

# MD DrugScreen THC

## One Step Marijuana Test Dip card

### CLIA Waived/OTC Package Insert

Package insert for testing of any combination of the following drugs: Marijuana  
*A rapid, one step screening test for the simultaneous, qualitative detection of Marijuana metabolites in human urine.*  
*For in vitro diagnostic use only. It is intended for over-the-counter and for prescription use.*

#### INTENDED USE & SUMMARY

Urine based CLIA Waived/OTC Drug tests for multiple drugs of abuse range from simple immunoassay tests to complex analytical procedures. The speed, and sensitivity of immunoassays have made them the most widely accepted method to screen urine for multiple drugs of abuse.

The **MD DrugScreen THC One Step Marijuana Test Dip card** is a lateral flow chromatographic immunoassay for the qualitative detection of multiple drugs and drug metabolites in urine at the following cut-off concentrations in urine:<sup>1</sup>

| Test            | Calibrator                        | Cut-off (ng/mL) |
|-----------------|-----------------------------------|-----------------|
| Marijuana (THC) | 11-nor-Δ <sup>9</sup> -THC-9-COOH | 50              |

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

THC (Δ<sup>9</sup>-tetrahydrocannabinol) is the primary active ingredient in cannabinoids (marijuana). When smoked or orally administered, it 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 smoking marijuana 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-Δ<sup>9</sup>-tetrahydrocannabinol-9-carboxylic acid (Δ<sup>9</sup>-THC-COOH).

The **MD DrugScreen THC One Step Marijuana Test Dip card** is a rapid urine screening test that can be performed without the use of an instrument. The test is intended for over-the-counter (OTC) use as the first step in a two-step process to provide consumers with information concerning the presence or absence of the above stated drug in a urine sample. Information regarding confirmatory testing - the second step in the process, along with the materials for shipping a portion of the urine specimen to the laboratory for confirmation testing of a preliminary positive result, the second step in the process, is provided.

#### WHAT IS THE CUT-OFF VALUE AND APPROXIMATE DETECTION TIME?

| Drug(Identifier)                       | Cut-off level | Minimum detection time | Maximum detection time |
|--|---------------|------------------------|------------------------|
| 11-nor-Δ <sup>9</sup> -THC-9-COOH /THC | 50 ng/mL      | 2 hours                | Up to 5+ days          |

#### PRINCIPLE

The **MD DrugScreen THC One Step Marijuana Test Dip card** is a rapid chromatographic 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. Marijuana, if present in the urine specimen below 50 ng/mL, will not saturate the binding sites of the antibody coated particles in the test device. The antibody coated particles will then be captured by immobilized marijuana 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 marijuana level is above 50 ng/mL, because it will saturate all the binding sites of anti-marijuana 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 will generate a line in the test line region because of the absence of drug competition.

To serve as a procedural control, a colored line will always appear at the control line region if the test has been performed properly.

#### REAGENTS

The test device contains mouse monoclonal anti-marijuana antibody-conjugated particles and Marijuana-antigen conjugate. A goat antibody is employed in the control line system.

#### PRECAUTIONS

- For medical and other professional *in vitro* diagnostic use only.
- Do not use after the expiration date.
- The Test Device 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 Device should be discarded according to local regulations.

#### STORAGE AND STABILITY

Store as packaged in the sealed pouch either at room temperature or refrigerated (2-30°C). The Test Device is stable through the expiration date printed on the sealed pouch. The Test Device must remain in the sealed pouch until use. Keep away from direct sunlight, moisture and heat. **DO NOT FREEZE.** Do not use beyond the expiration date.

#### SPECIMEN COLLECTION AND PREPARATION

##### WHEN TO COLLECT URINE FOR THE TEST?

The minimum detection time is 2 hours, so you may collect urine samples 2 hours after suspected drug use.

##### HOW TO COLLECT URINE?

- Urine directly into the provided urine cup.
- Open the Labeled Vial and carefully pour the urine specimens from the urine cup into the Labeled Vial. Fill the vial to about two thirds (2/3) full and tightly close the cap. This Labeled Vial urine sample is for shipping to the laboratory for confirmation testing. Make sure that the number on the Labeled Vial matches your personal Identification Number.
- The residual urine sample in the urine cup is for your self-testing.

##### Specimen Storage

Urine specimens may be stored at 2-8°C (or up to +8 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

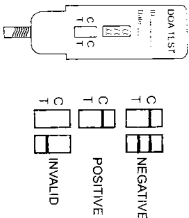
##### Materials Provided

- Test device
  - Descendants
  - Package insert
  - Urine cups
- The below contents only included for the OTC use:
- Labeled Vials for shipping preliminary sample to the laboratory for confirmation
  - Plastic transportation bags
  - Mailing boxes
  - Personal identification numbers

##### DIRECTIONS FOR USE

**Allow the test device, and urine specimen to come to room temperature [15-30°C (59-86°F)] prior to testing.**

- Remove the test device from the foil pouch.
  - Remove the cap from the test device. Label the device with patient or control identifications.
  - Immerse the absorbent tip into the urine sample for 5 seconds. Urine sample should not touch the plastic device.
  - Replace the cap over the absorbent tip and lay the device flatly on a non-absorbent clean surface.
  - Read results at 5 minutes.
- DO NOT INTERPRET RESULTS AFTER 5 MINUTES.**



#### INTERPRETATION OF RESULTS

(Please refer to the illustration above)

**NEGATIVE:** \* Two lines appear. One red line should be in the control region (C), and another apparent red or pink line adjacent should be in the test region (Drug/T). This negative result indicates that the drug concentration is below the detectable level.

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

**POSITIVE:** One red line appears in the control region (C). No line appears in the test region (Drug/T). This positive result indicates that the drug concentration is above the detectable 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 using a new test panel. If the problem persists, discontinue using the kit immediately and contact your manufacturer.

**Note:** There is no meaning attributed to line color intensity or width.

A preliminary positive test result does not always mean a person took illegal drugs and a negative test result does not always mean a person did not take illegal drugs. There are a number of factors that influence the reliability of drug tests. Certain drugs of abuse tests are more accurate than others.

**IMPORTANT:** The result you obtained is called preliminary for a reason. The sample must be tested by laboratory in order to determine if a drug of abuse is actually present. Send any sample which does not give a negative result to a laboratory for further testing.

##### What Is a False Positive Test?

The definition of a false positive test would be an instance where a substance is identified incorrectly by MD DrugScreen THC One Step Marijuana Urine Test. The most common causes of a false positive test are cross reactions. Certain foods and medicines, diet plan drugs and nutritional supplements may cause a false positive test result with this product.

##### What Is a False Negative Test?

The definition of a false negative test is that the initial 11-nor-Δ<sup>9</sup>-THC-9-COOH is present but isn't detected by MD DrugScreen THC One Step Marijuana Urine Test. If the sample is diluted, or the sample is adulterated that may cause false negative result.

#### QUALITY CONTROL

A procedural control is included in the test. A colored line appearing in the control line region (C) is considered an internal procedural control. It confirms sufficient specimen volume, adequate rehydrate mixing 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. Please contact our Technical Support at 1-866-592-5818 for controls that work with the device.

#### LIMITATIONS

- The **MD DrugScreen THC One Step Marijuana Test Dip card** 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.
- There is a possibility that technical or procedural errors, as well as other interfering substances in the urine specimen may cause erroneous results.
- 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.
- A positive result does not indicate level or intoxication, administration route or concentration in urine.
- 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.
- The test does not distinguish between drugs of abuse and certain medications.
- A positive result might be obtained from certain foods or food supplements.

#### QUESTIONS AND ANSWERS

- What does the Drug of Abuse Urine Test do?  
These tests indicate if one or more prescription or illegal drugs are present in urine. The testing is done in two steps. First, you do a quick at-home test. Second, if the test suggests that drugs may be present, you send the sample to a laboratory for additional testing.
- What is "cut-off level"?  
The cut-off level is the specified concentration of a drug in a urine sample. Above that concentration the test is called positive, and below that concentration it is called negative.
- What are drugs of abuse?  
Drugs of abuse are illegal or prescription medicines (for example, Oxycodone or Valium) that are taken for a non-medical purpose, including taking the medication for longer than your doctor prescribed it for or for a purpose other than what the doctor prescribed it for.
- How accurate is the test?  
The tests are sensitive to the presence of drugs in urine sample. These tests are not as accurate as lab tests. In some cases, certain foods and drugs may cause false positives as well as false negatives for those who use drug-testing kits.
- Does a preliminary positive screen test mean that you have found of abuse?  
This means that the test has reacted with something in the sample and the sample must be sent to the lab for a more accurate test.
- What should I do, if the lab test confirms a positive result?

If you have received a confirmed positive result, please consult with our staff on a proper course of action. We will help you identify resources who can help you. It is important that you remain calm and do not react in a negative way to the situation. If you do not believe the test result, please consult with your physician. They will have your background medical history and be able to provide you with detailed information on both the test and the meaning of the result.

MAILING A URINE SAMPLE TO THE LABORATORY FOR CONFIRMATION TESTING

1. Ensure that the labeled Vial is about two third (2/3) full and that the cap is tightly closed.
2. Check the label identifying the drug that was a preliminary positive result.
3. Be sure to write your Cell Phone Number on the mailing box that the laboratory can send you the message with the confirmed results along with the Personal Identification Number.
4. Place the labeled Vial in the plastic bag and seal the plastic bag.
5. Place the sealed plastic bag in the mailing box. Close the mailing box and secure it with packing tape. The mailing address for the laboratory is already on the mailing box. **Please note that the mailing box isn't pre-paid. You must attach the proper postage to have a carrier service deliver it.**
6. Place the mailing box in any US Postal Service Office.

ASSISTANCE

If you have any question regarding to the use of this product, please call our Technical Support Number 1-866-982-3818 (9:00 am to 5 pm CDT).

PERFORMANCE CHARACTERISTICS

Accuracy

80 clinical urine specimens were analyzed by GC-MS and by the MD DrugScreen THIC One Step Marijuana Test Dip card. Each test was performed by three operators. Samples were divided by concentration into five categories: drug-free, less than half the cutoff, near cutoff negative, near cutoff positive, and high positive. Results were as follows:

| Test       | Drug-free<br>(Less than half the cutoff concentration) | Near Cutoff<br>Negative<br>(Between 50% and the cutoff concentration) | Near Cutoff<br>Positive<br>(Between the cutoff and 50% above the cutoff concentration) | High Positive<br>(greater than 50% above the cutoff concentration) |
|------------|--|---|--|--|
|            | 0  | 0   | 13   | 26   |
| Operator A | 0  | 16  | 0  | 0  |
| Operator B | 0  | 0   | 12   | 26   |
| Operator C | 0  | 16  | 2  | 0  |
|            | 10   | 0   | 12   | 26   |
|            | 10   | 16  | 2  | 0  |
|            | 10   | 0   | 12   | 26   |
|            | 10   | 16  | 2  | 0  |

% agreement among positives is 95.8%  
% agreement among negatives is 100%

ANALYTICAL SENSITIVITY

Total 150 samples equally distributed at concentrations of: -50% Cut-Off; -25% Cut-Off; Cut-Off; +25% Cut-Off; +50% Cut-Off were tested using three different lots of each device by three different operators. Results were all positive at and above +25% Cut-off and all negative at and below -25% Cut-off for Marijuana. The cut-off value 50ng/mL for the device is verified.

CROSS-REACTIVITY

The following table lists compounds that are positively detected in urine by the MD DrugScreen THIC One Step Marijuana Test Dip Card Device.

| Drug                                     | Concentration (ng/mL) | % Cross-Reactivity |
|--|-----------------------|--------------------|
| MARIJUANA (THIC)                         | 50                    | 100%               |
| Delta-9-Tetrahydrocannabinol             | 50,000                | 0.1%               |
| 11-nor-delta-9-THC-carboxybenzoic acid   | 75                    | 67%                |
| C-11-nor-delta-9-THC-carboxybenzoic acid | 75                    | 67%                |
| 11-Nor-delta-9-Tetrahydrocannabinol      | 50                    | 100%               |
| 11-Hydroxy-delta-9-Tetrahydrocannabinol  | 5,000                 | 1%                 |
| 11-Nor-delta-9-Tetrahydrocannabinol      | 50                    | 100%               |
| Delta-THC-COOH                           | 50,000                | 0.1%               |

PRECISION

This study is performed 2 runs/day and lasts 25 days for each format with three lots. Three operators who don't know the sample number system participate in the study. Each of the 3 operators tests 2 aliquots at

each concentration for each lot per day (2 runs/day). A total of 50 determinations by each operator, at each concentration, were made. The results are given below:

| 11-nor-delta-9-THC-COOH concentration (ng/mL) | n  | Lot1 | Lot2 | Lot3 |
|---|----|------|------|------|
| 0   | 50 | 0    | 50   | 0    |
| 12.5  | 50 | 0    | 50   | 0    |
| 25  | 50 | 0    | 50   | 0    |
| 37.5  | 50 | 0    | 50   | 0    |
| 50  | 50 | 0    | 50   | 0    |
| 62.5  | 50 | 0    | 50   | 0    |
| 75  | 50 | 0    | 50   | 0    |
| 87.5  | 50 | 0    | 50   | 0    |
| 100   | 50 | 0    | 50   | 0    |

Effect of Urinary Specific Gravity

Fifteen (15) urine samples of normal, high, and low specific gravity from 1.000 to 1.035 were spiked with drugs at 25% below and 25% above cut-off levels, respectively. The MD DrugScreen THIC One Step Marijuana Test Dip card was tested in duplicate using ten 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 aliquot of negative urine pool is adjusted in the range of 4.00 to 9.00 in 1 pH unit increment and spiked with the target drug at 25% below and 25% above Cutoff levels. The spiked, pH-adjusted urine was tested with the MD DrugScreen THIC One Step Marijuana Test Dip card. 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 Marijuana, positive urine. The following compounds show no cross-reactivity when tested with the MD DrugScreen THIC One Step Marijuana Test Dip card at a concentration of 100 µg/mL.

Non Cross-Reacting Compounds

|                      |                           |                   |                  |
|----------------------|---------------------------|-------------------|------------------|
| Acetophenone         | Cofine(-)                 | (cortisone)       | Pseudoephedrine  |
| N-Acetylprocainamide | Creatinine                | Kynurenic Acid    | Quinine          |
| Acetylsalicylic acid | Dexamethasone             | Labetalol         | Quinine          |
| Amiloride            | Dextromethorphan          | Lopramide         | Salicylic acid   |
| Amoxycillin          | Desipramine               | Meprobamate       | Serotonin        |
| Amphetamine          | Difenhydramine            | Methoxyphenamine  | Sulfamethazine   |
| l-Ascorbic acid      | Digoxin                   | Methylphenidate   | Sulfadiazine     |
| Apomorphine          | Droperidol                | Nalidixic acid    | Tetracycline     |
| Aspartame            | Ethyl-p-aminobenzoate     | Naproxen          | Tetrahydrozoline |
| Atropine             | Ethopropazine             | Nicotinamide      | Theobromine      |
| Benzilic acid        | Estroene-3-sulfate        | Nitroglycerine    | Tolazamide       |
| p-Aminobenzoic Acid  | Erythromycin              | Noscapine         | Tetrahydrozoline |
| Bilirubin            | Fenpropion                | (Kynurenic)       | Thiamine         |
| Baclofen             | Furosemide                | (lactic acid)     | Thiazidine       |
| Calamine             | Gentamic acid             | (N-sphenbutazone) | Hydrochloride    |
| (cannabidiol)        | Hydroalazine              | Flavaverine       | D,L-Tyrosine     |
| (cannabinol)         | Hydrochlorothiazide       | Triacetone        | Tolbutamide      |
| (cannabinol)         | Hydrocortisone            | Trifluoperazine   | Triacetone       |
| Chloramphenicol      | -Hydroxyphenylacetic acid | Phenylazine       | Timothoprim      |
| Chlorpheniramine     | Hydroxyprogesterone       | Phenylazine       | D,L-Tryptophan   |
| Chlorpromazine       | Isoproterenol (-/-)       | Prethione         | Uric acid        |
| Cholesterol          | Isoxsuprine               | Prilicaine        | Venipall         |
| Cloindine            | Isoxsuprine               | Prilicaine        | Zoniprazac       |

Lay User Study

A lay user study was performed at three intended user sites with 140 lay persons. For a Dipcard device study, participants were 65 females and 75 males tested the Marijuana sample. They had diverse educational and professional backgrounds and ranged in age from 21 to >50. Urine samples were prepared at the following concentrations: negative, -75%, +4-50%, +25% of the cutoff by spiking (drugs) into drug free-pooled urine specimens. The concentrations of the samples were confirmed by GC/MS. Each sample was aliquotted into individual containers and blind-labeled. Each participant was provided with the package insert, 1 blind labeled samples and a device. The typical results are summarized below.

| % of Cutoff  | Number of samples | TIC Concentration by GC/MS (ng/mL) |          | Lay Person results |                 | The percentage agreement (%) |
|--------------|-------------------|------------------------------------|----------|--------------------|-----------------|------------------------------|
|              |                   | Positive                           | Negative | No. of Positive    | No. of Negative |                              |
| -100% Cutoff | 20                | 0                                  | 20       | 0                  | 20              | 100%                         |
| -75% Cutoff  | 20                | 12.5                               | 7.5      | 0                  | 20              | 100%                         |
| -50% Cutoff  | 20                | 2.5                                | 17.5     | 0                  | 20              | 100%                         |
| -25% Cutoff  | 20                | 37.5                               | 2.5      | 1                  | 18              | 95%                          |
| +25% Cutoff  | 20                | 62.5                               | 7.5      | 19                 | 1               | 95%                          |
| +50% Cutoff  | 20                | 75                                 | 2.5      | 20                 | 0               | 100%                         |
| +75% Cutoff  | 20                | 87.5                               | 2.5      | 20                 | 0               | 100%                         |

BIBLIOGRAPHY

1. Stewart DJ, Indur T, Lucassen M, Kolon W. Clin Pharmacol Ther. April 1979; 25 ed 464-264-8
2. Ample J. J. Anal. Toxicol. 1985; 9:241.
3. Hunkeler RL, CN Chang. Urine Testing for Drugs of Abuse. National Institute for Drug Abuse (NIDA). Research Monograph 73, 1986.
4. Tietz NW. Textbook of Clinical Chemistry W.B. Saunders Company, 1986; 1735.
5. FDA Guidance Document: Guidance for Premarket Submission for Kits for Screening Drugs of Abuse to be Used by the Consumer, 1997.

ADDITIONAL INFORMATION AND RESOURCES

The following list of organizations may be helpful to you for consulting support and resources. These groups also have an Internet address which can be accessed for additional information.

- National Clearinghouse for Alcohol and Drug Information www.health.org 1-800-729-6686
- Center for Substance Abuse Treatment www.health.org 1-800-662-HELP
- The National Council on Alcoholism and Drug Dependence www.ncadd.org 1-800-NCACALL
- American Council for Drug Education (ACDE) www.acde.org 1-800-488-DRUG

INDEX OF SYMBOLS

- Keep away from sunlight
- Store between 2°C and 30°C
- Keep dry
- Do not re-use