MAYO CLINIC LABORATORIES

Test Definition: TSPU

Targeted Stimulant Screen, Random, Urine

Overview

Useful For

Determining compliance or identifying illicit stimulant drug use

This test is **not intended for** employment-related testing.

Profile Information

Test Id	Reporting Name	Available Separately	Always Performed
LPPS	List prescribed stimulants	No	Yes
TSTIM	Targeted Stimulant Screen, U	No	Yes

Special Instructions

- Clinical Toxicology CPT Code Client Guidance

Highlights

This test uses high-resolution accurate mass spectrometry to identify 11 different stimulants for situations when immunoassays are not adequate.

Method Name

Liquid Chromatography Tandem Mass Spectrometry, High-Resolution Accurate Mass (LC-MS/MS HRAM)

NY State Available

Yes

Specimen

Specimen Type

Urine

Additional Testing Requirements

In most cases, no additional testing is needed after the qualitative targeted stimulant test is performed if the parent drug or metabolites found are consistent with the patient's prescribed medications. However, if an unexpected stimulant is found, confirmatory testing can be requested at an additional charge.

Specimen Required

Supplies: Sarstedt Aliquot Tube 5 mL (T914)
Collection Container/Tube: Plastic urine container
Submission Container/Tube: Plastic vial

Specimen Volume: 1 mL

Collection Instructions:

1. Collect a random urine specimen.
2. No preservative

Forms

If not ordering electronically, complete, print, and send a Therapeutics Test Request (T831) with the specimen.

Specimen Minimum Volume

0.5 mL

Reject Due To

Gross hemolysis	OK
Gross icterus	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Urine	Refrigerated (preferred)	14 days	
	Frozen	28 days	

Clinical & Interpretive

Clinical Information

Stimulants are sympathomimetic amines that stimulate the central nervous system activity and, in part, suppress the appetite. Amphetamine and methamphetamine are also prescription drugs used in the treatment of narcolepsy and attention-deficit disorder/attention-deficit hyperactivity disorder (ADHD). Methylphenidate is another stimulant used to treat ADHD. Phentermine is indicated for the management of obesity. All other amphetamines (eg, methylenedioxymethamphetamine: MDMA) are Drug Enforcement Administration scheduled Class I compounds. Due to their stimulant effects, the drugs are commonly sold illicitly and abused. Physiological symptoms associated with very high amounts of ingested amphetamine or methamphetamine include elevated blood pressure, dilated pupils, hyperthermia, convulsions, and acute amphetamine psychosis.

Reference Values

Not detected (Positive results are reported with qualitative "Present" results)

Cutoff concentrations:
Methamphetamine: 100 ng/mL
Amphetamines: 100 ng/mL
3,4-Methylenedioxymethamphetamine (MDMA): 100 ng/mL
3,4-Methylenedioxy-N-ethylamphetamine (MDEA): 100 ng/mL
3,4-Methylenedioxyamphetamine (MDA): 100 ng/mL

Ephedrine: 100 ng/mL
Pseudoephedrine: 100 ng/mL
Phentermine: 100 ng/mL
Phencyclidine (PCP): 20 ng/mL
Methylphenidate: 20 ng/mL
Ritalinic acid: 100 ng/mL

Interpretation

If a stimulant or its corresponding metabolite is identified (present), it indicates that the patient has used the respective stimulant in the recent past (typically 1-3 days). The absence of the expected stimulant or its metabolites may indicate noncompliance, inappropriate timing of specimen collection relative to drug administration, poor drug absorption, diluted or adulterated urine, or limitations of testing. The concentration of the drug must be greater than or equal to the cutoff to be reported as present. If a specific drug concentration is required, the laboratory must be contacted within 2 weeks of specimen collection/testing to request quantification by a second analytical technique at an additional charge.

Cautions

No significant cautionary statements

Clinical Reference

1. Jannetto PJ, Bratanow NC, Clark WA, et al. Executive Summary: American Association of Clinical Chemistry Laboratory Medicine Practice Guideline-using clinical laboratory tests to monitor drug therapy in pain management patients. J Appl Lab Med. 2018;2(4):489-526
2. Langman LJ, Bechtel LK, Holstege CP. Clinical toxicology. In: Rifai N, Chiu RWK, Young I, Burnham CAD, Wittwer CT, eds. Tietz Textbook of Laboratory Medicine. 7th ed. Elsevier; 2023:chap 43
3. McMillin GA, Marin SJ, Johnson-Davis KL, Lawlor BG, Strathmann FG. A hybrid approach to urine drug testing using high-resolution mass spectrometry and select immunoassays. Am J Clin Pathol. 2015;143(2):234-240
4. Paterson SM, Moore GA, Florkowski CM, George PM. Determination of methylphenidate and its metabolite ritalinic acid in urine by liquid chromatography/tandem mass spectrometry. J Chromatogr B Analyt Technol Biomed Life Sci. 2012;881-882:20-26
5. Cone EJ, Caplan YH, Black DL, Robert T, Moser F. Urine drug testing of chronic pain patients: licit and illicit drug patterns. J Anal Toxicol. 2008;32(8):530-543
6. Cheze M, Deveaux M, Martin C, Lhermitte M, Pepin G. Simultaneous analysis of six amphetamines and analogues in hair, blood and urine by LC-ESI-MS/MS. Application to the determination of MDMA after low ecstasy intake. Forensic Sci Int. 2007;170(2-3):100-104
7. Concheiro M, dos Santos Sadler Simoes SM, Quintela O, et al. Fast LC–MS/MS method for the determination of amphetamine, methamphetamine, MDA, MDMA, MDEA, MBDB and PMA in urine. Forensic Sci Int. 2007;171(1):44-51. doi:10.1016/j.forsciint.2006.10.004
8. Rovine T, Ferrero CL, American Pain Society. Chronic Pain in America: Roadblocks to Relief. Roper Starch Worldwide, Inc; 1999. Updated October 2, 2001. Accessed December 13, 2024. Available at http://accurateclinic.com/wp-content/uploads/2016/04/Chronic-Pain-In-America-Roadblocks-To-Relief-1999.pdf
9. Bost RO. 3,4-Methylenedioxymethamphetamine (MDMA) and other amphetamine derivatives. J Forensic Sci. 1988;33(2):576-587

Performance

Method Description
The urine sample is diluted with internal standard and clinical laboratory reagent water and then analyzed by liquid chromatography tandem mass spectrometry using a high-resolution accurate mass orbitrap detector.(Unpublished Mayo method)

PDF Report
No

Day(s) Performed
Monday through Sunday

Report Available
3 to 4 days

Specimen Retention Time
14 days

Performing Laboratory Location
Mayo Clinic Laboratories - Rochester Superior Drive

Fees & Codes

Fees
- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their account representative. For assistance, contact Customer Service.

Test Classification
This test was developed and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. It has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information
G0480
80326 (if appropriate for select payers)
Clinical Toxicology CPT Code Client Guidance

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
TSPU	Targeted Stimulant Screen, U	99107-5

Result ID	Test Result Name	Result LOINC® Value
610273	Methamphetamine	19554-5
610274	Amphetamine	19343-3
610275	3,4-methylenedioxymethamphetami	19568-5

	ne (MDMA)	
610276	3,4-methylenedioxy-N-ethylamphetamine (MDEA)	59844-1
610277	3,4-methylenedioxyamphetamine (MDA)	19565-1
610278	Ephedrine	99108-3
610279	Pseudoephedrine	99109-1
610280	Phentermine	19674-1
610281	Phencyclidine (PCP)	19659-2
610282	Methylphenidate	19577-6
610283	Ritalinic acid	99110-9
610284	Stimulant Interpretation	54247-2
LPPS	List prescribed stimulants	29305-0