Synth-Opioids Real-Time Communication Network (Synth-Opioids)

About

The National Forensic Laboratory Information System (NFLIS) Drug Enforcement Administration (DEA) Synth-Opioids Real-Time Communication Network is a practitioner-driven, real-time communication platform focused on emerging drugs. The NFLIS DEA Synth-Opioids Real-Time Communication Network (Synth-Opioids) creates opportunities for swift information exchange and permanent, searchable storage of discussions between the forensic science community and relevant stakeholders.

With over 500 members from 11 countries including 48 U.S. States and the District of Columbia, Synth-Opioids brings together Federal, State, local, and private sectors and facilitates communication among the areas of forensic chemistry, toxicology, pathology, jurisprudence, research, public health, and law enforcement.

Summary of Forum Interactions

- Members assisted each other in attempting to identify 11 unknown substances.
- Six laboratory posts about new psychoactive substance (NPS) identifications or tentative identifications (outside of agency reports) were shared on the forum.
- Members created four posts about analytical challenges or recommendations that include analytical parameters for specific substances and requests for reference spectra.
- Thirty-three agency reports, including public alerts from NFLIS, the Center for Forensic Science Research & Education, and the DEA Toxicology Program, as well as DEA Emerging Threat Reports, were disseminated on the forum.
- Three formal Synth-Opioids announcements focusing on ortho-chlorofentanyl; 3,4-methylenedioxypV8; and 2-naphthyl U-47700 were circulated based on user identifications of initially unknown compounds.
- The Synth-Opioids 2020 Annual Report was posted on the forum.

Figure 1. New Topics on Synth-Opioids

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of New Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agency Reports</td>
<td>33</td>
</tr>
<tr>
<td>Unknown Substances</td>
<td>11</td>
</tr>
<tr>
<td>Early NPS Detections</td>
<td>6</td>
</tr>
<tr>
<td>Analytical Challenges and Recommendations</td>
<td>4</td>
</tr>
<tr>
<td>Synth-Opioids Annual Report and Announcements</td>
<td>4</td>
</tr>
<tr>
<td>General Inquiry</td>
<td>1</td>
</tr>
</tbody>
</table>

Practitioner-driven, real-time communication on emerging drugs

NATIONAL FORENSIC LABORATORY INFORMATION SYSTEM

Figure 1. New Topics on Synth-Opioids
Table 1. Participation Metrics

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Members</td>
<td>540</td>
</tr>
<tr>
<td>New Members in 2021</td>
<td>307</td>
</tr>
<tr>
<td>New U.S. States in 2021</td>
<td>14</td>
</tr>
<tr>
<td>Total Countries</td>
<td>11</td>
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<tr>
<td>New Countries in 2021</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 2. Participation by Discipline

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry</td>
<td>187</td>
</tr>
<tr>
<td>Toxicology</td>
<td>58</td>
</tr>
<tr>
<td>Law Enforcement</td>
<td>32</td>
</tr>
<tr>
<td>Public Health or Epidemiology</td>
<td>27</td>
</tr>
<tr>
<td>Research or Academics</td>
<td>17</td>
</tr>
<tr>
<td>Pathology</td>
<td>8</td>
</tr>
<tr>
<td>Statistics</td>
<td>4</td>
</tr>
<tr>
<td>Psychiatry or Behavioral Science</td>
<td>3</td>
</tr>
<tr>
<td>Jurisprudence</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>33</td>
</tr>
<tr>
<td>Unknown</td>
<td>169</td>
</tr>
</tbody>
</table>

Webpage Metrics

After moving from an e-mail–based system in 2020, Synth-Opioids is now a fully functional web-based communication network. Webpage metrics show that the top search terms in 2021 were Captagon, 4F-MDMB-BUTICA, Florida, unknown, 4F-MDMB-BICA, isotonitazene, and fluorofentanyl.

Table 3. Webpage Metrics

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consolidated Page Views</td>
<td>33,969</td>
</tr>
<tr>
<td>User Visits</td>
<td>2,765</td>
</tr>
<tr>
<td>Daily Engaged Users</td>
<td>841</td>
</tr>
<tr>
<td>New Topics in 2021</td>
<td>59</td>
</tr>
</tbody>
</table>

Practitioner-driven, real-time communication on emerging drugs
In May 2021, a forensic chemist from the Illicit Drug group of Queensland Health Forensic and Scientific Services (QHFSS) saw a post on Synth-Opioids from the Ohio Attorney General’s Bureau of Investigation about detection of a new synthetic opioid, 2-naphthyl U-47700, appearing in their case samples. Detections of this compound in Australia had been verified by nuclear magnetic resonance at the National Measurement Institute (NMI), and NMI was preparing to submit a case study for publication. By referencing the Synth-Opioids post in the case study, NMI also reported that there had been detections of 2-naphthyl U-47700 in conjunction with heroin internationally. In a follow-up post, QHFSS provided a link to the publication and alerted the Synth-Opioids community that this compound had been seen with etizolam and/or methylsulfonylmethane and is known as beta-U10.

2021 Forum Discussion Highlights

During 2021, members discussed 11 unknown substances. The following are examples of these discussions:

- Unknown substance observed with base peak (BP) m/z 229 from confiscated paper. Potentially ADB-HEXINACA.
- Unknown substance observed in powder and tablets, with BP m/z 176 and potential molecular weight of 233 g/mol. No color reaction observed with the Marquis color test. Potentially hydroxetamine.
- Unknown substance with BP m/z 276 that eluted prior to fentanyl. Other compounds identified in samples were tramadol, xylazine, and chloro-phencyclidine. Potentially N-propionyl xylazine.
- Unknown substance with BP m/z 257 observed in clandestine alprazolam tablets: “R039.” ADB-BUTINACA identified in sample.
- White powder containing sugar, 1-propionyl-4-anilinopiperidine, trace cocaine, possible N-tert-butyl or N-propionyl norfentanyl, 4-ANPP, and fentanyl.
- Potential 5F-MDA-19 (5F-BZO-POXIZID) seen in central Florida along with ADB-BUTINACA.

Other discussion topics included the following:

- Request for spectra of EDMB-PINA, fluoro-valeryffentanyl, and AEP-PINACA.
- Request for analytical information on 2,3-methylenedioxy-alpha-ethylaminobutioephene, N-methylethylene, and 3,4-methylenedioxy-alpha-methylamino-isovalerophenone.
- Request for information on isotonitazene deaths in the United States.
- 2-naphthyl U-47700 identified in cases in Ohio.
- ADB-FUBIATA (FUB-ACADB, AD-18) identified in yellow granular material on paper.
- Identified 3,4-methylenedioxy-PV8 in a brown, rock-like substance. Caffeine was the main component, and cocaine was a minor component.
- Several posts on the increase of para-fluorofentanyl or an isomer from DEA Southeast Laboratory (seized drug), Miami-Dade Medical Examiner Toxicology Laboratory (toxicology), and Solano County District Attorney Bureau of Forensic Services (seized drug). Most were observed with fentanyl. Other substances that have been identified in combination with para-fluorofentanyl or an isomer were heroin, tramadol, cocaine, alprazolam, 6-AM, xylazine, methamphetamine, oxycodone, eutylone, MDMA, and mitragynine.
- Tentative identification of ortho-fluorofentanyl in north Florida. Confirmed in cases in Ohio.
- Di-chlorinated methaqualone derivative, SL-164, in capsule pill form identified in an emergency department patient sample from San Diego, California.

How To Join the Discussion

DEA is pleased to continue to work with our partners in the forensic community to address the challenges associated with the rapid evolution of the illicit drug market. Those interested in being a member of the Synth-Opioids community can visit the Synth-Opioids website at https://synthopioids.nflis.deadiversion.usdoj.gov/ and request an account. Potential members will be asked to share their forensic discipline, affiliation, and a curriculum vitae (CV) or résumé.