CE

Insight | DOA Panel 6.1

Rapid Competitive Immunochromatographic Assay for the simultaneous detection of tetrahydrocannabinol, amphetamine, barbiturates, benzodiazepine, cocaine and opiates in human urine.

DEVICE

DEVICE

INTENDED USE

INSIGHT DOA Panel 6.1 is a rapid, self-performing, qualitative, immunochromatographic assay for the simultaneous detection of tetrahydrocannabinol, amphetamine, barbiturates, benzodiazepine, cocaine and opiates in human urine.

SUMMARY

Tetrahydrocannabinol (THC) is a central nervous system (CNS) depressant. THC is the most active of the principal constituents, as well as the major metabolite, of cannabinoids such as cannabis and hashish. Marijuana (cannabis) is sometimes used to treat individuals suffering from anorexia. Cannabinoids are usually smoked or administered orally, laced with some other drugs of abuse like cocaine. Higher doses used by abusers produce CNS effects, such as altered mood and sensory perceptions, loss of coordination, impaired short term memory, anxiety, paranoia and an increased heart rate. THC and its glucoronide are the primary urinary metabolites of cannabinoids. This means that the presence of THC in urine indicates the use of marijuana, cannabis and/or hashish. The half - life of THC is about 20 hours to 10 days, depending on the amount and potency of the drug used. THC in the INSIGHT DOA Panel 6.1 detects the presence of tetrahydrocannabinol (THC) in urine specimen, qualitatively, at concentrations as low as 50 ng/ml.

Amphetamine (AMP) is a central nervous system (CNS) stimulant (psychostimulant), a sympathomimetic amine. AMP may either be taken orally, intravenously or by smoking. AMP is readily absorbed from the gastrointestinal tract and is then metabolized to either deaminated (hippuric and benzoic acids) and hydroxylated metabolites or excreted unchanged in urine and can result in anorexia, hyperthermia, cardiovascular dysfunction euphoria, increased alertness and may have other adverse effects during pregnancy such as miscarriages, stillbirths and sudden infant death syndrome (SIDS). Amphetamine has a half-life of 7 to 32 hours. AMP in the INSIGHT DOA Panel 6.1 detects the presence of amphetamines in human urine specimen, qualitatively, at concentrations as low as 1000 ng/ml.

Barbiturates (BAR) such as pentobarbitals and phenobarbitals, are central nervous system (CNS) depressants, these were used as anxiolytics, hypnotics and anti convulsion agents. Barbiturates may be taken intravenously or even orally. The use of barbiturates produce a wide spectrum of effects; like slowing of speech, fatigue and anesthesia. Abuse of barbiturates can lead to mental disorder, impaired motor coordination, respiratory failure, coma and even death. Chronic use of barbiturates can lead to physical dependence, the most commonly abused barbiturates are amobarbital, pentobarbital and secobarbital. Short - acting barbiturates like secobarbital have a half life of 29 to 34 hours and will generally be excreted in urine as metabolites, while long acting barbitals like phenobarbital have a half - life of 24 to 140 hours and will primarily appear unchanged. BAR in the INSIGHT DOA Panel 6.1 detects the presence of barbiturates in human urine specimen, qualitatively, at concentrations as low as 300 ng/ml. Benzodiazepines (BZO) such as Diazepam and Midazolam are psychoactive agents. Benzodiazepines are commonly administered either nasally, orally or intravenously. They are used extensively as anxiolytics, anti-convulsants, hypnotics and muscle relaxants. Diazepam binds with a high affinity to the gamma amino butyric acid (GABA) a receptor in the brain thus reducing arousal and affecting emotions. Their use can result in drowsiness, confusion and insomnia. Psychological and physical dependence on benzodiazepines can develop if high doses of the drug are given over a prolonged period. Only trace amounts (less than 1%) of most benzodiazepines are excreted unaltered in the urine. The drug has a half-life of 40 to 100 hours. BZO in the INSIGHT DOA Panel 6.1 detects the presence of benzodiazepines in human urine specimen, qualitatively, at concentrations as low as 300 ng/ml.

Cocaine (COC) is a naturally derived, highly potent central nervous system (CNS) stimulant and a local anesthetic. Cocaine is consumed either by chewing, snorting or smoking; alternatively it may also be injected. The psychological effects induced by using cocaine are euphoria, feeling of confidence, sense of increased energy, and a dissociative state of mind. These psychological effects are accompanied by increased heart rate, dilation of the pupils, difficulty in breathing, fever, tremors and sweating. Cocaine is either excreted unchanged or as metabolites namely benzoylecgonine and ecgonine methyl ester in a short period of time. Cocaine has a half - life of 2.4 to 4 hours. COC in the INSIGHT DOA Panel 6.1 detects the presence of cocaine in human urine spcimen, qualitatively, at concentrations as low as 300 ng/ml. Opiates(OPI) such as heroin, morphine and codeine (methyl - morphine), are central nervous system (CNS) depressants. Morphine is an active ingredient in both opium as well as in heroin. It is used as an analgesic and sedative. Morphine is readily absorbed from an oral dose, intramuscular and subcutaneous injection. The use of opiates at high doses produce pulmonary edema, cardiac and/or respiratory failure, euphoria, hypothermia and coma. Large doses of morphine can produce higher tolerance levels, thus causing physiological dependency in users, which may lead to substance abuse. Morphine is excreted unmetabolized, and is also the major metabolic product of codeine and heroin. Thus, the presence of morphine (or the metabolite, morphine glucoronide) in the urine indicates heroin, codeine and/or morphine use. The half - life of morphine is 1.5 to 7 hours. OPI in the INSIGHT DOA Panel 6.1 detects the presence of morphine in human urine specimens, qualitatively, at concentrations as low as 300 ng/ml.

PRINCIPLE

INSIGHT DOA Panel 6.1 is based on the principle of agglutination of antibodies/ antisera with respective antigen in a competitive immuno-chromatography format along with use of nano gold particles as agglutination. Each conjugate pad of the specific drug parameter is impregnated with two components - Agglutinating sera for specific drug conjugated to colloidal gold and rabbit globulin conjugated to colloidal gold. As the test specimen flows through the membrane assembly of the device, the Agglutinating sera for specific drug- colloidal gold conjugate complexes with the specific drug present in the test specimen and travels on the membrane due to capillary action along with the rabbit globulin colloidal gold conjugate. This complex moves further on the membrane to the test region (T) where it is not immobilized by specific drug conjugated to BSA coated on the membrane,therefore forming no band. The absence of this band in the test region (T) indicates a positive result.

In absence of specific drug in the test specimen, the Agglutinating sera for specific drug- colloidal gold conjugate and along with rabbit globulin- colloidal gold conjugate moves further on the membrane to the test region (T) where it is immobilized by drug conjugated to BSA coated on the membrane, forming a pink coloured band indicating a negative result. The rabbit globulin-colloidal gold conjugate and unbound complex if any move further on the membrane and are subsequently immobilized by the Agglutinating sera for Rabbit globulin coated on the membrane at the control region (C) forming a pink coloured band. This control band acts as a procedural control and serves to validate the test results.

REAGENTS AND MATERIALS SUPPLIED

A. Each INSIGHT DOA Panel 6.1 kit contains individual pouches each containing a
   1. DEVICE : Membrane test assembly impregnated with colloidal gold conjugated to the Agglutinating sera for the specific drug and rabbit IgG, specific drug conjugated to BSA and Agglutinating sera for rabbit globulin at the respective regions.
   2. PIPETTE : Sample applicator.
   3. Desiccant pouch.

B. Package insert.

REF	10810010	10810050
Σ	10	50

OPTIONAL MATERIAL REQUIRED

Precision micropipette capable of delivering 500 µl specimen, stopwatch.

STORAGE AND STABILITY

The sealed pouches in the test kit and the kit components may be stored between 4 - 30°C till the duration of the shelf life as indicated on the pouch/carton. DO NOT FREEZE.

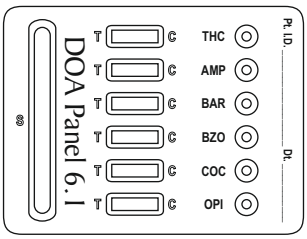
NOTE

(1) For in vitro diagnostic and professional use only. NOT FOR MEDICINAL USE. (2) Do not use beyond expiry date. (3) Read the instructions carefully before performing the test. (4) Handle all specimen as if potentially infectious. (5) Follow standard biosafety guidelines for handling and disposal of potentially infectious material. (6) If desiccant colour at the point of opening the pouch has turned from blue to pink or colourless, another test device must be run.(7).Contact with the contents of desiccant pouch containing, among other substances, cobalt chloride (CAS# 7646-79-9) should be kept to a minimum. Inhalation / swallowing may cause harm.

SPECIMEN COLLECTION AND PREPARATION

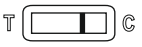
(1) INSIGHT DOA Panel 6.1 uses human urine as specimen. (2) No special preparation of the patient is necessary prior to specimen collection by approved techniques. (3) A clean dry plastic or glass container may be used for specimen collection. (4) Though fresh specimen is preferable, in case of delay in testing, it may be stored at 2-8°C for maximum up to 24 hours. (5) Refrigerated specimen must be brought to room temperature prior to testing. (6) Repeated freezing and thawing of the specimen should be avoided. (7) Specimen containing precipitates or particulate matter must be centrifuged and the clear supernatant only used for testing.

TESTING PROCEDURE AND INTERPRETATION OF RESULTS

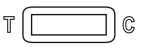


(1) Bring the kit components of INSIGHT DOA Panel 6.1 device to room temperature before testing. (2) Open a foil pouch by tearing along the "notch". (3) Remove the testing device and the sample applicator and the desiccant pouch. (4) Check the colour of the desiccant pouch. It should be blue. If the desiccant has turned colourless or pink, discard the test device and use another device. Once opened, the device must be used immediately. (5) Label the device with patient identity and place the testing device on a flat horizontal surface. (6) Use the provided sample applicator to pick up the urine sample and fill the applicator exactly upto the '0.5' mark. (7) Dispense all the urine samples picked up by applicator to the sample well (S) of the device drop by drop. Avoid trapping air bubbles in the sample well, while dispensing the sample. Alternatively, carefully dispense 500 µl urine specimen to the sample well (S) using a micropipette. (8) Start the stop watch and read the results at the end of 5 minutes in each test window for the specific drug parameter as follows :

Negative Result:
Two pink coloured bands appear at the control region (C) and test region (T). This indicates absence of the specific drug in the specimen.



Positive Result:
One pink coloured band appears at the control region (C). This indicates that the specimen contains detectable amount of the specific drug.



Invalid Result:
The test result is invalid if no band appears either at the control region (C) or test region (T). In such cases, verify the test procedure and repeat the test with a INSIGHT DOA Panel 6.1 device.

Important: Do not interpret the results beyond 8 minutes. A very faint line on the test region indicates that the drug in the specimen is near the cut-off level for the test. These specimen should be re-tested or confirmed with a more specific method before a positive determination is made.

REMARKS

(1) The deliberate slow reaction kinetics of INSIGHT DOA Panel 6.1 is designed to maximize and enhance reaction time between sample capture and tracer elements to improve test sensitivity. (2) Most positive results develop within 5 minutes. However, certain samples may take a longer time to flow. Therefore, negatives should be confirmed only at 8 minutes. Do not interpret the results beyond 8 minutes. (3) As with all diagnostic tests, a definitive clinical diagnosis should not be based on the result of a single test, but should only be made by the physician after all clinical and laboratory findings have been evaluated. (4) The assay is designed for use with human urine only. (5) A preliminary positive result indicates only the presence of the specific drug and does not indicate or measure intoxication. (6) There is a possibility that technical/or procedural errors as well as other substances or factors not listed may interfere with the test and cause false results. See specificity section that will produce positive results, or that do not interfere with the test performance. (7) If adulteration is suspected, the test should be repeated with a new sample. (8) Certain over the counter or prescription medications (or certain foods) may cause false results. (9) The length of time following drug use for which a positive result may occur is dependent upon several factors, including the frequency and amount of drug, metabolic rate, excretion rate, drug half-life, the user's age, weight, activity and diet. (10) This test provides only a preliminary analytical test result. Gas chromatography/mass spectrometry (GC/MS) has been established as preferred confirmatory method by the National Institute on Drug Abuse (NIDA), clinical consideration and professional judgment should be applied

toAgglutinat any drug test result, particularly when preliminary positive results are indicated.

PERFORMANCE CHARACTERISTICS

1. **Sensitivity** : THC in the INSIGHT DOA Panel 6.1 detects THC at concentrations equal to or greater than 50 ng/ml. AMP in the INSIGHT DOA Panel 6.1 detects amphetamine at concentrations equal to or greater than 1000 ng/ml. BAR in the INSIGHT DOA Panel 6.1 detects barbiturates at concentrations equal to or greater than 300 ng/ml. BZO in the INSIGHT DOA Panel 6.1 detects benzodiazepines at concentrations equal to or greater than 300 ng/ml. COC in the INSIGHT DOA Panel 6.1 detects cocaine at concentrations equal to or greater than 300 ng/ml. OPI in the INSIGHT DOA Panel 6.1 detects morphine at concentrations equal to or greater than 300 ng/ml.
2. **Specificity** : Interference of substances that may be present in urine specimen, as well as effect of sample pH and specific gravity was also studied.
   a. Cross-reactivity of non-drug related compounds at concentrations much higher than normally found in the urine of people using or abusing them were tested using assay devices.
   b. No cross-reactivity was detected with the substances listed in table I. Table II lists drug-related substances and concentrations that produced results approximately equivalent to the cut-off level for all the drugs.

Table I:
The following compounds were found not to cross react with the test at the indicated concentration in urine.

Acetaminophen	(+)- Epinephrine	Oxalic Acid
Acetone	(-)- Epinephrine	Oxazepam
Albumin	Erythromycin	Oxycodone
Amitriptyline	Ethanol	Penicillin - G
Ampicillin	Furosemide	Pentermine
Ascorbic Acid	Glucose	Pentamine
Aspartame	Guaiacol Glyceryl Ether	Pentobarbital
Aspirin	Hemoglobin	Phencyclidine
Atropine	Hydrocodone	Pheniramine
Benzocaine	Hydromorphone	Phenobarbital
Benzoylecgonine	Hydroxytyramine	Phenothiazine
(+) - Bromopheniramine	Imipramine	Phenylephrine
Bilirubin	Ibuprofen	D - Propoxyphene
Caffeine	(+/-) - Isoproterenol	Phenylethylamine
Chloroquine	Ketamine	Promethazine
(+) - Chlorpheniramine	Levorphanol	Procaine
(+/-) - Chlorpheniramine	Lidocaine	Quinidine
Chlorpromazine	Meperidine	d - Propoxyphene
Cocaine	Methadone	Ranitidine
Codeine	Methamphetamine	Riboflavin
Creatine	Methaqualone	Secobarbital
(-)- Deoxyephedrine	(1R,2S) - (-) - N-Methyl-Ephedrine	Sodium Chloride
Dexbrompheniramine	Methylphenidate	Sulindac
Dextromethrophan	Morphine	Tenocyclidine
4-Dimethylaminoantipyine	(+/-) 3,4 - Methylenedioxymethamphetamine	Theophylline
Diphenhydramine	(+/-) - Norephedrine	Thiordazine
Diazepam	(+) - Naproxen	Trifluoperazine
Dopamine	Notriptyline	Trimethobenzamide
Doxylamine	Niacinamide	Tyramine
Ecgonine	Naloxone	Vitamin C
Ecgonine methyl ester	Naltrexone	4 - Dimethylaminoantipyine
(+/-) Ephedrine	Naphthalene Acetic Acid	(1R,2S) - (-) - N- Methyl - Ephedrine
(-) - Ephedrine	Nicotine	11 nor Δ 9 tetrahydrocannabinol 9 -carboxylic acid
(+/-) - Epinephrine	(+/-) - Norephedrine	

Table II:
Drug structurally related compounds showing the lowest concentration of the drug producing a positive response equivalent to the cut-off level.

Compound	Concentration (ng/ml)
Cocaine	300
Cocaethylene	7,500
Ecgonine Methyl Ester	15,000
Alprazolam	150
Bromazepam	800
Chlordiazepam	300
Clonazepam	1,000
Clobazam	200
Delorazepam	300
Clorazepam	100
Flunitrazepam	1,000
Diazepam	150
Lorazepam	1,500
Estazepam	150
Lormetazepam	1,000
Estazolam	2,500
Flurazepam	300
Medazepam	2,000
Nordiazepam	100
Nitrazepam	1,000
Oxazepam	300
Prazepam	1,000
Temazepam	150
Triazolam	1,500
Allobarbital	1,000
Alphenal	300
Amobarbital	1,000
Aprobarbital	300
Barbital	300
Butabarbital	300

Compound	Concentration (ng/ml)
Butalbital	2,000
Butethal	300
Pentobarbital	300
Phenobarbital	300
Secobarbital	300
11-nor-Δ8-THC-9-cacoxylic acid	50
11-nor-Δ9-THC-9-cacoxylic acid	50
11-hydroxy-Δ9-tetrahydrocannabinol	1,000
Δ8-tetrahydrocannabinol	7,500
Δ9-tetrahydrocannabinol	10,000
Cannabinol	10,000
d - Amphetamine	1,000
l - Amphetamine	1,000
(+/-) 3,4 Methylenedioxyamphetamine (MDA)	2,000
d - Methamphetamine	1,000
(+/-) - 3,4 - MDMA	2,000
Morphine	300
Codeine	300
Ethylmorphine	1,000
Diacetyl-morphin hydrochloride	2,000
Hydrocodone	4,000
Hydromorphine	5,000
Meperidine	30,000
Morphine - 3 - glucuronide	1,000
Nalorphine	5,000
Oxycodone	1,000
(+/-) 3,4 - MDEA	500
Ranitidine	600
l - Methamphetamine	10,000
Levorphanol	1,500

WARRANTY

This product is designed to perform as described on the label and package insert. The manufacturer disclaims any implied warranty of use and sale for any other purpose.

BIBLIOGRAPHY

(1). www.drug detection .net/drug.html.(2).Klabunde R.E, Cardiovascular Pharmacology Concepts, Beta Adenoceptor Antagonists (Beta Blockers)Symphathomimetics, pgs 200, 2007.(3).Wu. AH, Onigbhinde TA, Wong SS, Johnson KG, Evaluation of full scanning GC/ion trap MS of NIDA drugs of abuse urine testing in urine. J. Anal. Toxicol. 19992, May, Jun; 16(3) pgs 202-206. (4). Drugs and Human Performance, FACT SHEETS Cannabis, Amphetamines. (5). Kreek M.J. and Hartmann N. Chronic use of opiods and anti psychotic drugs, side effects , effects of endogenous opiods and toxicity; Annals New York academy of Science pgs 151-172. (6). Drugs of Abuse, Drug Enforcement Administration (DEA) Barbiturates pg 52, Benzodiazepines pg 53, Cocaine, pg 45. (7). Volkow N.D, Prescription of drug abuse and addiction , National institute on Drug Abuse (NIDA) research report series, 2005. (8).Data on file: Tulip Diagnostics (P) Ltd.

SYMBOL KEYS

Temperature Limitation	Consult Instructions for use	Date of Manufacture	Do not reuse
Manufacturer	IVD — *In vitro* Diagnostic Medical Device	This side up	PS — Production site
Use by	REF — Catalogue Number	DEVICE — Device	EC REP — Authorised Representative in the European Community
Σ — Contains sufficient for <n> tests	LOT — Batch Number / Lot Number	PIPETTE — Disposable Plastic Sample Applicator	

TULIP DIAGNOSTICS (P) LTD.

PS

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