

# NPS SNAPSHOT: NITAZENES



## HISTORY AND KEY DATES

One of several types of novel analgesics developed in the 20<sup>th</sup> century as potential alternatives to traditional opiates.

### 1950s

Etonitazene and structurally related opioid agonist benzimidazoles are discovered in the pharmaceutical industry

### JUN 2020

Temporary placement of isotonitazene in Schedule I by DEA; EMCDDA issues technical report prior to control

### OCT 2018 - APR 2019

Etonitazene, metonitazene, and isotonitazene emerge on illicit markets and in chat forums

### JUL 2020

Metonitazene reported by CFSRE. New nitazenes begin to emerge going forward

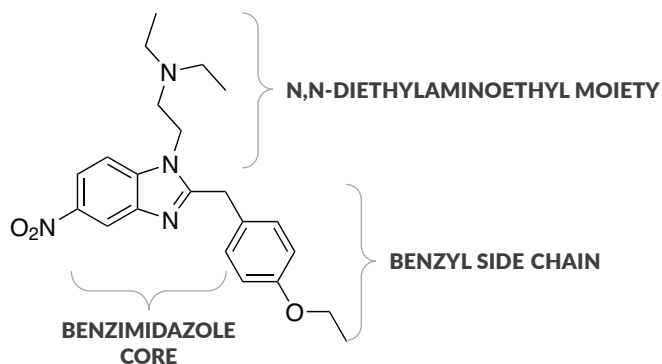
### AUG 2019

Isotonitazene notified to EMCDDA

### JAN 2024

Seven nitazenes are on the INCB Yellow List

## PROTOTYPICAL STRUCTURE



## PHARMACOLOGY

*In vitro* data from Vandeputte, M.M. et. al., 2021 suggest that nitazenes are generally highly active, with potencies of several analogs exceeding that of fentanyl. The length of the alkoxy chain, the type of *para*-benzyl substituent, and the presence of a 5-nitro group all affect the potency of these compounds. A relatively short or more compact alkoxy tail, lack of halogenation, and addition of a 5-nitro group are optimal for  $\mu$ -opioid receptor activation. An interesting finding was the unexpected very high potency of the N-desethyl isotonitazene metabolite.

## More Than 50 Nitazene Analytical Standards Available, Including:

- Metabolites
- Isotopically Labeled Standards
- Intermediates & Byproducts
- DEA Exempt Preparations
- CRMs

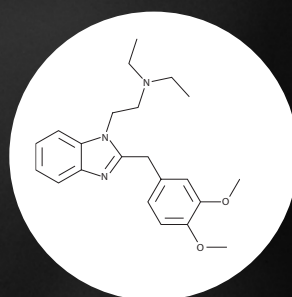


DISCOVER ALL NITAZENE ANALYTICAL STANDARDS

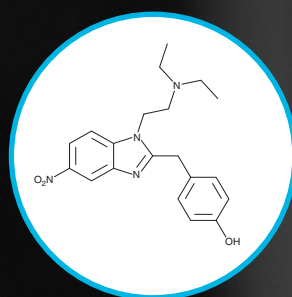
[www.caymanchem.com/nitazene-standards](http://www.caymanchem.com/nitazene-standards)

View our complete analytical standard line at [www.caymanchem.com/forensics](http://www.caymanchem.com/forensics)

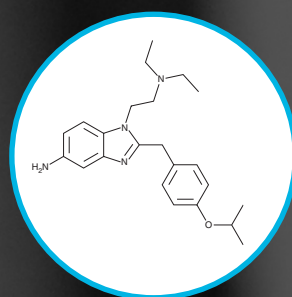
# AVAILABLE NITAZENE ANALYTICAL STANDARDS



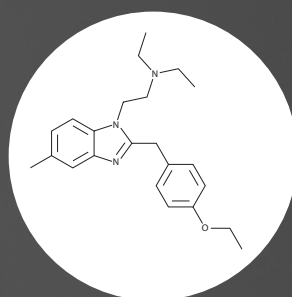
3'-methoxy Metodesnitazene  
(38747)



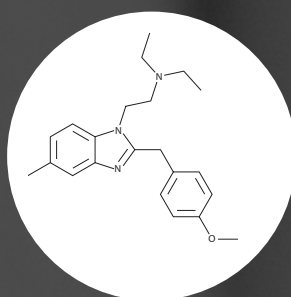
4'-hydroxy Nitazene  
(30218)



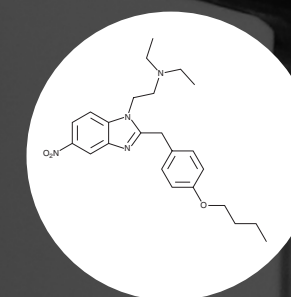
5-Aminoisotonitazene  
(29318)



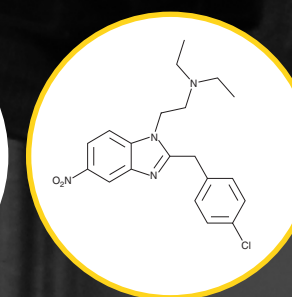
5-methyl Etodesnitazene  
(36767)



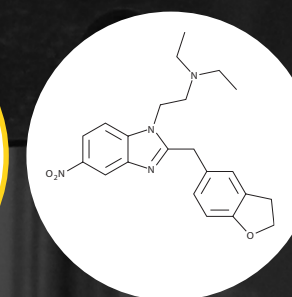
5-methyl Metodesnitazene  
(39124)



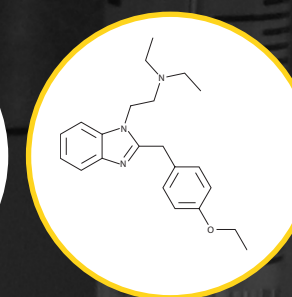
Butonitazene  
(30278 | 38653)



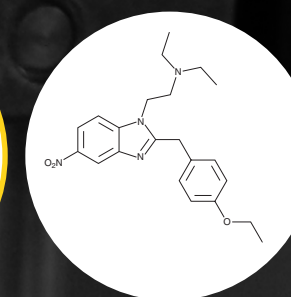
Clonitazene  
(29642)



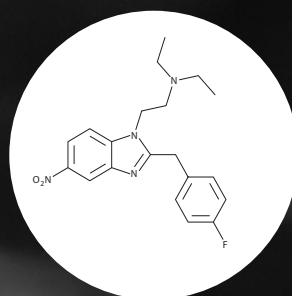
Ethyleneoxynitazene  
(34947)



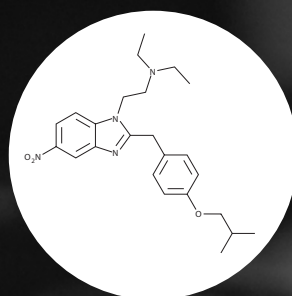
Etodesnitazene  
(29916 | 39892 | 38174)



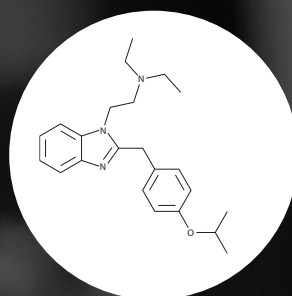
Etonitazene  
(21824 | 31134)



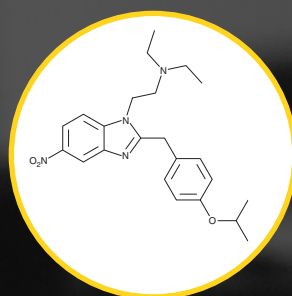
Flunitazene  
(30279)



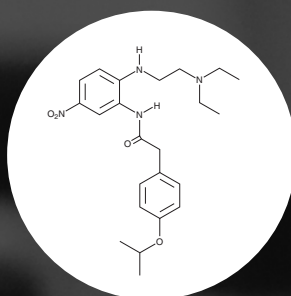
iso-Butonitazene  
(35107)



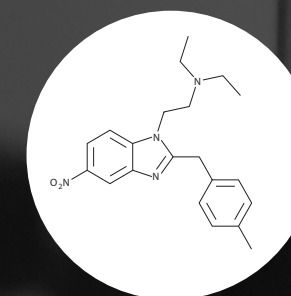
Isotodesnitazene  
(30286)



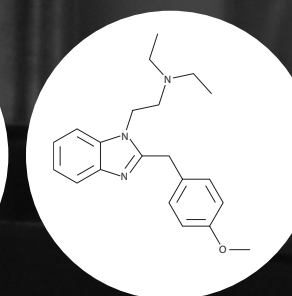
Isotonitazene  
(30880 | 27255 | 39682 | 29319)



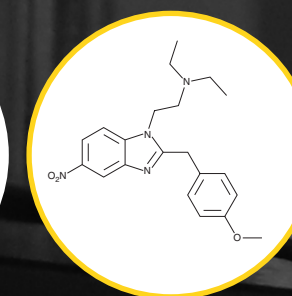
Isotonitazene Uncyclized Intermediate  
(35156)



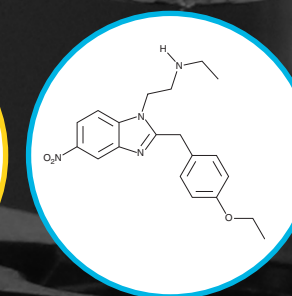
Menitazene  
(36634)



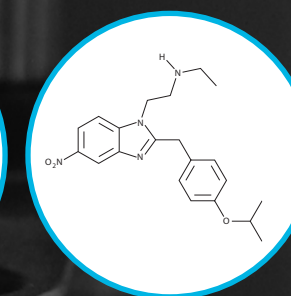
Metodesnitazene  
(30035)



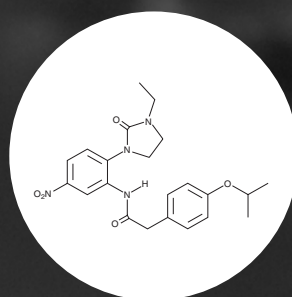
Metonitazene  
(26398 | 31303 | 31648)



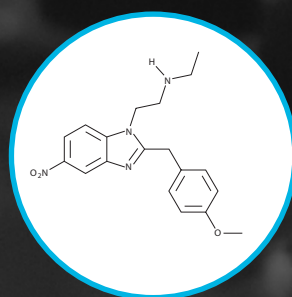
N-desethyl Etonitazene  
(32512)



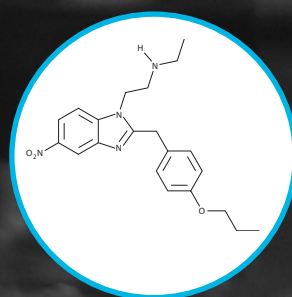
N-desethyl Isotonitazene  
(30216)



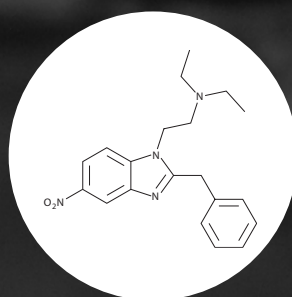
N-desethyl Isotonitazene imidazolidinone byproduct  
(38210)



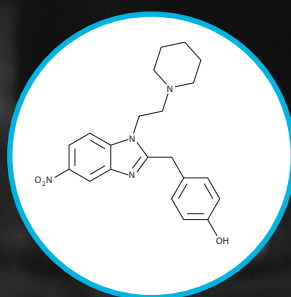
N-desethyl Metonitazene  
(38178)



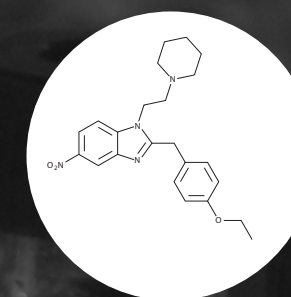
N-desethyl Protonitazene  
(38154)



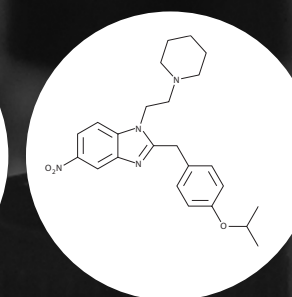
Nitazene  
(36635)



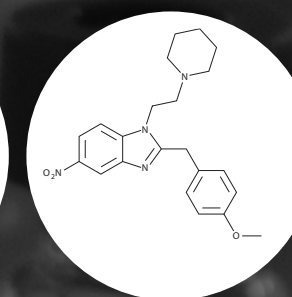
N-Piperidinyl 4'-hydroxy Nitazene  
(37835)



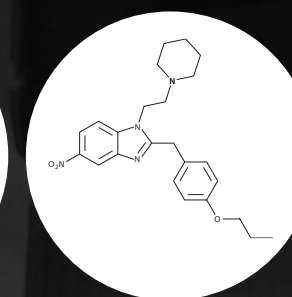
N-Piperidinyl Etonitazene  
(33168)



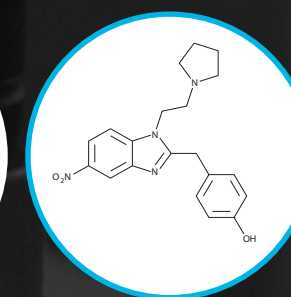
N-Piperidinyl Isotonitazene  
(35106)



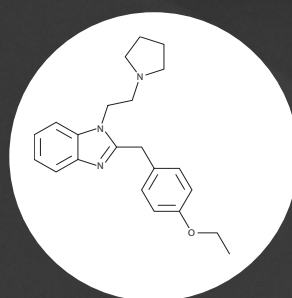
N-Piperidinyl Metonitazene  
(37739)



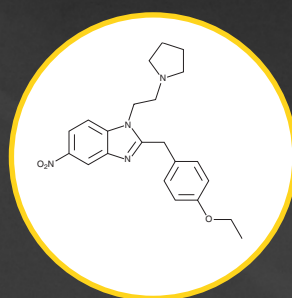
N-Piperidinyl Protonitazene  
(37740)



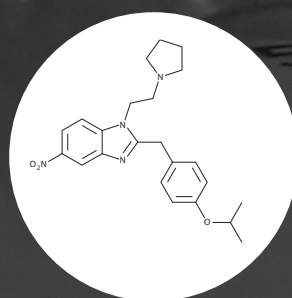
N-Pyrrolidino 4'-hydroxy Nitazene  
(37834)



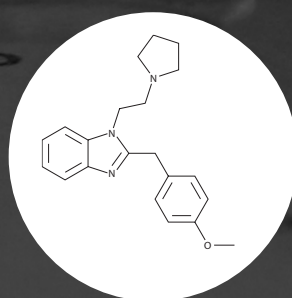
N-Pyrrolidino Etodesnitazene  
(38126)



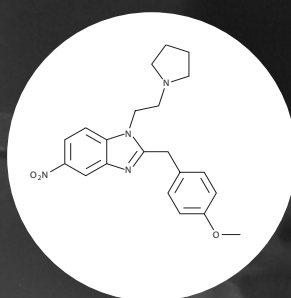
N-Pyrrolidino Etonitazene  
(33169 | 38255 | 38173)



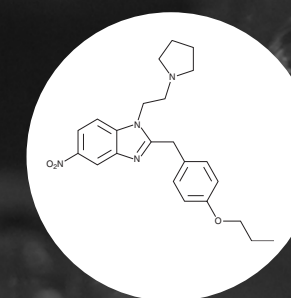
N-Pyrrolidino Isotonitazene  
(34909)



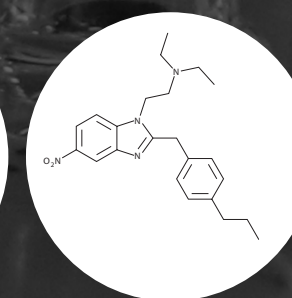
N-Pyrrolidino Metodesnitazene  
(38127)



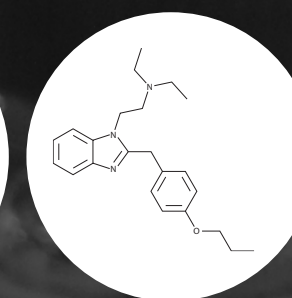
N-Pyrrolidino Metonitazene  
(37685)



N-Pyrrolidino Protonitazene  
(37456)



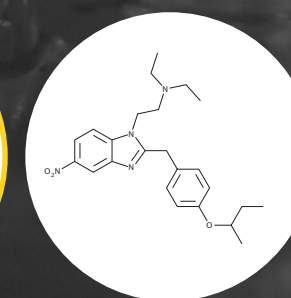
Propylnitazene  
(35179)



Protodesnitazene  
(36917)



Protonitazene  
(29381 | 38143 | 38177)



sec-Butonitazene  
(34856)

## FORENSIC TOOLS & RESOURCES FOR NPS IDENTIFICATION

Cayman Chemical is dedicated to working with the forensic community to quickly make authentic reference standards available from our ISO/IEC 17025 and ISO 17034 laboratories. Cayman offers many free resources to assist the forensic community in the screening and identification of unknown substances.

### Fentanyl Analog Screening (FAS) Kits & Emergent Drug Panels

The FAS Kit, FAS Kit - Emergent Panels V1-V4, and FAS Kit - Emergent Drug Panel are a collection of reference standards for screening emerging drugs of concern in seized drug or toxicological casework.

#### *FAS Kits are Free to Qualified Labs*

- Includes 200 µg of each compound
- Full set includes reference standards for 250 synthetic opioids and 60 co-drugs
- Improve immunoassay and mass spectrometry screening methods



**APPLY NOW**

[www.caymanchem.com/faskit](http://www.caymanchem.com/faskit)

## MASS SPEC RESOURCES

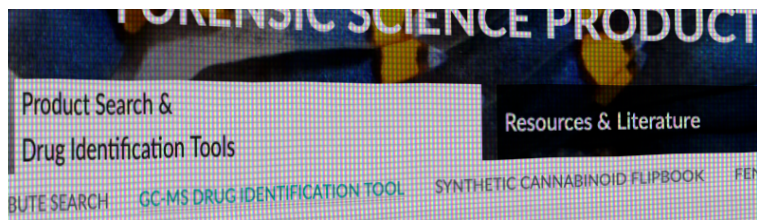


### Cayman Spectral Library

Our free, searchable, GC-MS spectral database contains 70eV EI mass spectral data of 2,000+ of Cayman's forensic drug standards.

**DOWNLOAD THE DATABASE**

[www.caymanchem.com/CSL](http://www.caymanchem.com/CSL)



### GC-MS Drug Identification Tool

Cayman's GC-MS drug identification tool can help you search unknowns by formula weight, base peak, and 2<sup>nd</sup> base peak ion.

**VIEW THE TOOL**

[www.caymanchem.com/drugID](http://www.caymanchem.com/drugID)

Custom Mixtures, Screening Panels, & Plates Available  
Email [sales@caymanchem.com](mailto:sales@caymanchem.com) to discuss your specific project needs.