Illegal Products Laboratory - Spanish OMCL (AEMPS-C) Activity Overview 2010-2022

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ABSTRACT

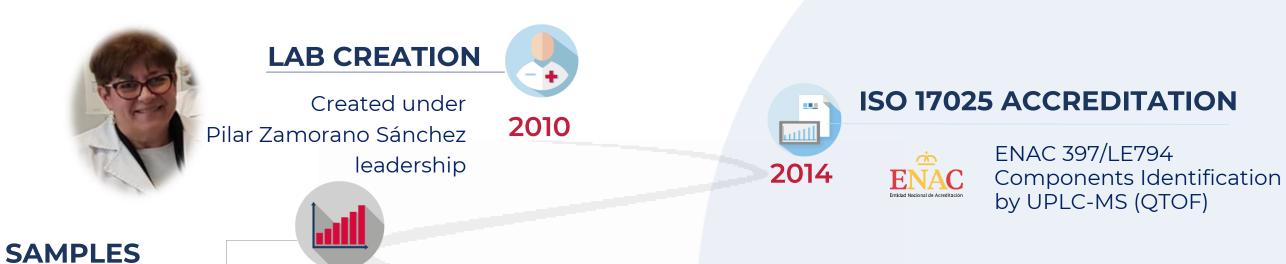
The illegal product laboratory was **created in 2010** due to the increasing awareness of the risks involving **medicines out of the legal market** or adulterated food supplements.

Suspected anabolic, erectile dysfunction and weight loss products comprise the majority of the products received in the laboratory. Inspectorate bodies, police forces, customs or market surveillance campaigns are the main origin of these samples.

Employing mass spectrometry techniques (UPLC-QToF) for identification and elucidation, more than 12000 samples have been analyzed and reported since its inception, being slightly over 80% of them positive in some sort of active substance.

The laboratory activities not only involve analyzing samples but also range from advising and giving support to inspectorate bodies, educating police forces, expert testimony in trials, elucidation of new psychoactive compounds to collaborating in the European network of OMCLs.

HISTORY



ALL TIME HIGH

1794 unique samples were analyzed

NEW EQUIPMENT WATERS VION UPLC-IMS-QToF analysis Greater sensibility due to

Ion Mobility Spectrometry

2021

MSSIP 06 RAPPORTEUR

Magnolia Mendoza Barrios will act as scientific advisor in MSSIP 06 concerning SARMs (Selective androgen receptor modulators)

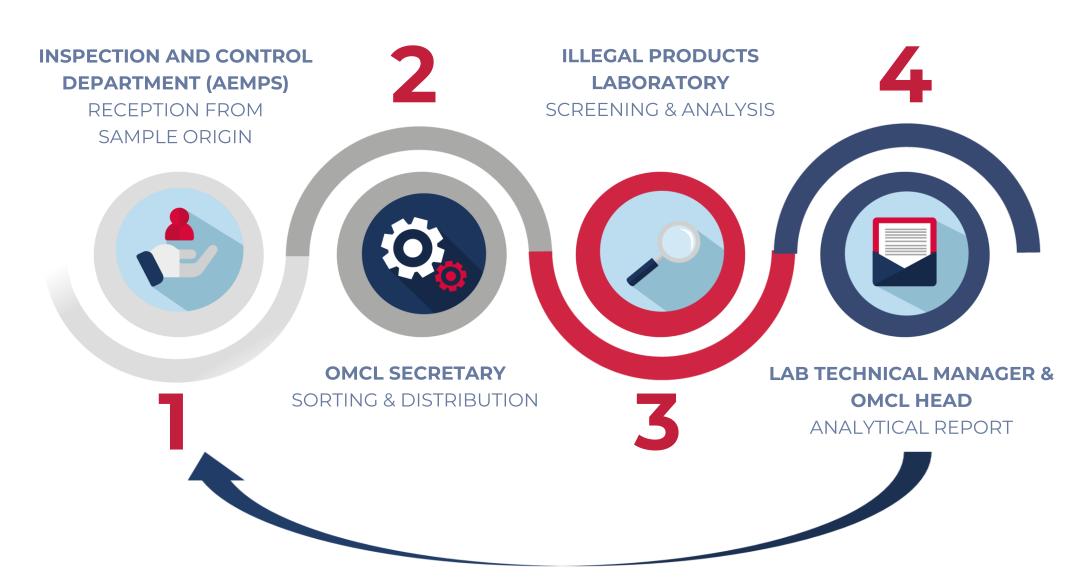
2018

2022

CURRENT STAFF:

- 1 technical manager - 1 lab unit manager 2 lab specialists
- 3 lab analysts - 1 administrative analyst

WORK FLOW



EQUIPMENT





UNEQUIVOCAL IDENTIFICATION (4 dimensions)

- Retention time
- Molecular ion Exact Mass
- Fragments (from molecular ion)Exact Mass Collision Cross Sections
- 1 Waters **UPLC-Xevo QTOF** (Quadrupole + Time of Flight)
- 2 Waters UPLC-Vion IMS-QTOF (Quadrupole + Time of Flight + Ion Mobility)

ANALYSIS METHODOLOGY



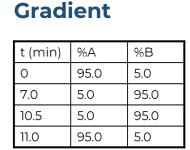
SAMPLES ORIGIN



UPLC: CHROMATOGRAPHIC CONDITIONS Column: Acquity UPLC BEH

C18 1.7 µm (2.1 x 100 mm) **Mobile phases:** A.- Formic acid 0.1% in H_2O

B.- Formic acid 0.1% in ACN



Flow: 0.4 mL/min Column Temp.: 30°C **Injection Temp.:** 7°C Injection vol.: 8 µL

MS: QToF PARAMETERS

Source Capillary: 3 kV Sampling cone: 35 V Extraction cone: 4 \

Mode: MS^E (ES⁺ o ES⁻)

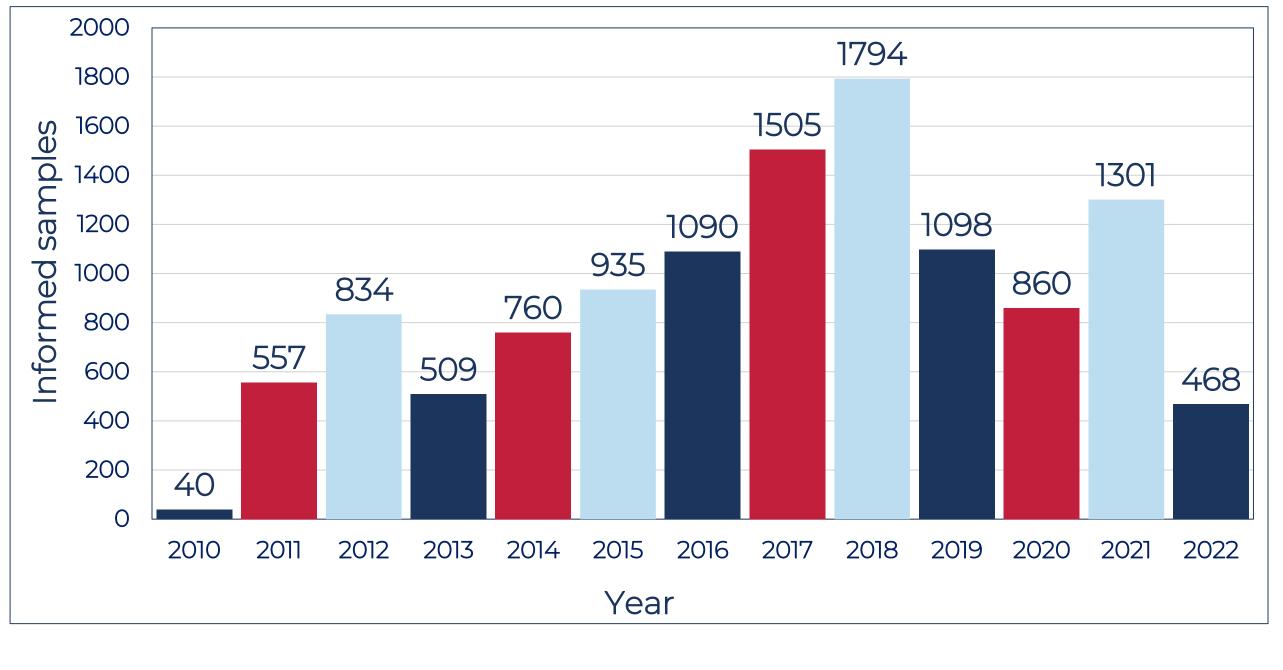
Gas flows **Temperatures**

Collision energy: 20 – 40 V

Cone: 20 L/h (Ar) Source: 120 °C **Desolvation:** 600 L/h (N) **Desolvation:** 600 °C

LAB ACTIVITY

INFORMED SAMPLES (2010-april 2022)



RECENT MAJOR OPERATIONS (last 4 years)

YEAR	SAMPLES	TYPE	POSITIVE
2021	300	ANABOLICS	97 %
2020	346	FOOD SUPLEMENTS	58 %
2019	174	ANABOLICS	96 %
2018	598	ANABOLICS	89 %
2018	472	ANABOLICS	99 %
2018	171	ERECTILE DYSFUNCTION	99 %
2011-2021	363	FOOD SUPLEMENTS	62 %
	2021 2020 2019 2018 2018 2018	2021 300 2020 346 2019 174 2018 598 2018 472 2018 171	2021 300 ANABOLICS 2020 346 FOOD SUPLEMENTS 2019 174 ANABOLICS 2018 598 ANABOLICS 2018 472 ANABOLICS 2018 171 ERECTILE DYSFUNCTION



ANALYSIS



BODIES





EDUCATION



IN TRIALS



420 ACTIVE SUBSTANCES

IN HOUSE MS LIBRARY

MORE THAN **12000 SAMPLES ANALYSED**

84% ILLEGAL MEDICINES 9% FOOD SUPLEMENTS 7% UNKNOWNS

SAMPLES MAIN PRODUCT TYPE

- ANABOLICS
- **ERECTILE DYSFUNCTION**
- **WEIGHT LOSS**



ALL RELEVANT FOOD SUPLEMENTS RESULTS HAVE BEEN REPORTED TO EDQM KNOWX DATABASE







Combating Falsified and Other Illegal Medicines 4th Symposium for OMCLs: New Trends, New Frontiers Roma, 11-13 May 2022