

## 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

### 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 patients prescribed medications. However, if unexpected stimulant is found, confirmatory testing can be requested at an additional charge.

### Specimen Required

**Supplies:** Sarstedt 5 mL Aliquot Tube (T914)

**Collection Container/Tube:** Plastic urine container

**Submission Container/Tube:** Plastic, 5-mL tube

**Specimen Volume:** 1 mL

#### Collection Instructions:

1. Collect a random urine specimen.

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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 of the other amphetamines (eg, methylenedioxymethamphetamine: MDMA) are Drug and Enforcement Administration (DEA) 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

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 Jan 1;2(4):489-526
2. Langman LJ, Bechtel L, Meier BM, Holstege CP: Clinical toxicology. In: Rifai N, Horwath AR, Wittwer CT, eds. *Tietz Textbook of Clinical Chemistry and Molecular Diagnostics*. 6th ed. Elsevier; 2018:832-887
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 Feb;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 Jan 15;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 Oct;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 Aug 6;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 Aug 24;171(1):44-51. doi: 10.1016/j.forsciint.2006.10.004
8. *Chronic Pain in America: Roadblocks to Relief*, survey conducted for the American Pain Society, The American Academy of the Pain Medicine and Janssen Pharmaceutical; 1999
9. Bost RO: 3,4-Methylenedioxymethamphetamine (MDMA) and other amphetamine derivatives. *J Forensic Sci*. 1988 Mar;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 orbi-trap detector.(Unpublished

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Mayo method)

**PDF Report**

No

**Day(s) Performed**

Monday through Saturday

**Report Available**

3 to 4 days

**Specimen Retention Time**

14 days

**Performing Laboratory Location**

Rochester

**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**

80326

G0480 (if appropriate)

**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-methylenedioxymethamphetamine (MDMA)	19568-5
610276	3,4-methylenedioxy-N-ethylamphetamine (MDEA)	59844-1
610277	3,4-methylenedioxyamphetamine	19565-1

	(MDA)	
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