MET Rapid Test Cassette
(Whole Blood/Serum/Plasma)
Package Insert

REF DME-402 | English

A rapid test for the qualitative detection of Methamphetamine in human whole blood or serum or plasma.
For medical and other professional in vitro diagnostic use only.

【INTENDED USE】

The MET Rapid Test Cassette (Whole Blood/Serum/Plasma) is a lateral flow chromatographic immunoassay for the detection of Methamphetamine in whole blood/serum/plasma at a cut-off concentration of 70ng/mL. This test will detect other related compounds, please refer to the analytical Specificity table in this package insert.

This assay provides only a qualitative, preliminary test result. A more specific alternate chemical method must be used in order to obtain a confirmed analytical result. Gas chromatography/mass spectrometry (GC/MS) is the preferred confirmatory method. Clinical consideration and professional judgment should be applied to any drug of abuse test result, particularly when preliminary positive results are used.

【SUMMARY】

Methamphetamine is an addictive stimulant drug that strongly activates certain systems in the brain. Methamphetamine is closely related chemically to Amphetamine, but the central nervous system effects of Methamphetamine are greater. Methamphetamine is made in illegal laboratories and has a high potential for abuse and dependence. The drug can be taken orally, injected, or inhaled. Acute higher doses lead to enhanced stimulation of the central nervous system and induce euphoria, alertness, reduced appetite, and a sense of increased energy and power. Cardiovascular responses to Methamphetamine include increased blood pressure and cardiac arrhythmias. More acute responses produce anxiety, paranoia, hallucinations, psychotic behavior, and eventually, depression and exhaustion.

The effects of Methamphetamine generally last 2-4 hours and the drug have a half-life of 9-24 hours in the body. Methamphetamine is excreted in the whole blood or serum or plasma primarily as Amphetamine, and oxidized and deaminated derivatives. However, 10-20% of Methamphetamine is excreted unchanged. Thus, the presence of the parent compound in the whole blood or serum or plasma indicates Methamphetamine use. Methamphetamine is generally detectable in the whole blood or serum or plasma for 3-5 days, depending on whole blood or serum or plasma pH level.[1]

【PRINCIPLE】

The MET Rapid Test Cassette (Whole Blood/Serum/Plasma) is an immunoassay based on the principle of competitive binding. Drugs that may be present in the whole blood/serum/plasma specimen compete against the drug conjugate for binding sites on the antibody.

During testing, a whole blood/serum/plasma specimen migrates upward by capillary action. Methamphetamine, if present in the whole blood/serum/plasma specimen below the cut-off level, will not saturate the binding sites of the antibody in the test. The antibody coated particles will then be captured by immobilized Methamphetamine-protein conjugate and a visible colored line will show up in the test line region. The colored line will not form in the test line region if the Methamphetamine level exceeds the cut-off level because it will saturate all the binding sites of anti-Methamphetamineantibodies.

A drug-positive whole blood/serum/plasma specimen will not generate a colored line in the test line region because of drug competition, while a drug-negative whole blood/serum/plasma specimen or a specimen containing a drug concentration less than the cut-off will generate a line in the test line region. To serve as a procedural control, a colored line will always appear at the control line region indicating that proper volume of specimen has been added and membrane wicking has occurred.

【REAGENTS】

The test contains mouse monoclonal anti-Methamphetamineantibody coupled particles and Methamphetamine-protein conjugate. A goat antibody is employed in the control line system.

【PRECAUTIONS】

- For professional *in vitro* diagnostic use only. Do not use after the expiration date.
- Do not eat, drink or smoke in the area where the specimens or kits are handled.
- Do not use test if pouch is damaged
- Handle all specimens as if they contain infectious agents. Observe established precautions against microbiological hazards throughout testing and follow the standard procedures for proper disposal ofspecimens.
- Wear protective clothing such as laboratory coats, disposable gloves and eye protection whenspecimens are being tested.
- The used test should be discarded according to local regulations.
- Humidity and temperature can adversely affect results.

【STORAGE AND STABILITY】

Store as packaged in the sealed pouch at room temperature or refrigerated (2-30°C). The test is stablethrough the expiration date printed on the sealed pouch. The test must remain in the sealed pouch untiluse. **DO NOT FREEZE**. Do not use beyond the expiration date.

【SPECIMEN COLLECTION AND PREPARATION】

- The MET Rapid Test Cassette can be performed using whole blood (from venipuncture or fingerstick)/serum/plasma.
- To collect **Fingerstick Whole Blood specimens**:
  - Wash the patient's hand with soap and warm water or clean with an alcohol swab. Allow to dry.
  - Massage the hand without touching the puncture site by rubbing down the hand towards the fingertip of the middle or ring finger.
  - Puncture the skin with a sterile lancet. Wipe away the first sign of blood.
  - Gently rub the hand from wrist to palm to finger to form a rounded drop of blood over the puncture site.
  - Add the Fingerstick Whole Blood specimen to the test by using **a capillary tube**:
    - Touch the end of the capillary tube to the blood until filled to approximately 40 µL. Avoid air bubbles.
    - Place the bulb onto the top end of the capillary tube, then squeeze the bulb to dispense the whole blood to the specimen well of the test cassette.
- Testing should be performed immediately after specimen collection. Do not leave the specimens at room temperature for prolonged periods. Serum and plasma specimens may be stored at 2-8°C for up to 3 days, for long-term storage, specimens should be kept below -20°C. Whole blood collected by venipuncture should be stored at 2-8°C if the test is to be run within 2 days of collection. Do not freeze whole blood specimens. Whole blood collected by fingerstick should be tested immediately.
- Bring specimens to room temperature prior to testing. Frozen specimens must be completely thawed and mixed well prior to testing. Specimens should not be frozen and thawed repeatedly.
- If specimens are to be shipped, they should be packed in compliance with local regulations covering the transportation of etiologic agents.

【MATERIALS】

Materials Provided

• Test cassettes • Droppers • Buffer • Package insert

Materials Required But Not Provided

• Specimen collection containers • Centrifuge
• Lancets (for fingerstick whole blood only) • Timer
• Heparinized capillary tubes and dispensing bulb (for fingerstick whole blood only)

【DIRECTIONS FOR USE】

Allow the test, specimen, buffer and/or controls to reach room temperature (15-30°C) prior to testing.

1. Bring the pouch to room temperature before opening it. Remove the cassette from the sealed pouch and use it within one hour.
2. Place the cassette on a clean and level surface.

For serum or plasma specimen:

•Hold the dropper vertically and transfer **1 full drop of serum or plasma** (approximately 40µL), then add **2 drops of buffer** (approximately 80µL) to the specimen well(S) of the cassette, and then start the timer. Avoid trapping air bubbles in the specimen well. See illustration below.

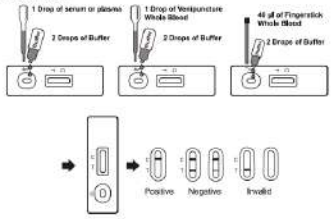
For Venipuncture Whole blood specimen:

•Hold the dropper vertically and transfer **1 drop of whole blood** (approximately 40µL) to the specimen well(S), then **add 2 drops of buffer** (approximately 80µL), and start the timer. See illustration below.

For Fingerstick Whole blood specimen:

•To use a capillary tube: Fill the capillary tube and **transfer approximately 40µL of fingerstick whole blood specimen** to the specimen well(S) of test cassette, then add **2 drops of buffer** (approximately 80µL) and start the timer. See illustration below.

3. Wait for the colored line(s) to appear. **Read the result at 5 minutes.** Do not interpret the result after 10 minutes.



【INTERPRETATION OF RESULTS】

(Please refer to the illustration above)

NEGATIVE:* Two colored lines appear. One colored line should be in the control line region (C) and another colored line should be in the test line region (T). This negative result indicates that the Methamphetamine concentration is below the detectable cut-off level.

***NOTE:** The shade of color in the test line region (T) may vary, but it should be considered negative whenever there is even a faint colored line.

POSITIVE: One colored line appears in the control line region (C). No line appears in the test line region (T). This positive result indicates that the Methamphetamine concentration exceeds the detectable cut-off level.

INVALID: Control line fails to appear. Insufficient specimen volume or incorrect procedural techniques are the most likely reasons for control line failure. Review the procedure and repeat the test with a new test. If the problem persists, discontinue using the test kit immediately and contact your local distributor.

【QUALITY CONTROL】

A procedural control is included in the test. A colored line appearing in the control region (C) is the internal procedural control. It confirms sufficient specimen volume and correct procedural technique. Control standards are not supplied with this kit; however, it is recommended that positive and negative controls be tested as a good laboratory practice to confirm the test procedure and to verify proper test performance.

【LIMITATIONS】

1. The MET Rapid Test Cassette (Whole Blood/Serum/Plasma) provides only a qualitative, preliminary result. A secondary analytical method must be used to obtain a confirmed result. Gas chromatography/ mass spectrometry (GC/MS) is the preferred confirmatory method.[2]
2. It is possible that technical or procedural errors, as well as other interfering substances in the whole blood or serum or plasma specimen may cause erroneous results.
3. A positive result indicates presence of the drug or its metabolites but does not indicate level of intoxication, administration route or concentration in whole blood or serum or plasma.
4. A negative result may not necessarily indicate drug-free whole blood/serum/plasma. Negative results can be obtained when drug is present but below the cut-off level of the test.
5. Test does not distinguish between drugs of abuse and certain medications.

【PERFORMANCE CHARACTERISTICS】

Accuracy

A side-by-side comparison was conducted using the MET Rapid Test Cassette and GC/MS at the cut-off of 70ng/mL. Testing was performed on 90 clinical specimens previously collected from subjects present for Drug Screen Testing. The following results were tabulated:

Clinic Result of Whole Blood

Method		GC/MS		Total Results
MET Rapid Test Cassette	Results	Positive	Negative	
	Positive	25	2	27
	Negative	2	61	63
Total Results		27	63	90
% Agreement		92.6%	96.8%	95.6%

Clinic Result of Serum or Plasma

Method		GC/MS		Total Results
MET Rapid Test Cassette	Results	Positive	Negative	
	Positive	25	2	27
	Negative	2	61	63
Total Results		27	63	90
% Agreement		92.6%	96.8%	95.6%

Analytical Sensitivity

A drug-free whole blood/serum/plasma was spiked with MET at the following concentrations of ±50% cutoff and 3x cutoff, the data are summarized below:

For whole blood:

MET Concentration (ng/mL)	Percent of Cut-off	n	Visual Result	
			Negative	Positive
0	0	30	30	0
35	-50%	30	30	0
70	Cut-off	30	14	16
105	+50%	30	0	30
210	3X	30	0	30

For serum or plasma:

MET Concentration (ng/mL)	Percent of Cut-off	n	Visual Result	
			Negative	Positive
0	0	30	30	0
35	-50%	30	30	0
70	Cut-off	30	14	16
105	+50%	30	0	30
210	3X	30	0	30

Analytical Specificity

The following table lists compounds that are positively detected in whole blood/serum/plasma by the MET Rapid Test Cassette (Whole Blood/Serum/Plasma) at 5 minutes.

Compound	Concentration (ng/mL)
p-Hydroxymethamphetamine	1,800
D-Methamphetamine	70
L-Methamphetamine	1,500
(±)-3,4-Methylenedioxy-methamphetamine	900
Mephentermine	3,500

Precision

A study was conducted at three hospitals using three different lots of product to demonstrate the within run, between run and between operator precision. An identical panel of coded specimens, containing no Methamphetamine and 50% Methamphetamine above and below the 70ng/mL cut-off was provided to each site. The following results were tabulated:

MET Concentration (ng/mL)	n per Site	Site A		Site B		Site C	
		-	+	-	+	-	+
0	10	10	0	10	0	10	0
35	10	8	2	9	1	9	1
105	10	1	9	1	9	2	8

Cross-Reactivity

A study was conducted to determine the cross-reactivity of the test with compounds in either drug-free whole blood or determine positive whole blood/serum/plasma. The following compounds show no cross-reactivity when tested with the MET Rapid Test Cassette (Whole Blood/Serum/Plasma) at a concentration of 100 µg/mL.

Non Cross-Reacting Compounds

4-Acetamidophenol	Creatinine	Loperamide	Prednisone
Acetophenetidin	Deoxycorticosterone	Maprotiline	Procaine
N-Acetylprocainamide	Dextromethorphan	Meperidine	Promazine
Acetylsalicylic acid	Diazepam	Meprobamate	Promethazine
Aminopyrine	Diclofenac	Methadone	D,L-Propanolol
Amitryptyline	Diflunisal	Methoxyphenamine	D-Propoxyphene
Amobarbital	Digoxin	(+) 3,4-Methylenedioxy-	D-Pseudoephedrine
Amoxicillin	Diphenhydramine	amphetamine	Quinacrine
Ampicillin	Doxylamine	3,4-Methylenedioxyethyl-	Quinidine
L-Ascorbic acid	Ecgonine hydrochloride	amphetamine	Quinine
D-Amphetamine	Ecgoninemethylester	Methylphenidate	Ranitidine
D,L-Amphetamine	(1R,2S)-(-)-Ephedrine	Morphine-3-β-D-	Salicylic acid
L-Amphetamine	L-Epinephrine	glucuronide	Secobarbital
Apomorphine	(-)-ψ-Ephedrine	Nalidixic acid	Serotonin
Aspartame	Erythromycin	Naloxone	(5-Hydroxytyramine)
Atropine	β-Estradiol	Naltrexone	Sulfamethazine
Benzilic acid	Estrone-3-sulfate	Naproxen	Sulindac
Benzoic acid	Ethyl-p-aminobenzoate	Niacinamide	Temazepam
Benzoylecgonine	Fenfluramine	Nifedipine	Tetracycline
Benzphetamine	Fenoprofen	Norethindrone	Tetrahydrocortisone,
Bilirubin	Furosemide	D-Norpropoxyphene	3-Acetate
(±)-Brompheniramine	Gentisic acid	Noscapine	Tetrahydrocortisone
Caffeine	Hemoglobin	D,L-Octopamine	3-(β-D glucuronide)
Cannabidiol	Hydralazine	Oxalic acid	Tetrahydrozoline
Chloralhydrate	Hydrochlorothiazide	Oxazepam	Thiamine
Chloramphenicol	Hydrocodone	Oxolinic acid	Thioridazine
Chlordiazepoxide	Hydrocortisone	Oxycodone	D, L-Tyrosine
Chlorothiazide	p-Hydroxyamphetamine	Oxymetazoline	Tolbutamine
(±) Chlorpheniramine	O-Hydroxyhippuric acid	Papaverine	Trans-2- phenyl
Chlorpromazine	3-Hydroxytyramine	Penicillin-G	cyclopropylamine
Chloquine	Ibuprofen	Pentobarbital	Triamterene
Cholesterol	Imipramine	Perphenazine	Trifluoperazine
Clomipramine	Iproniazid	Phencyclidine	Trimethoprim
Clonidine	(±)-Isoproterenol	Phenelzine	Trimipramine
Cocaethylene	Isoxsuprine	Phenobarbital	Tryptamine
Cocaine hydrochloride	Ketamine	Phentermine	D, L-Tryptophan
Codeine	Ketoprofen	L-Phenylephrine	Tyramine

Interfering Substances

The MET Rapid Test Cassette (Whole Blood/Serum/Plasma) has been tested for possible interference from visibly hemolyzed and lipemic specimens. In addition, no interference was observed in specimens containing up to 100 mg/dL hemoglobin; up to 100 mg/dL bilirubin and up to 200 mg/dL human serum albumin.

【BIBLIOGRAPHY】

1. Tietz NW. Textbook of Clinical Chemistry. W.B. Saunders Company. 1986; 1735
2. Baselt RC. Disposition of Toxic Drugs and Chemicals in Man.2nd Ed. Biomedical Publ., Davis, CA. 1982; 488

Index of Symbols

	Consult Instructions For Use		Tests per kit	EC REP	Authorized Representative
IVD	For *in vitro* diagnostic use only		Use by	2	Do not reuse
2°C 30°C	Store between 2-30 °C	LOT	Lot Number	REF	Catalog #
	Do not use if package is damaged		Manufacturer		

Hangzhou AllTest Biotech Co.,Ltd.
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Revision date: 2023-12-20

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