COC Rapid Test Panel (Urine)
Package Insert

REF DCO-114 | **English**

A rapid test for the qualitative detection of Cocaine metabolite in human urine.
For professional in vitro diagnostic use only.

【INTENDED USE】

The COC Rapid Test Panel is a rapid chromatographic immunoassay for the qualitative detection of Cocaine metabolite, Benzoylecgonine, in human urine at a cut-off concentration of 300 ng/mL. This test will detect other related compounds, please refer to the Analytical Specificity table in this package insert.

This assay provides only a preliminary analytical 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】

Cocaine is a potent central nervous system (CNS) stimulant and a local anesthetic. Initially, it brings about extreme energy and restlessness while gradually resulting in tremors, over-sensitivity and spasms. In large amounts, Cocaine causes fever, unresponsiveness, and difficulty in breathing and unconsciousness. Cocaine is often self-administered by nasal inhalation, intravenous injection and free-base smoking. It is excreted in the urine in a short time primarily as Benzoylecgonine.1,2 Benzoylecgonine, a major metabolite of Cocaine, has a longer biological half-life (5 - 8 hours) than Cocaine (0.5 - 1.5 hours), and can generally be detected for 24-48 hours after Cocaine exposure.2 The COC (Cocaine) Test Panel is a rapid urine screening test that can be performed without the use of an instrument. The test utilizes a monoclonal antibody to selectively detect elevated levels of Cocaine metabolite in urine. The COC Rapid Test Panel yields a positive result when the Cocaine metabolite in urine exceeds 300ng/ml. This is the suggested screening cut-off for positive specimens set by the Substance Abuse and Mental Health Services Administration (SAMHSA, USA).

【PRINCIPLE】

The COC Rapid Test Panel is an immunoassay based on the principle of competitive binding. Drugs which may be present in the urine specimen compete against the drug conjugate for binding sites on the antibody. During testing, a urine specimen migrates upward by capillary action. Benzoylecgonine, if present in the urine specimen below 300ng/ml, will not saturate the binding sites of antibody in the test. The antibody coated particles will then be captured by immobilized Benzoylecgonine conjugate and a visible colored line will appear in the test line region. The colored line will not form in the test line region if the Benzoylecgonine level is above 300ng/ml because it will saturate all the binding sites of antibodies.

A drug-positive urine specimen will not generate a colored line in the test line region because of drug competition, while a drug-negative urine 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-Benzoylecgonine antibody-coupled particles and Benzoylecgonine-protein conjugate. A goat antibody is employed in the control line system.

【PRECAUTIONS】

Please read all the information in this package insert before performing the test.

- For medical and other professional *in vitro* diagnostic use only. Do not use after the exp. date.
- The test should remain in the sealed pouch until use.
- All specimens should be considered potentially hazardous and handled in the same manner as an infectious agent.
- The used test should be discarded according to local regulations.

【STORAGE AND STABILITY】

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

【SPECIMEN COLLECTION AND PREPARATION】

Urine Assay

The urine specimen must be collected in clean and dry container. Urine collected at any time of the day may be used. Urine specimens exhibiting visible particles should be centrifuged, filtered, or allowed to settle to obtain a clear specimen for testing

Specimen Collection

Urine specimens may be stored at 2-8°C for up to 48 hours prior to assay. For long-term storage, specimens may be frozen and stored below -20°C. Frozen specimens should be thawed and mixed before testing.

【MATERIALS PROVIDED】

Material provided

- Test Panels
- Package insert

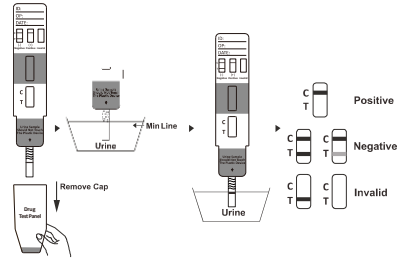
Materials required but not provided

- Specimen collection container
- Timer

【DIRECTIONS FOR USE】

Allow the test, urine specimen, 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 test panel from the sealed pouch and use it within one hour.
2. Remove the cap.



3. With the arrow pointing toward the urine specimen, immerse the test panel vertically in the urine specimen for at least 10 to 15 seconds. **Immerse the strip to at least the level of the wavy lines, but not above the arrow on the test panel.**
4. Replace the cap and place the test panel on a non-absorbent flat surface.
5. Start the timer and wait for the colored line(s) to appear.
6. The result should be read at 5 minutes. Do not interpret the result after 10 minutes.

【INTERPRETATION OF RESULTS】

(Please refer to the illustration above)

NEGATIVE:* Two lines appear. One color line should be in the control region (C), and another apparent color line should be in the test region (T). This negative result indicates that the Benzoylecgonine concentration is below the detectable level of 300ng/ml.

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

POSITIVE: One color line appears in the control region (C). No line appears in the test region (T). This positive result indicates that the Benzoylecgonine concentration is above the detectable level of 300ng/ml.

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 Panel. If the problem persists, discontinue using the Test Panel immediately and contact your local distributor.

【QUALITY CONTROL】

A procedural control is included in the test. A color line appearing in the control region (C) is considered an internal procedural control. It confirms sufficient specimen volume and correct procedural technique.

Control standards are not supplied with this Test Panel; however it is recommended that positive and negative controls be tested as good laboratory testing practices to confirm the test procedure and to verify proper test performance.

【LIMITATIONS】

1. The COC Rapid Test Panel provides only a qualitative, preliminary analytical result. A secondary analytical method must be used to obtain a confirmed result. Gas chromatography/mass spectrophotometry (GC/MS) is the preferred confirmatory method. [1,2]
2. It is possible that technical or procedural errors, as well as other interfering substances in the urine specimen may cause erroneous results.
3. Adulterants, such as bleach and/or alum, in urine specimens may produce erroneous results regardless of the analytical method used. If adulteration is suspected, the test should be repeated with another urine specimen.
4. A positive result indicates presence of the drug or its metabolites but does not indicate level of intoxication, administration route or concentration in urine.
5. A negative result may not necessarily indicate drug-free urine. Negative results can be obtained when drug is present but below the cut-off level of the test.
6. Test does not distinguish between drugs of abuse and certain medications.

【EXPECTED VALUES】

This negative result indicates that the Benzoylecgonine concentration is below the detectable level of 300ng/ml. Positive result means the concentration of Benzoylecgonine is above the level of 300ng/ml. The COC Rapid Test Panel has a sensitivity of 300ng/ml

【PERFORMANCE CHARACTERISTICS】

Sensitivity and Specificity

A side-by-side comparison was conducted using The COC Rapid Test Panel and a commercially available COC rapid test. Testing was performed on 100 clinical specimens previously collected from subjects present for Drug Screen Testing. The following results were tabulated:

Method		Other COC Rapid Test		Total Results
The COC Rapid Test Panel	Results	Positive	Negative	
	Positive	40	0	40
	Negative	0	60	60
Total Results		40	60	100
% Agreement with this Rapid Test		>99.9%	>99.9%	>99.9%

A side-by-side comparison was conducted using The COC Rapid Test Panel and GC/MS at the cut-off of 300ng/ml. Testing was performed on 250 clinical specimens previously collected from subjects present for Drug Screen Testing. The following results were tabulated:

Method		GC/MS		Total Results
The COC Rapid Test Panel	Results	Positive	Negative	
	Positive	111	3	114
	Negative	2	134	136
Total Results		113	137	250
% Agreement with this Rapid Test		98.2%	97.8%	98.0%

Analytical Specificity

The following table lists compounds that are positively detected in urine by the COC Rapid Test Panel at 5 minutes.

Compound	Concentration(ng/ml)	Compound	Concentration(ng/ml)
Benzoylecgonine	300	Cocaethylene	20,000
Cocaine HCl	200	Ecgonine HCl	30,000

Analytical Sensitivity

A drug-free urine pool was spiked with Benzoylecgonine at the following concentrations: 0ng/ml, 150ng/ml, 225ng/ml, 300ng/ml, 375ng/ml, 450ng/ml and 900ng/ml. The result demonstrates >99%accuracy at 50% above and 50% below the cut-off concentration. The data are summarized below:

Benzoylecgonine Concentration(ng/ml)	Cut-off	n	Visual Result	
			-	+
0	0	30	30	0
150	-50%	30	30	0
225	-25%	30	26	4
300	Cut-off	30	13	17
375	+25%	30	3	27
450	+50%	30	0	30
900	3×	30	0	30

Precision

A study was conducted at three hospitals by laypersons using three different lots of product to demonstrate the within run, between run and between operator precision. An identical panel of coded specimens containing, according to GC/MS, no Benzoylecgonine, 25% Benzoylecgonine above and below the cut-off, and 50% Benzoylecgonine above and below the 300ng/ml cut-off was provided to each site. The results are given below:

Benzoylecgonine Concentration(ng/ml)	n per Site	Site A		Site B		Site C	
		-	+	-	+	-	+
0	10	10	0	10	0	10	0
150	10	10	0	10	0	10	0
225	10	9	1	9	1	9	1
375	10	1	9	1	9	1	9
450	10	0	10	0	10	0	10

Effect of Urinary Specific Gravity

Fifteen urine specimens of normal, high, and low specific gravity ranges were spiked with 150ng/ml and 450ng/ml of Benzoylecgonine. The COC Rapid Test Panel was tested in duplicate using the fifteen neat and spiked urine specimens. The results demonstrate that varying ranges of urinary specific gravity do not affect the test results.

Effect of Urinary pH

The pH of an aliquoted negative urine pool was adjusted to a pH range of 5 to 9 in 1 pH unit increments and spiked with Benzoylecgonine to 150ng/ml and 450ng/ml. The spiked, pH-adjusted urine was tested with the COC Rapid Test Panel in duplicate. The results demonstrate that varying ranges of pH do not interfere with the performance of the test.

Cross-Reactivity

A study was conducted to determine the cross-reactivity of the test with compounds in either drug-free urine or Benzoylecgonine positive urine. The following compounds show no cross-reactivity when tested with COC Rapid Test Panel at a concentration of 100µg/ml

Non Cross-Reacting Compounds

Acetominophen	Diazepam	Methadone	Prednisone
Acetophenetidin	Diclofenac	Methoxyphenamine	Procaine
N-Acetylprocainamide	Diflunisal	(±)-3,4-Methylenedioxy-	Promazine
Acetylsalicylic acid	Digoxin	amphetamine	Promethazine
Aminopyrine	Diphenhydramine	(±)-3,4-Methylenedioxy-	D,L-Propranolol
Amitryptyline	Doxylamine	methamphetamine	D-Propoxyphene
Amobarbital	Ecgonine methylester	Morphine-3-β-D	D-Pseudoephedrine
Amoxicillin	(-)-ψ-Ephedrine	glucuronide	Quinidine
Ampicillin	Erythromycin	Morphine Sulfate	Quinine
L-Ascorbic acid	β-Estradiol	Nalidixic acid	Ranitidine
D,L-Amphetamine sulfate	Estrone-3-sulfate	Naloxone	Salicylic acid
Apomorphine	Ethyl-p-aminobenzoate	Naltrexone	Secobarbital
Aspartame	Fenoprofen	Naproxen	Serotonin
Atropine	Furosemide	Niacinamide	Sulfamethazine
Benzilic acid	Gentisic acid	Nifedipine	Sulindac
Benzoic acid	Hemoglobin	Norcodein	Temazepam
Benzphetamine	Hydralazine	Norethindrone	Tetracycline
Bilirubin	Hydrochlorothiazide	D-Norpropoxyphene	Tetrahydrocortisone,
(±) -Brompheniramine	Hydrocodone	Noscapine	3-Acetate
Caffeine	Hydrocortisone	D,L-Octopamine	Tetrahydrocortisone
Cannabidiol	O-Hydroxyhippuric acid	Oxalic acid	3-(β-D glucuronide)
Cannabinol	p-Hydroxy-	Oxazepam	Tetrahydrozoline
Chloralhydrate	methamphetamine	Oxolinic acid	Thebaine
Chloramphenicol	3-Hydroxytyramine	Oxycodone	Thiamine
Chlordiazepoxide	Ibuprofen	Oxymetazoline	Thioridazine
Chlorothiazide	Imipramine	Papaverine	D,L-Tyrosine
(±) -Chlorpheniramine	Iproniazid	Penicillin-G	Tolbutamide
Chlorpromazine	(±) - Isoproterenol	Pentobarbital	Triamterene
Chlorquine	Isoxsuprine	Perphenazine	Trifluoperazine
Cholesterol	Ketamine	Phencyclidine	Trimethoprim
Clomipramine	Ketoprofen	Phenelzine	Trimipramine
Clonidine	Labetalol	Phenobarbital	Tryptamine
Codeine	Levorphanol	Phentermine	D,L-Tryptophan
Cortisone	Loperamide	L-Phenylephrine	Tyramine
(-) Cotinine	Maprotiline	β-Phenylethylamine	Uric acid
Creatinine	Meperidine	Phenylpropanolamine	Verapamil
Deoxycorticosterone	Meprobamate	Prednisolone	Zomepirac
Dextromethorphan			

【BIBLIOGRAPHY】

1. Stewart DI, T Inoba, M Ducassen, W Kalow. Clin. Pharmacol. Ther. 1979; 25:264
2. Ambre J. J. Anal. Toxicol. 1985; 9:241
3. Baselt RC. Disposition of Toxic Drugs and Chemicals in Man. 2nd Ed. Biomedical Publ., Davis, CA. 1982: 488
4. Hawks RL, CN Chiang. *Urine Testing for Drugs of Abuse.* National Institute for Drug Abuse (NIDA),Res earch Monograph 73, 1986

Index of Symbols

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

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