MAYO CLINIC LABORATORIES

Test Definition: TSTIM

Targeted Stimulant Screen, U

Overview

Useful For

Aiding in the determination of compliance or identify illicit stimulant drug use

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

Method Name

Only orderable as part of profile. For more information see:

-CSMPU / Controlled Substance Monitoring Panel, Random, Urine

-TSPU / Targeted Stimulant Screen, Random, Urine

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

NY State Available

Yes

Specimen

Specimen Type

Urine

Specimen Required

Only orderable as part of profile. For more information see:

-CSMPU / Controlled Substance Monitoring Panel, Random, Urine

-TSPU / Targeted Stimulant Screen, Random, Urine

Supplies: Aliquot Tube, 5 mL (T465)

Collection Container/Tube: Plastic urine container

Submission Container/Tube: Plastic, 5-mL vial

Specimen Volume: 1 mL

Collection Instructions:

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

Specimen Minimum Volume

0.5 mL

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 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

Only orderable as part of profile. For more information see:
-CSMPU / Controlled Substance Monitoring Panel, Random, Urine
-TSPU / Targeted Stimulant Screen, Random, Urine
Not detected
Cutoff concentrations:
Methamphetamine: 100 ng/mL
Amphetamine: 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 Mayo method)

PDF Report
No

Specimen Retention Time
14 days

Performing Laboratory Location
Rochester

Fees & Codes

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

CPT Code Information
80326
G0480 (if appropriate)