

# DEA chemists race to identify synthetic opioids

By ERIKA KINETZ  
Associated Press

WASHINGTON — Emily Dye walked down the echoing white hallway and into a dim room known as “the vault.” The evidence was wrapped in plastic. She checked it out and placed it into a steel lockbox.

New drugs were appearing every other week in the Drug Enforcement Administration’s Special Testing and Research Laboratory, an unmarked gray building in northern Virginia. Dye, a 27-year-old DEA chemist, knew her sample could be one of them.

“Man,” she said. “I’ve got to figure out what this is.”

The proliferation of rapidly evolving synthetic opioids has become so fierce that the DEA says they now constitute an entire new class of drugs, which are fueling the deadliest addiction crisis the United States has ever seen.

The fentanyl-like drugs are pouring in primarily from China, U.S. officials say — an assertion Beijing maintains has not been substantiated. Laws cannot keep pace with the speed of scientific innovation. As soon as one substance is banned, chemists synthesize slightly different, and technically legal, molecules and sell that substance online, delivery to U.S. doorsteps guaranteed.

## Easy to buy

Today, it is almost as easy to order an ever-shifting array of synthetic opioids online from China as it is to buy a pair of shoes.

“Right now we’re seeing the emergence of a new class, that’s fentanyl-type opioids,” Dye’s boss, Jill Head, said. “Based on the structure, there can be many, many more substitutions on that molecule that we have not yet seen.”

Entrepreneurial chemists have been creating designer alternatives to cannabis, amphetamine, cocaine and Ecstasy for years. But the new synthetics are far more lethal; in some cases, an amount smaller than a poppy seed can kill.

Dye has recommitted to every safety protocol she was ever taught. One, safety glasses. Two, lab coat, buttoned. Three, powder-free disposable nitrile gloves. Four, face mask. She placed an emergency naloxone injection kit — an antidote for opioid overdose — on her lab bench. Just in case.

Then she unwrapped the evidence and pulled out a palm-sized baggie.



LEFT: Forensic chemist Emily Dye talks about protective measures she takes while handling evidence containing fentanyl at the Drug Enforcement Administration Special Testing and Research Laboratory in Sterling, Va. A novel class of deadly drugs is exploding across the country, with many manufactured in China for export around the world. The drugs, synthetic opioids, are fueling the deadliest addiction crisis the U.S. has ever seen. RIGHT: A vial containing 2mg of fentanyl, which will kill a human if ingested into the body, is displayed at the Drug Enforcement Administration Special Testing and Research Laboratory in Sterling, Va.

AP Photos/Cliff Owen

She scooped up a dot of powder and gingerly placed it in a small vial. As she worked, she treated the material as if it were radioactive.

After transferring a few drops of methanol into the vial, she clamped it shut and dropped it into a mass spectrometer. The machine sucked the evidence through a copper-colored wire and bombarded it with electrons to break it into small pieces. “Kind of like when you drop a puzzle,” Dye said.

The resulting pattern of peaks is akin to a chemical fingerprint. Dye compared the result with the lab’s library of approximately 1,500 known drugs.

None matched. This was something new.

She and her colleagues ran the evidence through a nuclear magnetic resonance spectrometer to map the position of different atoms. Then they guessed. They bought

a sample of the compound they thought they had from a legitimate research chemical company.

On July 26, Dye ran that reference standard through the mass spectrometer. The result matched the evidence exactly.

“It’s 4-fluoroisobutylfentanyl,” Dye said.

## Chinese vendors

Long before Dye made her discovery, Chinese vendors were offering 4-fluoroisobutylfentanyl — 4-FIBF for short — for sale.

Shanghai Xianchong Chemical Co., a trading company with a spare office in central Shanghai, was one of them. Shanghai Xianchong started fielding requests for 4-FIBF around April, said manager Jammi Gao, a clean-cut man in a white polo shirt.

Gao said in an email he could sell 4-FIBF for \$6,000 a kilogram, though later he

denied ever brokering a deal. He refused to ship illegal drugs, but 4-FIBF is so new to the street it is not a controlled substance in either the U.S. or China.

Back in the lab, Dye peeled off her gloves. She didn’t know users were warning each other not to overdose chasing a heroin high that never kicked in with 4-FIBF. She didn’t know about the dosing schedules addicts had already worked out. And she didn’t know that 4-FIBF gave some people satisfying, sleep-through-the-night results when inserted up their rectum.

Dye would go home, safe, to her dog. Maybe tomorrow she would find the next new thing in an evidence bag on her bench. But elsewhere, all across America, people would not make it through the night. By the time Dye finished work the next day, another 90 Americans would be dead of opioid overdoses.



A vial containing 2mg of fentanyl, which will kill a human if ingested into the body, is displayed at the Drug Enforcement Administration Special Testing and Research Laboratory.

AP Photo/Cliff Owen

# Oregon Coast Real Estate

WWW.OREGONCOASTREALESTATE.COM

**1100 SE Willow Drive, Warrenton**

- 3 bedroom, 2.5 bath, large bonus room on 2nd floor
- New flooring throughout, New paint inside & out
- Move-in Ready, brand new stainless steel appliances
- Large Corner lot, great neighborhood

\$259,900

FOR SALE BY OWNER  
503-440-3557

**1608 Irving Avenue, Astoria**

- One of Astoria’s finest, classic River view homes.
- Nearly 4,000 sq. ft. has only been owned by 2 families since its construction in 1949.
- Exquisite wood finishes, historic elements of Astoria’s history in its architectural detail.
- A truly majestic home!

\$849,000

**DEBRA BOWE**  
503-440-7474  
Windermere/Pacific Land Co.

**Windermere**  
REAL ESTATE

**89635-89633 Green Mountain Road, Astoria**

- Two houses on 39.58 acres with creek frontage
- House built in 1930 has 2,044 sq. ft. and was moved from Saddle Mtn. to this property.
- Ranch style house built in 1959 has 1,410 sq.ft.
- Both homes are fixer uppers.

\$375,000

**VICKY RUTHERFORD**  
503-338-2116

**AREA**  
Properties  
503-325-6848

**701 W. Marine Drive, Astoria**

- Exceptional commercial space with W. Marine Drive frontage
- Designated off street parking spaces.
- Large reception and staff area, meeting rooms, private offices, two half baths and large kitchen/break room.
- This property has served as business headquarters/office space for a number of years.

\$349,000

**DEBRA BOWE**  
503-440-7474  
Windermere/Pacific Land Co.

**Windermere**  
REAL ESTATE

**41957 Wickiup Terrace Lane, Astoria**

- Single level Ranch style home located on a cul-de-sac in a nice country neighborhood
- 3 bedrooms, 1 bath, 1,008 sq. ft
- Nice fully fenced yard with patio off the dining area
- New carpet, hardwood floors, paint and upgraded bathroom.

\$239,000

**MARY WIKSTROM**  
503-791-9381

**AREA**  
Properties  
503-325-6848

**43804 Sylvandale Lane, Astoria**

- Enchanting one-of-a-kind country estate on 9.5 secluded acres
- Elegant custom home, 3 luxury levels, gourmet kitchen, fireplace, wood stove, sauna, guest suite, office, expansive decks, geothermal heating/cooling system.
- 3,200 sq. ft. shop, greenhouse and storage building; 1,000 sf additional storage bldg.

\$849,000

**DEBRA BOWE**  
503-440-7474  
Windermere/Pacific Land Co.

**Windermere**  
REAL ESTATE

**37603 Grimstad Lane, Astoria**

- Private secluded country setting located in the John Day area.
- Great open floor plan, large country kitchen with family dining area off the kitchen
- Spacious living room with cozy pellet stove, den/office space
- Large master suite, 2 car garage, large deck, additional parking for RV or boat.

\$259,000

**MARY WIKSTROM**  
503-791-9381

**AREA**  
Properties  
503-325-6848

**75 SW Juniper, Warrenton**

- This private estate is well hidden from the world and has been updated throughout.
- Private lake frontage for bass fishing with a nature conservancy on the opposite side of the property.
- 5 bedroom, 5 bathrooms, hot tub, sauna, several decks, fire pit and a covered outdoor kitchen for summer BBQs.
- Two bedroom apartment in lower level with fireplace and access to patio with fire pit.

\$1,059,000

**VICKY RUTHERFORD**  
503-338-2116

**AREA**  
Properties  
503-325-6848

ADVERTISE YOUR LISTINGS HERE!

Call

HOLLY LARKINS  
503-325-3211

hlarkins@dailyastorian.com