DrugControl® MULTI DrugControl MultiDip 008SLM12

Test device for the simultaneous, qualitative detection of any combination of Amphetamine, Barbiturates, Benzodiazepines, Cocaine, MDMA, Methamphetamine, Methadone, Morphine, Tricyclic Antidepressants, Oxycodone, Fentanyl and Marijuana.

A rapid screening test for detection of multiple drugs and drug metabolites in human urine.

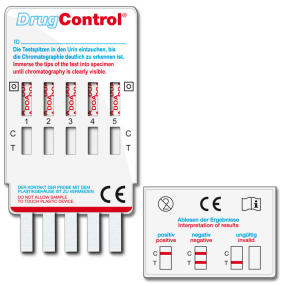
For professional in vitro diagnostic use only.

INTENDED USE

The ulti med *DrugControl* Test is a specific arrangement of different lateral flow chromatographic immunoassays for the detection of following drugs and cut-off concentrations in human urine (other cut-off concentrations according to the recommendation of SAMHSA and NIDA on request):

Test	Calibrator	Cut-off (ng/mL)
Amphetamine (AMP 1000)	d-Amphetamine	1,000
Barbiturates (BAR 200)	Secobarbital	200
Benzodiazepines (BZD 300)	Oxazepam	300
Cocaine (COC 300)	Benzoylecgonine	300
Fentanyl (FYL 10)	Fentanyl	10
Marijuana (THC 50)	11-nor-Δ9-THC-9 COOH	50
Methadone (MTD 300)	Methadone	300
Methamphetamine (MET 1000)	d-Methamphetamine	1,000
Methylenedioxymethamphetamine (MDMA 500)	d,l-Methylenedioxymethamphetamine	500
Morphine (MOR 300)	Morphine	300
Tricyclic Antidepressants (TCA 1000)	Nortriptyline	1,000
Oxycodone (OXY 100)	Oxycodone	100

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 indicated. Test to monitor therapeutic measures.



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PRINCIPLE

During testing, a urine specimen migrates upward by capillary action. A drug, if present in the urine specimen below its cut-off concentration, will not saturate the binding sites of its specific antibody. The antibody will then react with the drug-protein conjugate and a visible colored line will show up in the test region of the specific drug strip. The presence of drug above the cut-off concentration will saturate all the binding sites of the antibody. Therefore, the colored line will not form in the test region.
A drug-positive urine specimen will not generate a colored line in the specific test region of the strip because of drug competition, while a drug-negative urine specimen will generate a line in the test region because of the absence of drug competition.
To serve as a procedural control, a colored line will always appear at the control region, indicating that proper volume of specimen has been added and membrane wicking has occurred.

PRECAUTIONS

- For healthcare professionals including professionals at point of care sites.
- For professional in vitro diagnostic use only.
- The test device should remain in the sealed pouch until use.
- Do not use after the expiration date.
- All specimens should be considered potentially hazardous and handled in the same manner as an infectious agent.
- For single use only. Do not reuse.
- Avoid cross-contamination of urine samples by using a new specimen collection container for each urine sample.
- Read the entire procedure carefully prior testing.
- Do not use if protective pouch is damaged.
- Do not moisten nitrocellulose membrane with urine samples.
- The used test device should be discarded according to federal state and local regulations.

STORAGE AND STABILITY

Store as packaged in the sealed pouch at 2-30°C. The test is stable through the expiration date printed on the sealed pouch. The test cassettes must remain in the sealed pouch until use. The product is humidity-sensitive and should be used immediately after being opened.

- Do not freeze.
- Do not use beyond the expiration date.

SPECIMEN COLLECTION AND PREPARATION

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

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

MATERIALS PROVIDED

- Multi test device
- Package insert

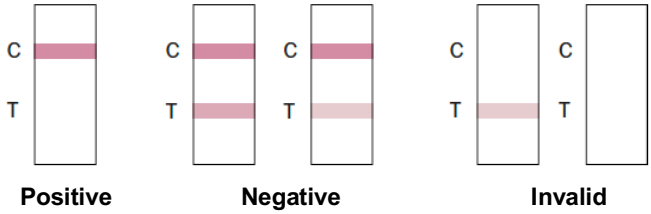
MATERIALS REQUIRED BUT NOT PROVIDED

- Specimen collection container
- Timer

DIRECTIONS FOR USE

1. **Allow the urine specimen, test device, and / or controls to reach room temperature (15 – 30 °C) prior to testing.**
2. Bring pouch to room temperature before opening it.
3. Remove the Multi test from the sealed pouch and use it within one hour.
4. Remove the cap.
5. Immerse the tips of the Multi test vertically in the urine specimen for at least 10-15 seconds.
   Do not pass the red maximum line (dipping line) on the test when immersing the tips of the Multi test.
6. Replace the cap and place the test panel on a non-absorbent flat surface.
7. Start the timer and wait for the colored line(s) to appear.
8. **Read results at 5 minutes.** Do not interpret the result after 10 minutes.

INTERPRETATION OF RESULTS



Positive: **One red line appears in the control region (C).** No line appears in the test region (T). This positive result indicates that the concentration of at least one of the substances detectable with the corresponding test exceeds the cut-off concentration.

Negative:* **Two lines appear in each window.** One red line should be in the control region (C), and another apparent red or pink line should be in the test region (T). This negative result indicates that the concentrations of the substances detectable with the corresponding test are below the cut-off concentration or that they are not present.

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 using a new test device. If the problem persists, discontinue using the lot immediately and contact distributor / manufacturer.

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

SUMMARY AND EXPLANATION OF THE TEST

The ulti med *DrugControl* Test is a rapid urine screening test that can be performed without the use of an instrument. The test utilizes monoclonal antibodies to selectively detect elevated levels of specific drugs in urine.

Amphetamine (AMP): Amphetamine is a Schedule II controlled substance available by prescription (Dexedrine®) and is also available on the illicit market. Amphetamines are a class of potent sympathomimetic agents with therapeutic applications. They are chemically related to the human body's natural catecholamines: epinephrine and norepinephrine. Acute higher doses lead to enhanced stimulation of the central nervous system (CNS) and induce euphoria, alertness, reduced appetite, and a sense of increased energy and power. Cardiovascular responses to amphetamines include increased blood pressure and cardiac arrhythmias. More acute responses produce anxiety, paranoia, hallucinations, and psychotic behavior. The effects of Amphetamines generally last 2-4 hours following use and the drug has a half-life of 4-24 hours in the body. About 30% of amphetamines are excreted in the urine in unchanged form, with the remainder as hydroxylated and deaminated derivatives.

Barbiturates (BAR): Barbiturates are CNS depressants. They are used therapeutically as sedatives, hypnotics, and anticonvulsants barbiturates are almost always taken orally as capsules or tablets. The effects resemble those of intoxication with alcohol. Chronic use of barbiturates leads to tolerance and physical dependence. Short-acting barbiturates taken at 400 mg/day for 2-3 months can produce a clinically significant degree of physical dependence. Withdrawal symptoms experienced during periods of drug abstinence can be severe enough to cause death. Only a small amount (less than 5%) of most barbiturates are excreted unaltered in the urine.
The approximate detection time limits for barbiturates are:
Short acting (e.g. Secobarbital) 100 mg PO (oral) 4.5 days
Long acting (e.g. Phenobarbital) 400 mg PO (oral) 7 days[2]

Benzodiazepines (BZD): Benzodiazepines are medications that are frequently prescribed for the symptomatic treatment of anxiety and sleep disorders. They produce their effects via specific receptors involving a neurochemical called gamma aminobutyric acid (GABA). Because they are safer and more effective, benzodiazepines have replaced barbiturates in the treatment of both anxiety and insomnia. Benzodiazepines are also used as sedatives before some surgical and medical procedures, and for the treatment of seizure disorders and alcohol withdrawal. Risk of physical dependence increases if benzodiazepines are taken regularly (e.g., daily) for more than a few months, especially at higher than normal doses. Stopping abruptly can bring on such symptoms as trouble sleeping, gastrointestinal upset, feeling unwell, loss of appetite, sweating, trembling, weakness, anxiety and changes in perception. Only trace amounts (less than 1%) of most benzodiazepines are excreted unaltered in the urine; most of the concentration in urine is conjugated drug. The detection period for benzodiazepines in urine is 3-7 days.

Cocaine (COC): Cocaine is a potent central nervous system 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, 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.[3,4] 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.[4]

Fentanyl (FYL): Fentanyl, belongs to powerful narcotics analgesics, and is a μ special opiates receptor stimulant. Fentanyl is one of the varieties that been listed in management of United Nations "Single Convention of narcotic drug in 1961". Among the opiates agents that under international control, fentanyl is one of the most commonly used to cure moderate to severe pain[1]. After continuous injection of fentanyl, the sufferer will have the performance of protracted opioid abstinence syndrome, such as ataxia and irritability etc. [2,3] which presents the addiction after taking fentanyl in a long time. Compared with drug addicts of amphetamine, drug addicts who take fentanyl mainly have got the possibility of higher infection rate of HIV, more dangerous injection behavior and more lifelong medication overdose.[4]

Marijuana (THC): THC (Δ9-tetrahydrocannabinol) is the primary active ingredient in cannabis (marijuana). When smoked or orally administered, THC produces euphoric effects. Users have impaired short-term memory and slowed learning. They may also experience transient episodes of confusion and anxiety. Long-term, relatively heavy use may be associated with behavioral disorders. The peak effect of marijuana administered by smoking occurs in 20-30 minutes and the duration is 90-120 minutes after one cigarette. Elevated levels of urinary metabolites are found within hours of exposure and remain detectable for 3-10 days after smoking. The main metabolite excreted in the urine is 11-nor-D9-tetrahydrocannabinol-9-carboxylic acid (THC-COOH).

Methadone (MTD): Methadone is a narcotic analgesic prescribed for the management of moderate to severe pain and for the treatment of opiate dependence (heroin, Vicodin, Percocet, morphine). The pharmacology of oral methadone is very different from IV methadone. Oral methadone is partially stored in the liver for later use. IV methadone acts more like heroin. In most states you must go to a pain clinic or a methadone maintenance clinic to beprescribed methadone. Methadone is a long acting pain reliever producing effects that last from twelve to forty-eight hours. Ideally, methadone frees the client from the pressures of obtaining illegal heroin, from the dangers of injection, and from the emotional roller coaster that most opiates produce. Methadone, if taken for long periods and at large doses, can lead to a very long withdrawal period. The withdrawals from methadone are more prolonged and troublesome than those provoked by heroin cessation, yet the substitution and phased removal of methadone is an acceptable method of detoxification for patients and therapists.[7]

Methamphetamine (MET): 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 urine 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 urine indicates Methamphetamine use. Methamphetamine is generally detectable in the urine for 3-5 days, depending on urine pH level.

Methylenedioxymethamphetamine (MDMA): Methylenedioxymethamphetamine (ecstasy) is a designer drug first synthesized in 1914 by a German drug company for the treatment of obesity.[5] Those who take the drug frequently report adverse effects, such as increased muscle tension and sweating. MDMA is not clearly a stimulant, although it has, in common with amphetamine drugs, a capacity to increase blood pressure and heart rate. MDMA does produce some perceptual changes in the form of increased sensitivity to light, difficulty in focusing, and blurred vision in some users. Its mechanism of action is thought to be via release of the neurotransmitter serotonin. MDMA may also release dopamine, although the general opinion is that this is a secondary effect of the drug (Nichols and Oberlender, 1990). The most pervasive effect of MDMA, occurring in virtually all people who took a reasonable dose of the drug, was to produce a clenching of the jaws.

Morphine/Opiates (MOR/OPI): Opiate refers to any drug that is derived from the opium poppy, including the natural products, morphine and codeine, and the semi-synthetic drugs such as heroin. Opioid is more general, referring to any drug that acts on the opioid receptor. Opioid analgesics comprise a large group of substances which control pain by depressing the CNS. Large doses of morphine can produce higher tolerance levels, physiological dependency in users, and may lead to substance abuse. Morphine is excreted unmetabolized, and is also the major metabolic product of codeine and heroin. Morphine is detectable in the urine for several days after an opiate dose.[2]

Tricyclic Antidepressants (TCA): TCA (Tricyclic Antidepressants) are commonly used for the treatment of depressive disorders. TCA overdoses can result in profound CNS depression, cardiotoxicity and anticholinergic effects. TCA overdose is the most common cause of death from prescription drugs. TCAs are taken orally or sometimes by injection. TCAs are metabolized in the liver. Both TCAs and their metabolites are excreted in urine mostly in the form of metabolites for up to ten days.

Oxycodone (OXY): Oxycodone is a semi-synthetic opioid with a structural similarity to codeine. Thedrug is manufactured by modifying thebaine, an alkaloid found in the opium poppy. Oxycodone, like all opiate agonists, provides pain relief by acting on opioid receptors in the spinal cord, brain, and possibly directly in the affected tissues. Oxycodone is prescribed for the relief of moderate to high pain under the well-known pharmaceutical trade names of OxyContin®, Tylox®, Percodan® and Percocet®. While Tylox®, Percodan® and Percocet® contain only small doses of oxycodone hydrochloride combined with other analgesics such as acetaminophen or Aspirin®, OxyContin® consists solely of oxycodone hydrochloride in a time-release form. Oxycodone is known to metabolize by demethylation into oxymorphone and noroxycodone. In a 24-hour urine, 33-61% of a single, 5 mg oral dose is excreted with the primary constituents being unchanged drug (13-19%), conjugated drug (7-29%) and conjugated oxymorphone (13-14%). The window of detection for Oxycodone in urine is expected to be similar to that of other opioids such as morphine.

QUALITY CONTROL

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

LIMITATIONS

1. The ulti med *DrugControl* Test provides only a qualitative, preliminary analytical result. A secondary analytical method must be used to obtain a confirmed result. Gas chromatography/mass spectrometry (GC/MS) is the preferred confirmatory method.[1, 10]
2. There is a possibility 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 and a new test device.
4. A Positive result does not indicate intoxication of the donor, the concentration of drug in the urine, or the route of drug administration.
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.
7. A positive test result may be obtained from certain foods or food supplements.
8. The assay is designed for use with human urine only

EXPECTED VALUES

A negative result indicates that the drug concentration is below the detectable level. Positive result means the concentration of drug is above the detectable level.

REAGENTS

Each test line contains anti-drug mouse monoclonal antibody and corresponding drug-protein conjugates. The control line contains goat anti-rabbit IgG polyclonal antibodies and rabbit IgG.

PERFORMANCE CHARACTERISTICS

Specificity

The following table lists the concentrations of compounds (ng/mL) that are detected as positive in urine by the ulti med *DrugControl* Test at 5 minutes.

TEST DEVICE	**Calibrator** / related compounds	**Cut-off Limit Value [ng / mL]**
Amphetamines (AMP 1000)	**D-Amphetamine**	**1,000**
	L-Amphetamine	25,000
	D,L-Amphetamine sulfate	300
	Maprotiline	50,000
	Methoxyphenamine	6,000
	(±) 3,4-Methylenedioxyamphetamine (MDA)	500
	Phentermine	1,000
Barbiturate (BAR 200)	**Secobarbital**	**200**
	Allobarbital	400
	Alphenol	400
	Amobarbital	3,000
	Aprobarbital	300
	Barbital	5,000
	Butabarbital	150
	Butalbital	5,000
	Butethal	300
	Cyclopentobarbital	20,000
	5,5-Diphenylhydantoin	5,000
	Pentobarbital	5,000
	Phenobarbital	200
	Talbutal	150
Benzodiazepines (BZD 300)	**Oxazepam**	**300**
	Alprazolam	200
	a-Hydroxyalprazolam	1,250
	Bromazepam	1,550
	Chlordiazepoxide	1,550
	Clobazam	100
	Clonazepam	800
	Clorazepate dipotassium	200
	Delorazepam	1,500
	Desalkylflurazepam	400
	Diazepam	200
	Estazolam	2,500
	Flunitrazepam	400
	(±) Lorazepam	1,500
	RS-Lorazepam glucuronide	150
	Midazolam	12,500
	Nitrazepam	100
	Norchlordiazepoxide	200
	Nordiazepam	400
	Temazepam	100
	Triazolam	2,500
Cocaine (COC 300)	**Benzoylecgonine**	**300**
	Cocaine HCl	200
	Cocaethylene	20,000
	Ecgonine	30,000
Fentanyl (FYL 10)	**Fentanyl**	**10**
	Methoxyacetyl-Fentanyl	20
	Ocfentanil	100
	4-Fluoro-isobutyryl Fentanyl	100
	Norfentanyl	>100,000
	Cyclopro Fentanyl	250
	Butyl-Fentanyl	150
	(±) cis-3-Methyl Fentanyl	250
	Valeryl Fentanyl	100
	Acetyl Fentanyl	20
	Para-Fluorobutyryl Fentanyl	100
	Para-Fluoro Fentanyl	50

TEST DEVICE	**Calibrator** / related compounds	**Cut-off Limit Value [ng / mL]**
Marijuana (THC 50)	**11-nor-Δ9-THC-9 COOH**	**50**
	11-nor-Δ8-THC-9 COOH	30
	Cannabinol	35,000
	Δ8-THC	17,000
	Δ9-THC	17,000
Methadone (MTD 300)	**Methadone**	**300**
	Doxylamine	100,000
Methamphetamine (MET 1000)	**D-Methamphetamine**	**1,000**
	L-Methamphetamine	20,000
	(±)-3,4-Methylenedioxy-methamphetamine	12,500
	Mephentermine	50,000
	ρ-Hydroxymethamphetamine	25,000
Ecstasy (±) 3,4-Methylene-dioxymeth-amphetamine HCl (MDMA 500)	**(±) 3,4-Methylenedioxy-methamphetamine HCl**	**500**
	(±) 3,4-Methylenedioxy-amphetamine HCl	3,000
	3,4-Methylenedioxyethyl-amphetamine	300
Morphine (MOR 300)	**Morphine**	**300**
	Codeine	200
	Ethylmorphine	6,000
	Hydrocodone	50,000
	Hydromorphone	3,000
	Levorphanol	1,500
	6-Monoacethylmorphine	300
	Morphine-3-β-D-Glucuronide	800
	Norcodeine	6,000
	Normorphone	50,000
	Thebaine	6,000
Tricyclic Antidepressant (TCA 1000)	**Nortriptyline**	**1,000**
	Amitriptyline	1,500
	Clomipramine	50,000
	Cyclobenzaprine	2,000
	Desipramine	200
	Dithiaden	10,000
	Doxepine	2,000
	Imipramine	400
	Maprotiline	2,000
	Nordoxepine	500
	Perphenazine	50,000
	Promazine	3,000
	Promethazine	50,000
	Trimipramine	3,000
Oxycodone (OXY100)	**Oxycodone**	**100**
	Hydrocodone	25,000
	Hydromorphone	50,000
	Levorphanol	50,000
	Naloxone	25,000
	Naltrexone	25,000
	Oxymorphone	300

Accuracy

A side-by-side comparison was conducted using the ulti med *DrugControl* Test and commercially available drug rapid tests. Testing was performed on approximately 250 specimens per drug type previously collected from subjects presenting for Drug Screen Testing. Presumptive positive results were confirmed by GC/MS.

% Agreement with GC/MS						
	AMP/ 1000	BAR/ 200	BZD/ 300	COC/ 300	FYL/ 10	THC/ 50
Positive Agreement	98.1	95.3	97.0	98.2	>99.9	97.9
Negative Agreement	97.9	97.9	97.4	97.8	97.8	98.1

% Agreement with GC/MS						
	MTD/ 300	MET/ 1000	MDMA/ 500	MOR/ 300	OXY/ 100	TCA/ 1000
Positive Agreement	96.7	96.2	98.1	95.0	97.7	94.8
Negative Agreement	98.1	97.1	99.3	95.3	99.4	91.6

The agreement with the available commercial test kit is >99.9%.

Analytical Sensitivity

A drug-free urine pool was spiked with drugs at the listed concentrations. The results are summarized below.

Drug concentration Cut-off Range	n	AMP/ 1000		BAR/ 200		BZD/ 300		COC/ 300		FYL/ 10		THC/ 50	
		-	+	-	+	-	+	-	+	-	+	-	+
0 % Cut-off	30	30	0	30	0	30	0	30	0	30	0	30	0
-50 % Cut-off	30	30	0	30	0	30	0	30	0	30	0	30	0
-25 % Cut-off	30	26	4	26	4	27	3	26	4	26	4	26	4
Cut-off	30	15	15	15	15	15	15	13	17	13	17	14	16
+25 % Cut-off	30	3	27	3	27	3	27	3	27	3	27	3	27
+50 % Cut-off	30	0	30	0	30	0	30	0	30	0	30	0	30
3X Cut-off	30	0	30	0	30	0	30	0	30	0	30	0	30

Drug concentration Cut-off Range	n	MTD/ 300		MET/ 1000		MDMA/ 500		MOR/ 300		TCA/ 1000		OXY/ 100	
		-	+	-	+	-	+	-	+	-	+	-	+
0 % Cut-off	30	30	0	30	0	30	0	30	0	30	0	30	0
-50 % Cut-off	30	30	0	30	0	30	0	30	0	30	0	30	0
-25 % Cut-off	30	26	4	26	4	25	5	26	4	25	5	27	3
Cut-off	30	13	17	14	16	14	16	15	15	15	15	15	15
+25 % Cut-off	30	3	27	3	27	4	26	3	27	4	26	4	26
+50 % Cut-off	30	0	30	0	30	0	30	0	30	0	30	0	30
3X Cut-off	30	0	30	0	30	0	30	0	30	0	30	0	30

Effect of Urinary Specific Gravity

Fifteen (15) urine samples of normal, high, and low specific gravity ranges (1.005-1.045) were spiked with drugs at 50% below and 50% above cut-off levels respectively. The ulti med *DrugControl* Test was tested in duplicate using fifteen drug-free urine and spiked urine samples. 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 drugs at 50% below and 50% above cut-off levels. The spiked, pH-adjusted urine was tested with the ulti med *DrugControl* Test. 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 drug positive urine containing, Amphetamine, Barbiturates, Benzodiazepines, Cocaine, MDMA, Methamphetamine, Methadone, Opiates/Morphine, Tricyclic Antidepressants, Oxycodone, Fentanyl and Marijuana. The following compounds show no cross-reactivity when tested with the ulti med *DrugControl* Test at a concentration of 100 µg/mL.

Non Cross-Reacting Compounds

Acetophenetidin	Cortisone	Ketoprofen	Quinine
N-Acetylprocainamide	Creatinine	Labetalol	Salicylic acid
Acetylsalicylic acid	Deoxycorticosterone	Loperamide	Serotonin
Aminopyrine	Dextromethorphan	Meprobamate	Sulfamethazine
Amoxicillin	Diclofenac	Mirtazapine	Sulindac
Ampicillin	Diflunisal	Nalidixic acid	Tramadol
l-Ascorbic acid	Digoxin	Naproxen	Tetracycline
Apomorphine	Diphenhydramine	Niacinamide	Tetrahydrocortisone,
Aspartame	Ethyl-p-aminobenzoate	Nifedipine	3-acetate
Atropine	β-Estradiol	Norethindrone	Tetrahydrocortisone
Benzilic acid	Estrone-3-sulfate	Noscapine	Tetrahydrozoline
Benzoic acid	Erythromycin	d,l-Octopamine	Thiamine
Bilirubin	Fenoprofen	Oxalic acid	Thioridazine
d,l-Brompheniramine	Furosemide	Oxolinic acid	d,l-Tyrosine
Caffeine	Gentisic acid	Oxymetazoline	Tolbutamide
Cannabidiol	Hemoglobin	Papaverine	Triamterene
Chloral hydrate	Hydralazine	Penicillin-G	Trifluoperazine
Chloramphenicol	Hydrochlorothiazide	Perphenazine	Trimethoprim
Chlorothiazide	Hydrocortisone	Phenelzine	d,l-Tryptophan
d,l-Chlorpheniramine	o-Hydroxyhippuric acid	Prednisone	Uric acid
Chlorpromazine	3-Hydroxytyramine	d,l-Propanolol	Verapamil
Cholesterol	d,l-Isoproterenol	d-Pseudoephedrine	Zomepirac
Clonidine	Isoxsuprine	Quinidine	

LIMITATIONS

It is impossible to check any and all - other than those drugs mentioned in the product insert - for cross-reactivity or any other influences to the to be detected drug of abuse (DOA).
If the patient takes a „cocktail“ of several different drugs or medication cannot be excluded that a non-reproducible cross-reaction can falsified the test result.

BIBLIOGRAPHY

1. Hawks RL, CN Chiang. *Urine Testing for Drugs of Abuse*. National Institute for Drug Abuse (NIDA), Research Monograph 73, 1986.
2. *Tietz NW. Textbook of Clinical Chemistry. W.B. Saunders Company. 1986; 1735.*
3. *Stewart DJ, Inaba T, Lucassen M, Kalow W.* Clin. Pharmacol. Ther. *April 1979; 25 ed: 464, 264-8.*
4. *Ambre J.* J. Anal. Toxicol.*1985; 9:241.*
5. Winger, Gail, A Handbook of Drug and Alcohol Abuse, Third Edition, Oxford Press, 1992, page 146.
6. Robert DeCresce. *Drug Testing in the workplace,* 1989 page 114.
7. *Glass, IB. The International Handbook of Addiction Behavior. Routledge Publishing, New York, NY. 1991; 216*
8. B. Cody, J.T., “Specimen Adulteration in drug urinalysis. Forensic Sci. Rev., 1990, 2:63.
9. *C. Tsai, S.C. et.al., J. Anal. Toxicol. 1998; 22 (6): 474*
10. Baselt RC. Disposition of Toxic Drugs and Chemicals in Man. 6th Ed. Biomedical Publ., Foster City, CA 2002.
11. Hardman JG, Limbird LE. Goodman and Gilman’s: The Pharmacological Basis for Therapeutics. 10th Edition. McGraw Hill Medical Publishing, 2001; 208-209.

	Manufacturer		Contents sufficient for <n> tests
IVD	For in vitro diagnostic use only	LOT	Lot. no.
	For single use only		Expiration date
	Read instructions for use		Store at
	Keep away from direct sunlight	REF	Ordering number
	Keep dry		

This operating manual conforms to the latest technology / revision. Subject to change without prior notice!

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