DROGHE MULTI TEST CARD 7 parameters

For *in Vitro* diagnostic use only

A visual immunoassay for the qualitative detection of drugs and its major metabolites in human urine

I. INTENDED USE

Droghe Multi Test Card is a simple one step immunochromatographic assay for the rapid, qualitative detection of multiple drug metabolites (7 parameters) in human urine. With this test it is possible detect the following parameters:

DRUG		**CUT-OFF**
BZO	- Benzodiazepines	300 ng/ml
COC	- Benzoylecgonine / Cocaine	300 ng/ml
m-AMP	- Methamphetamines	500 ng/ml
MTD	- Methadone	300 ng/ml
MOR	- Morphine	300 ng/ml
THC	- 11-nor-Δ9-THC-9-COOH	50 ng/ml
MDMA	- Ecstasy	500 ng/ml

This assay provides only a preliminary analytical test result. A more specific alternative chemical method must be used in order to obtain a confirmed analytical result. Gas chromatography/mass spectrometry (GC/MS) has been established as the preferred confirmatory method by the National Institute on Drug Abuse (NIDA). Clinical consideration and professional judgement should be applied to any drug of abuse test result, particularly when preliminary positive results are indicated. The assay should not be used without proper supervision and is not intended for over the counter sales to lay persons. It is only for professional use.

II. SUMMARY

Droghe Multi Test Card identifies simultaneously the most commonly used drugs. For this test, the cut-off is calibrated on the indications of the American National Institute on Drug Abuse (NIDA). The flow-rate and sensitivity of the test were established on the basis of the most widely used methods for screening of urine drugs of abuse. Droghe Multi Test Card is based on the principle of the highly specific immunochemical reactions between antigens and antibodies, which are used for the analysis of specific substances in biological fluids.

Benzodiazepines

Benzodiazepines are the most widely used anxiolytic drugs. They are used extensively as anti-anxiety agents, hypnotics, muscle relaxants and anti-convulsants. They are taken orally or sometimes by injection. Benzodiazepines are metabolized in the liver. Some metabolites of benzodiazepines also exhibit pharmacological activities. Benzodiazepines and metabolites are excreted in the urine. Their use can result in drowsiness, confusion. Benzodiazepines potentiate alcohol and other CNS depressants. Psychological and physical dependence on benzodiazepines can develop if high doses of the drug are given over a prolonged period[6.7].

Cocaine

Derived from leaves of coca plant, cocaine is a potent central nervous system stimulant and a local anesthetic. Among the psychological effects induced by using cocaine are euphoria, confidence and a sense of increased energy, accompanied by increased heart rate, dilation of the pupils, fever, tremors and sweating. Cocaine is excreted in urine primarily as benzoylecgonine in a short period of time. Benzoylecgonine has a biological half-life of 5 to 8 hours, which is much longer than that of cocaine (0.5 to 1.5 hours), and can be generally detected for 24 to *72* hours after cocaine use.

Methamphetamine

Methamphetamine, amphetamine, and metabolites are potent sympathomimetic agents. Acute higher doses lead to enhanced stimulation of the central nervous system and include euphoria, alertness, and a sense of increased energy and power. More acute responses produce anxiety, paranoia, psychotic behavior, and cardiac dysrhythmias. The pattern of psychosis which may appear at high doses may be indistinguishable from schizophrenia.

Methamphetamine is excreted in urine as amphetamine and oxidized as deaminated and hydroxylated derivatives. However, 40% of methamphetamine is excreted unchanged. Thus the presence of the parent compound in the urine indicates methamphetamine use.

Methadone

Methadone is synthetic analgesic drug that is originally used in the treatment of narcotic addicts. Among the psychological effects induced by using methadone are analgesia, sedation and respiratory depression. Overdose of methadone may cause coma or even death. It is administered orally or intravenously and is metabolized in the liver. The kidneys are a major route of methadone excretion. Methadone has a biological half-life of 15-60 hours.

Opiates/Morfine

The opiates such as heroin, morphine, and codeine are derived from the resin of opium poppy. Heroin and Codeine are metabolized to morphine. Thus, the presence of morphine (or its metabolites) in the urine of a person indicate heroin, morphine and/or codeine use.

Marijuana/THC

Marijuana (THC) is a hallucinogenic agent derived from the flowering portion of the hemp plant. Smoking is the primary method of use of marijuana/cannabis, Higher doses used by abusers produce central nervous system effects, altered mood and sensory perceptions, loss of coordination, impaired short-term memory, anxiety, paranoia, depression confusion, hallucinations and increased heart rate. A tolerance to the cardiac and psychotropic effects can occur, and withdrawal syndrome produces restlessness, insomnia, anorexia and nausea.

When marijuana is ingested, the drug is metabolized by the liver. The primary urinary metabolite of marijuana is 11-nor-Δ^9-THC-9-carboxylic acid, and its glucuronide. This means that the presence of detected cannabinoids, including the primary carboxyl metabolite, in the urine indicate marijuana/cannabis use.

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Mascia Brunelli S.p.A. Viale Monza 272, 20128 Milan - Italy. Tel. n° +39 02-25209.1, Fax n° +39 02-2576428,
E-mail: mktg@masciabrunelli.it ; Web site: www.masciabrunelli.it

MDMA / Ecstasy
MDMA, 3,4-methylenedioxy-N-methamphetamine, is the main component of Ecstasy. MDMA, was developed and patented in the early 1900's as a chemical precursor in the synthesis of pharmaceuticals. Chemically, MDMA is similar to the stimulant amphetamine and the hallucinogen mescaline. MDMA can produce both stimulant and psychedelic effects. MDMA didn't gain notoriety as an illicit drug until the 1980's. By 1985, the United States Drug Enforcement Agency placed MDMA on the schedule I list (Drug with a high potential for abuse with no current medical use). Despite the schedule I status, the recent popularity of MDMA as an illicit drug warrants the need for an accurate drug screen specifically designed to detect MDMA.
MDMA is taken orally, usually in a tablet or a capsule with 80-150mg. MDMA's effects last approximately 3 to 6 hours following oral administration, hyperthermia, though confusion, depression, sleep problems, anxiety, and paranoia have been reported to occur even weeks after the drug is taken. MDMA can produce a significant increase in heart rate and blood pressure and a sense of alertness like that associated with amphetamine use. Following a typical dose, 65% of MDMA is excreted unchanged in the urine and up to 7% is demethylated and eliminated in the urine as methylenedioxyamphetamine (MDA). Others metabolites including conjugated mono and di-hydroxy derivates of both MDMA and MDA. MDMA is detectable in urine for up to 3 days after use.

III. PRINCIPLE OF THE TEST
The Droghe Multi Test Card is a one-step Panel Test immunoassay in which a chemically labeled drug (drug conjugate) competes with the drug which may be present in urine for limited antibody binding sites. The test device contains a membrane strip which was pre-coated with drug-protein conjugate on the test line. A colored monoclonal antibody colloidal gold conjugate pad is placed at the end closing to the sample pad of the membrane. The colored antibody-colloidal gold conjugate moves along with urine, chromatographically by the capillary action, across the membrane, in the absence of drug in the urine, the colored antibody colloidal gold conjugate attaches to the drug conjugate on the test region to form a visible line as the antibody/drug conjugate complexes. Therefore, the formation of a visible precipitant in the test region occurs when the test urine is negative for the drug. When the drug is present in the urine, the drug/metabolite antigen competes with the drug conjugate on the test region for the limited antibody sites. When a sufficient concentration of drug is present, it will fill the limited antibody binding sites. This will prevent attachment of the colored antibody-colloidal gold conjugate to the drug conjugate zone on the test region. Therefore, absence of the color band on the test region indicates a positive result.
A control or reference line with a different antigen/antibody reaction is also added to the immunoassay membrane strip at the control region (C) to indicate that the test is performed properly. This control line should always appear, regardless of the presence of drug or metabolite. This means that negative urine will produce two colored lines, and positive urine will produce only one band. The presence of this colored line in the control region also serves as verification that 1) sufficient volume has been added, and 2) that proper flow was obtained.

IV. MATERIALS PROVIDED
- Individually wrapped test device. Each device contains 7 membranes treated with different drugs.
- Disposable sample dropper.
- Instruction for use.

MATERIALS REQUIRED BUT NOT PROVIDED
- Specimen collection container.
- Clock or timer

V. PRECAUTIONS
- For professional in vitro diagnostic use only.
- Urine specimens are potentially infectious. Proper handling and disposal methods should be established according to good laboratory practices.
- Avoid cross contamination of urine samples by using a new urine specimen container and dropper for each urine sample.
- As with all diagnostic tests, a definitive clinical diagnosis should not be based on the results of a single test, but should only be made by the physician after all clinical and laboratory findings have been evaluated.
- The components of this I.v.D. are tested always each other without verify the compatibility with components produced by others manufacturers. Is not excluded that these components can be used with components of same chemical composition but produced by others manufacturers, but there is not an experimental evidence of this compatibility.
- The kit must be used by clinical test trained personnel only.

VI. STORAGE AND STABILITY
The Kit should be stored at +4°C - +30°C. If test kit is refrigerated, it should be brought to room temperature before use. The test device is sensitive to humidity as well as to heat. Perform the test immediately after removing the test device from the foil pouch.
VII. LIMITATIONS
- The test is designed for use with unadulterated human urine only.
- A positive result with any of the tests indicates the presence of a drug/metabolite only and does not indicate or measure intoxication.
- There is a possibility that factors such as technical or procedural errors, as well as other substances in the urine samples may interfere with the test and cause erroneous results. (See paragraph Specificity).
- If it is suspected that the samples have been mislabeled or tampered with, a new specimen should be collected and the test should be repeated.

VIII. QUALITY CONTROL
A good laboratory practice demands the use of controls materials in order to assure the functionality of the test. When positive and negative controls are used, it is recommended the same procedure used for the urine sample.

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IX. SPECIMEN COLLECTION AND STORAGE

Droghe Multi Test Card is designed for use with unadulterated human urine only. Fresh urine specimens do not require any special handling or pretreatment. Specimens should be collected in a clean glass or plastic container. If testing will not be performed immediately, specimens should be refrigerated at 2-8°C for 2 days or frozen at -20°C for a longer period of time. Specimens should be brought to room temperature before testing. Specimens previously frozen must be thawed, equilibrated to room temperature, and mixed thoroughly prior to testing.

Note: urine specimens and all materials coming in contact with them should be handled and disposed of as if capable of transmitting infection. Avoid contact with skin by wearing gloves and proper laboratory attire.

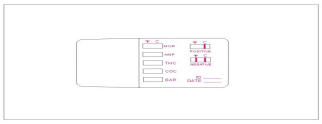
X. TEST PROCEDURE

Perform the test immediately after removing the test device from the foil pouch.

STEP 1 Remove the test device from its protective pouch. Label the device with patient or control identification.

STEP 2 Remove the cap to expose the sample strips. Immerse the sample pads of the strips into the urine specimen until 10 seconds. Do not let the urine surface above the red line on the label when immersing the sample pads.

STEP 3 Replace the cap to cover the sample strips. Then place the test panel on a flat surface. Read results within 3 to 8 minutes. Do not read results after 8 minutes.



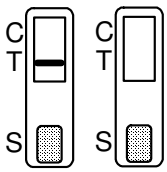
XI. INTERPRETATION OF RESULTS

Negative

Two colored lines appear in the viewing window. The line in the test region (T) is the drug probe line; the line on the control region (C) is the control line, which is used to indicate proper performance of the device. The color intensity of the test line may be weaker or stronger than that of the control line.

Invalid

No line appears in the control region. Under no circumstances should a positive sample be identified until the control line forms in the viewing area. If the control line does not form, the test result is inconclusive and should be repeated.



Positive

Only one colored line appears in the control region (C). The absence of a test line indicates a positive result.

Important note

Not all parameters must be positive in a test at the same time. Examine each parameter individually and indicate the result of every single parameter in the field over the test region (for example , MTD – negative and BZO - positive).

Note: A very faint line in the test region indicates that the drug concentration in the sample is near the cut-off level of the test. These samples should be re-tested or confirmed with a more specific method before a positive determination is made.

If only one parameter (example BZO) does not show the control line, re-test its with a single test.

XII. PERFORMANCES OF THE TEST

Sensitivity

Fresh Drug-free normal human urine specimens were collected and spiked with drug standards at different concentrations. The samples were tested with the 3 lots, using 20 devices for each concentration. These sensitivity study confirms the sensitivity values reported in paragraph Intended use.

Precision

All samples with a concentration of 50% below the cut-off level give a negative result, while all samples with a concentration of 200% above the cut-off level give a positive result.

Specificity

The specificity for Droghe Multi Test Card was tested by adding various drugs and drug metabolites and other compounds that are likely to be prepared in drug—free normal human urine. The following compounds produced positive results with the specified drug screen assays when tested at levels equal to or grater than the concentrations listed below:

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Compound	Concentration (ng/ml)
Benzodiazepines	
Alprazolam	150
Chlordiazepoxide	300
Clobazam	200
Chlonazepam	100
Diazepam	150
Estazolam	2500
Flurazepam	300
Nordiazepam	100
Oxazepam	300
Temazepam	150
Bromazepam	800
Clorazepan	100
Delorazepan	6000
Flunitrazepam	1000
Lorazepam	1500
Lormetazepam	1000
Medazepam	2000
Nitrazepam	1000
Prazepam	1000
Triazolam	1500
Cocaine	
Benzoylecgonine	300
Cocaine	300
MDMA (Ectasy)	
MDMA	500
MDA	2000
Methamphetamine	
(+)-Methamphetamine	500
D-Amphetamine	50000
Chloroquine	50000
(+/-)-Ephedrine	50000
(-)-Methamphetamine	25000
β-phenylethylamine	50000
3,4-Methylenedioxymethamphetamine(MDA)	2000

Compound	Concentration (ng/ml)
Ranitidine	50000
Procaine	10000
Methadone	
Methadone	300
Methadol	1000
2-Ethylidene-1,5-Dimethyl-3,3-Diphenylprolidine (EDDP)	50000
Morphine	
Morphine	300
Codeine	300
Ethyl morphine	300
Hydrocodone	375
Hydromorphone	400
Morphine-3- β-d-glucuronide	490
THC	
11-nor-Δ8-THC-9-COOH	50
11-nor-Δ9-THC-9-COOH	50
11-hydroxy-Δ9-Tetrahydrocannainol	2500
Δ8- Tetrahydrocannabinol	7500
Δ9- Tetrahydrocannabinol	10000
Cannabinol	10000
Amphetamine	
d-Amphetamine	1000
l-Amphetamine	10000
Tricyclic Antidepressants	
Amitriptyline	1000
Desipramine	600
Imipramine	600
Nortriptyline	1000
Nordoxepine	1000
Cyclobenzaprine	1500
Clomipramine	5000
Doxepine	3000
Protriptyline	2000
Perphenazine	25000
Promazine	15000
Trimipramine	2000

XIII. REFERENCES

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CONTENT 7 x 10 Tests **Ref. VU85007**
Droghe Multi Test Device (7 test) 10 items
Instruction for use 1 item

EDMA Code 12 70 09 70 00

IVD	In Vitro Diagnostic Medical Device		Temperature limitation	LOT	Batch code (EXXX)		Manufacturer		Keep dry	NON STERILE	Non-sterile
	Consult Instructions for use		Use by (year/month)	REF	Catalogue number		Do not reuse		Fragile, handle with care		Keep away from heat

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Mascia Brunelli S.p.A. Viale Monza 272, 20128 Milan - Italy. Tel. n° +39 02-25209.1, Fax n° +39 02-2576428,
E-mail: mktg@masciabrunelli.it ; Web site: www.masciabrunelli.it