

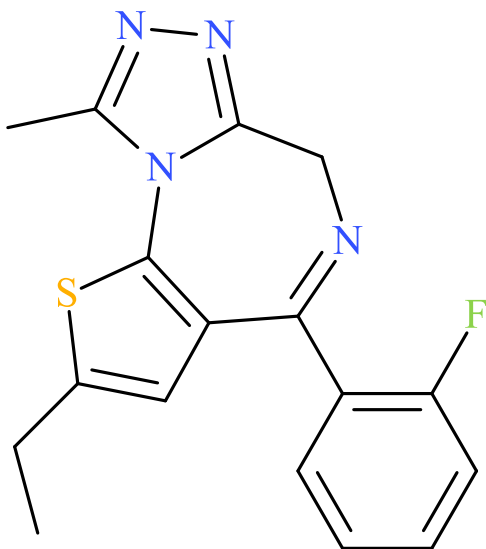
## Fluetizolam

Sample Type: **Toxicology Sample**

Latest Revision: **December 8, 2022**

Date Received: **October 27, 2022**

Date of Report: **December 8, 2022**



### 1. GENERAL INFORMATION

<b>IUPAC Name:</b>	4-ethyl-7-(2-fluorophenyl)-13-methyl-3-thia-1,8,11,12-tetrazatricyclo[8.3.0.0 <sup>2,6</sup> ]trideca-2(6),4,7,10,12-pentaene
<b>InChI String:</b>	InChI=1S/C17H15FN4S/c1-3-11-8-13-16(12-6-4-5-7-14(12)18)19-9-15-21-20-10(2)22(15)17(13)23-11/h4-8H,3,9H2,1-2H3
<b>CFR:</b>	Not Scheduled (12/2022)
<b>CAS#</b>	40054-88-4
<b>Synonyms:</b>	2'-Fluorodeschloroetizolam
<b>Source:</b>	ACMT's Toxicology Investigators Consortium (ToxIC)

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

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## 2. CHEMICAL AND PHYSICAL DATA

### 2.1 CHEMICAL DATA

Drug	Chemical Formula	Molecular Weight	Molecular Ion [M <sup>+</sup> ]	Exact Mass [M+H] <sup>+</sup>
Fluetizolam	C <sub>17</sub> H <sub>15</sub> FN <sub>4</sub> S	326.4	326	327.1074

### 3. SAMPLE HISTORY

To date, Fluetizolam was identified in one clinical case since October 2022. The geographical and demographical breakdown is below:

**Geographical Location:** Los Angeles (n=1)

**Biological Sample:** Plasma (n=1)

**Date of First Receipt:** October 2022

**Other Notable Findings:** Pentylone, 3-OH-PCP, 4-MeO-PCP

### 4. BRIEF DESCRIPTION

Fluetizolam is classified as a novel benzodiazepine. Benzodiazepines are central nervous system depressants. Novel benzodiazepines, typically defined as emergent benzodiazepines not used medicinally, are often pirated from early drug discovery or pharmaceutical studies. Novel benzodiazepines have appeared on illicit drug markets in recent years and have caused adverse events, as described in the literature; fatalities linked to novel benzodiazepine use have occurred, commonly when used in combination with other depressants (e.g., opioids and alcohol). Fluetizolam is structurally similar to etizolam and other novel benzodiazepines. Fluetizolam is not federally controlled in the United States.

### 5. ADDITIONAL RESOURCES

[https://www.policija.si/apps/nfl\\_response\\_web/0\\_Analytical\\_Reports\\_final/Fluetizolam-ID-3175-22\\_report.pdf](https://www.policija.si/apps/nfl_response_web/0_Analytical_Reports_final/Fluetizolam-ID-3175-22_report.pdf)

<https://www.caymanchem.com/product/36236/fluetizolam>

## 6. QUALITATIVE DATA

### 6.1 GAS CHROMATOGRAPHY MASS SPECTROMETRY (GC-MS)

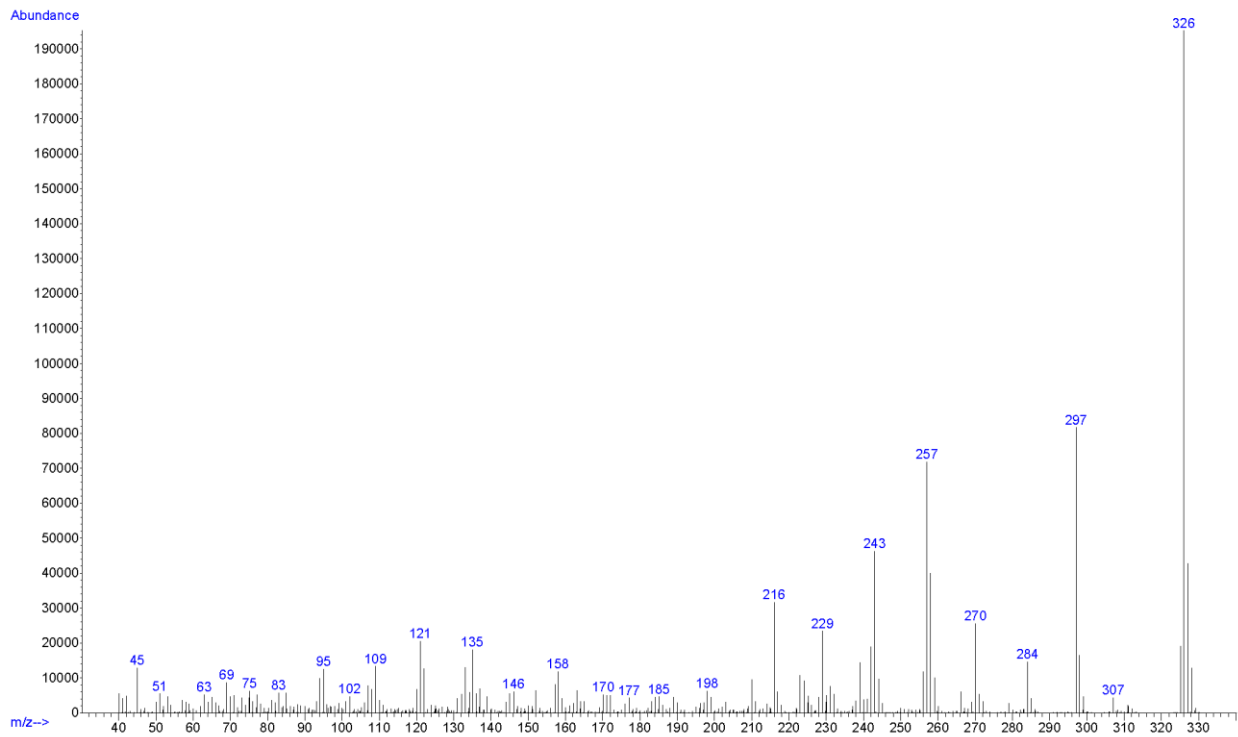
**Testing Performed At:** The Center for Forensic Science Research and Education at the Fredric Rieders Family Foundation (Willow Grove, PA)

**Sample Preparation:** Standard diluted in methanol

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

**Standard:** Reference material for fluetizolam (Batch: 0637445-2) was purchased from Cayman Chemical Company (Ann Arbor, MI, USA). (<https://www.caymanchem.com/product/36236/fluetizolam>)

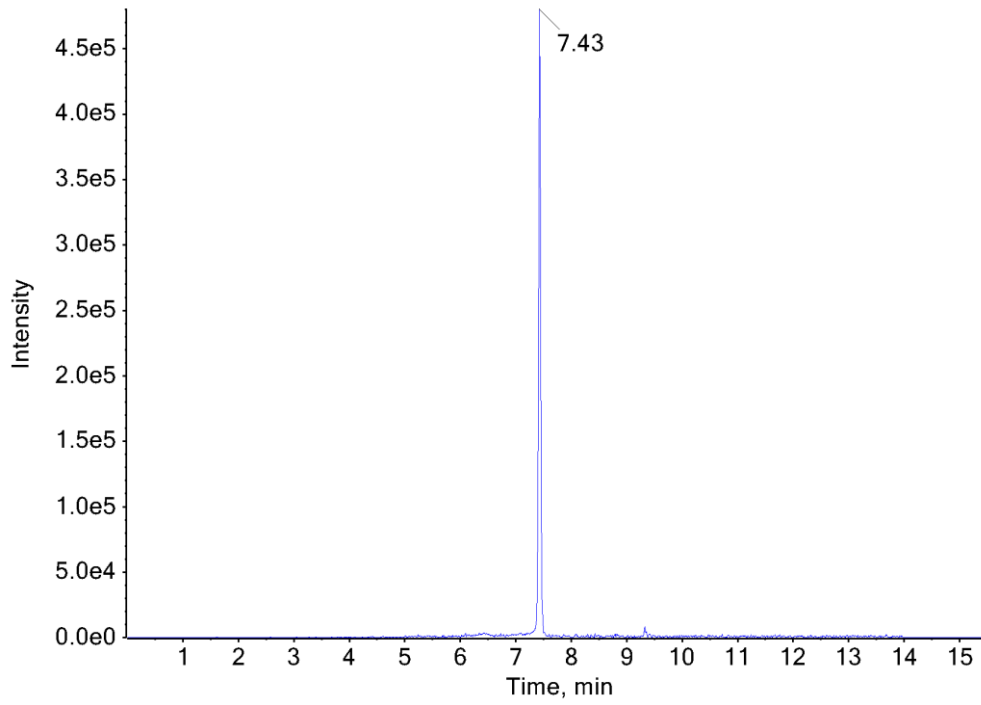
#### EI (70 eV) Mass Spectrum: Fluetizolam (Standard)



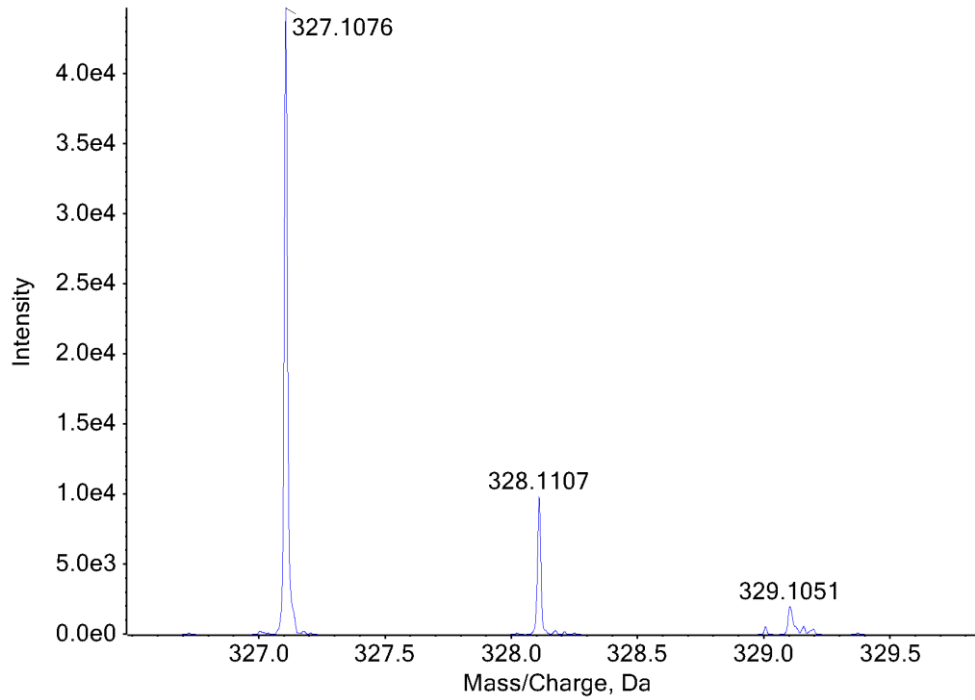
## 6.2 LIQUID CHROMATOGRAPHY QUADRUPOLE TIME-OF-FLIGHT MASS SPECTROMETRY (LC-QTOF-MS)

<b>Testing Performed At:</b>	The Center for Forensic Science Research and Education at the Fredric Rieders Family Foundation (Willow Grove, PA)
<b>Sample Preparation:</b>	Liquid-liquid extraction (LLE)
<b>Instrument:</b>	Sciex X500R, Sciex ExionLC
<b>Column:</b>	Phenomenex® Kinetex C18 (50 mm x 3.0 mm, 2.6 µm)
<b>Mobile Phase:</b>	A: Ammonium formate (10 mM, pH 3.0) B: Methanol/acetonitrile (50:50) Flow rate: 0.4 mL/min
<b>Gradient:</b>	Initial: 95A:5B; 5A:95B over 13 min; 95A:5B at 15.5 min
<b>Temperatures:</b>	Autosampler: 15 °C Column Oven: 30 °C Source Heater: 600 °C
<b>Injection Parameters:</b>	Injection Volume: 10 µL
<b>QTOF Parameters:</b>	TOF MS Scan Range: 100-510 Da Precursor Isolation: SWATH® acquisition (27 windows) Fragmentation: Collision Energy Spread (35±15 eV) MS/MS Scan Range: 50-510 Da
<b>Retention Time:</b>	7.43 min
<b>Standard Comparison:</b>	Reference material for fluetizolam (Batch: 0637445-2) was purchased from Cayman Chemical Company (Ann Arbor, MI, USA). Analysis of this standard resulted in positive identification of the analyte in the extract as fluetizolam, based on retention time (7.47 min) and mass spectral data. ( <a href="https://www.caymanchem.com/product/36236/fluetizolam">https://www.caymanchem.com/product/36236/fluetizolam</a> )

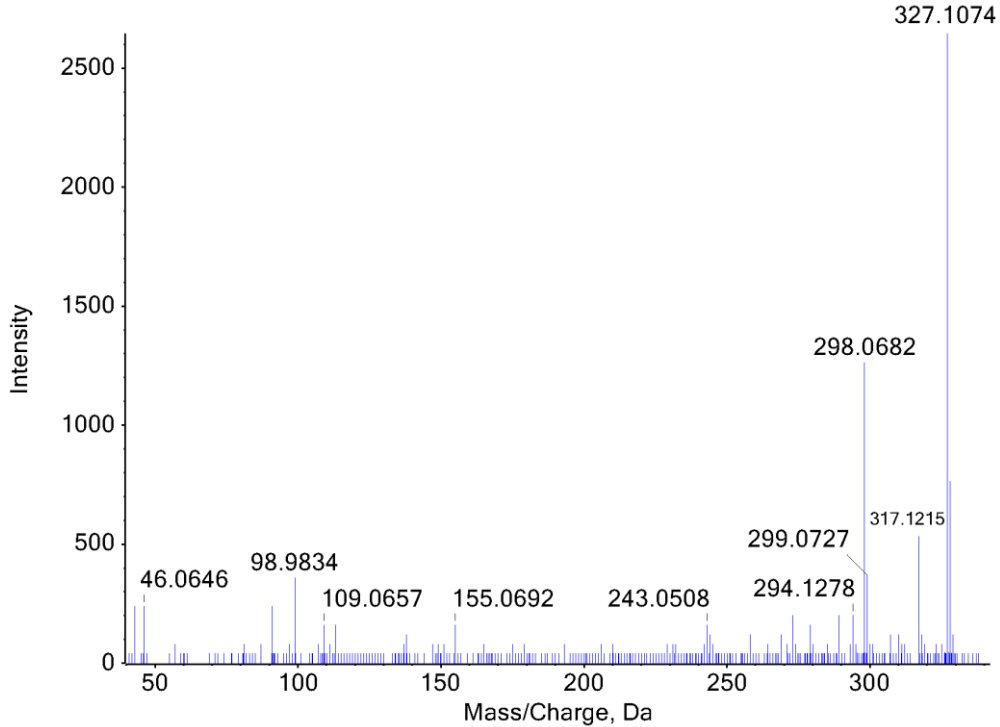
### Extracted Ion Chromatogram: Fluetizolam



### TOF MS Spectra: Fluetizolam



## MS/MS Spectra: Fluetizolam



## 7. FUNDING

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