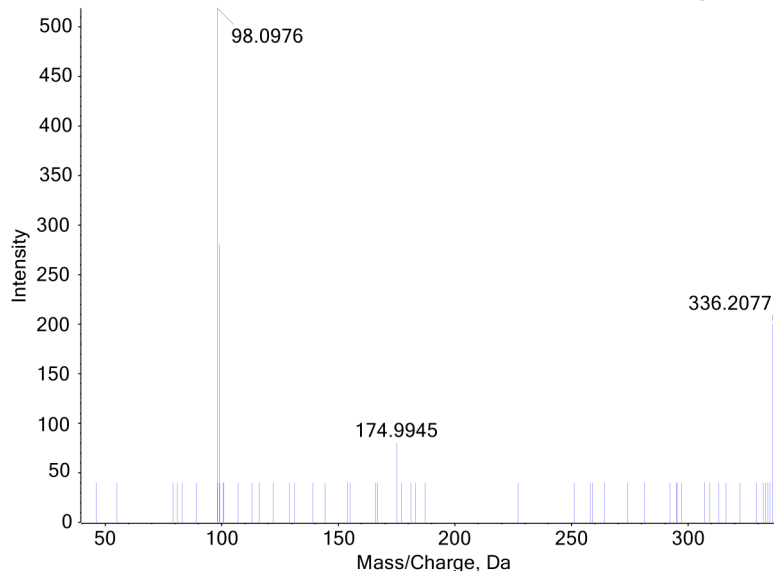
Methods: [LC-QTOF-MS Method Details](#) & [Monographs](#)

Sample Preparation: Liquid-liquid extraction

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 N-pyrrolidino metodesnitazene (Batch: 0672922-1) was purchased from Cayman Chemical (Ann Arbor, MI, USA). The analyte was confirmed to be N-pyrrolidino metodesnitazene based on retention time (sample: 4.19 min vs. standard: 4.26 min) and mass spectral data comparisons.