

# HEALTH-CHEM DIAGNOSTICS LLC

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## FREE RADICAL - Dip/Stream Test

A free radical is a molecule or element with an unpaired electron. Any molecule can become a free radical by either losing or gaining an electron. Molecules containing the uncoupled electrons are highly reactive. Once initiated, free radicals become involved in chain reactions that damage the lipid membrane of cells.

Free radicals play an important role, both in health and disease. Free radicals have been implicated in countless human disease processes. They are produced in biological systems in a number of ways.

Free radical damage may involve any cellular components and all are vital to the normal metabolic functions of the cell. The damage results in a series of damaging cellular and sub-cellular conditions. The genetic "machinery" of the cell can be damaged, which is a primary predisposing condition in the development of cancer. The membranes surrounding the cell's components are essential, dynamic structures important in the transit of nutrients and excretory products involved in cellular metabolism. Anything that affects these membranes will influence the health of the cell in positive or negative ways. When destructive free radical molecules come in contact with these membranes, they can damage the membrane. Damage to the membranes can result in disruption of cellular enzymes and nutrients, and malfunction of cellular metabolism. This sequence of events is part of the degenerative disease process in a variety of disorders.

There are 3 primary reasons for increasing free radical pathology over the last 100 years:

1. Modern refined food diets.
2. The increasing amounts of synthetic substances in diets, medicine and the environment.
3. Increasing numbers of diagnosed diabetics also are found to be subject to free radical pathology.

Administering anti-oxidant vitamins could be beneficial in minimizing oxidative stress for diabetics. Based on a considerable amount of study and research, it is apparent that free radicals have a significant impact on health. It should be clear that antioxidants are a necessary component for good health; however, it is not necessarily easy to determine if supplements should be taken by a given individual at a given time and if so, how much. One concern about free radicals should be to consume sufficient antioxidants to balance the metabolic processes.

### Overview

Antioxidants are essential to your body's defense against free radicals. Free radicals can attack the cells of your body, affecting the cardiovascular, neurological, and immune systems. Now you can monitor free radical activity with the Free Radical Dipstream, as you strive to strengthen your antioxidant levels.

The Free Radical Dipstream measures levels of lipid peroxides in urine, which is an indication of free radical activity in your body. Elevated levels of peroxides provide a good indication of your need for antioxidants, your body's main defense against free radicals.

### Frequently asked questions.

#### ***Why should I check for free radicals?***

Free radicals are the unstable molecules that, in large numbers, can attack the cells of your body. Having sufficient antioxidant levels helps to protect your body from free radical damage.

#### ***What are lipid peroxides?***

Lipid peroxides are fats that have been damaged by excess free radical activity. Measuring their levels indicates whether your body is getting enough antioxidants to protect itself from free radical damage.

#### ***How do lipid peroxides determine my antioxidant levels?***

Antioxidants are compounds that work to prevent free radical damage by inhibiting oxidation of cells. Research has shown that antioxidants are your body's strongest defense against free radical damage. Fruits and vegetables are an excellent source of antioxidants but do not provide enough protection.

### The Free Radical Dipstream is Simple and Easy to Use:

1. Urinate directly on the white absorbent tip of the test device with the first morning urine for a few seconds, or collect your urine in a clean glass container. Then dip the test into the urine container for at least 6 seconds, make sure the pad is thoroughly saturated but draining any excess urine on a piece of absorbent tissue (do not pass the arrow level). Lay the test device flat.

**Important:** When dipping the Dipstream into your urine to perform the test, be sure to hold it so that the urine level does not exceed the tip of the test device (the area above the test arrow on the label) the test will not work properly if the urine level exceeds this area. Do not use the test beyond the expiration date printed on the foil packet.

2. Wait approximately 5-10 minutes and observe the green control area changing to a red or pink. The color change indicates that a successful test is completed.
3. Compare the color observed in the test area with the colors on the included color chart to denote positive reaction(s), if any. Green to Blue color development, anywhere in the test area, indicates a positive reaction.
  - The higher the concentration of Free Radicals, the bluer the color of the positive. Weak positives are green.

The test pad is sensitive to the presence of Peroxides, which may be present in the urine due to elevated levels of free radicals. Color change of the test area to positive levels indicates a need to increase the amount of antioxidants consumed. Acceptable levels of free radicals in urine are determined to be less than 0.1mM per Liter of urine (0.1mM). This test is sensitive to 0.01mM.

**Notes:** Store at room temperature 59-86°F (15-30°C)

Do Not Freeze – For in-vitro use only – not to be taken internally  
KEEP OUT OF REACH OF CHILDREN

Certified ISO FDIS 13485:2003



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**Questions and Answer Section**

**Q. I am not sure I held the Free Radical Dipstream in my urine long enough. Will I get an accurate result?**

**A.** In order to receive an accurate result you should hold the test in your urine stream for at least 6 seconds and wait as long as 5 minutes and up to 10 minutes to read the result. If you see a color change from green to a reddish-pink, in the Control Window, the test has worked properly. If you fail to observe this color change then the test is considered invalid and a new test should be run.

**Q. Can the test result in the test window change after a certain length of time?**

**A.** It is best to read the test within 5-10 minutes; a positive result will not change within 10 minutes. However, some fading will be noticed after 10 minutes from when the test is started.

**Q. How will I know the test worked?**

**A.** There must be the formation of a red or pink color, from green, in the control area. If after 5-10 minutes you do not observe this change then the test did not work properly.

**Notes...**

While the test may be performed in any urine specimen, the first voiding of the morning will most likely contain the higher levels necessary for the most accurate results.

Medications, nutritional supplements or diets, which can produce free radicals, may produce false results. The test window should be negative (white) in the absence of any free radicals in the urine.

Results and information are for personal use only and are not intended to diagnose, cure, mitigate, treat, or prevent disease of other conditions; they are not intended to provide a determination or assessment of the

state of health. Many factors influence antioxidant status, and this product reviews only some of these factors. Always consult a licensed health care professional to interpret test results and/or make healthcare decisions.

\* "Clinical and Biochemical determinates of plasma lipid peroxide levels in type 2 diabetes", Annals of Clinical Biochemistry, Vol. 35, Part 3, May 1998

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\*\*"High-performance liquid chromatographic peak identification of 2, 4 - dinitrophenylhydrazine derivatives of lipid peroxidation aldehydes by photodiode array detection", Journal of Chromatography, Vol. 798(1-2): 117-123, March 6, 1998.

\*\*"The Oxidative stress: interest of its monitoring in clinical chemistry and problems of the choice of an appropriate parameter." Annales de Biologie Clinique, Vol. 55, Issue 1, Jan-Feb 1997 : 9-16.

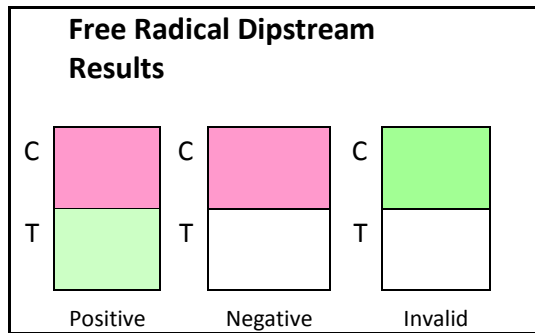
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\* "Urine hydrogen peroxide during adult respiratory distress syndrome in patients with and without sepsis" M. Mahru, MW Rooney, DJ Dries, LJ Hirsch, L. Barnes and MJ Tobin, Chest 1994; 105: 232-6, 1994, American College of Chest Physicians

\* "Estimation of hydrogen peroxide levels in the blood and urine of normal infants and infants with sepsis", AV Pherwani, VC Puri, V Malhotra – Dept. of Paediatrics and the Dept. of RIA, PD Hinduja National Hospital and Medical Research Center

\*\*"Three effects of ATP-MGCL2 on Lipid peroxidation in Ischemic and reperfused rabbit kidney", (H. Mocan, H. Sarihan, E. Erduran, A. Sarpkaya, O. Deger), Trabzon, Turkey. 2002



• **C= CONTROL; T= TEST**

Compare the color observed in the test area with the colors on the included color chart to denote positive reaction(s), if any. Green to Blue color development, anywhere in the test area, indicates a positive reaction.

\*Notes: An unused test resembles an invalid test with the test area slightly yellow. This, in no way, indicates the test is inoperable. In an invalid test, the top section remaining green is due to insufficient amount of urine sample.

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