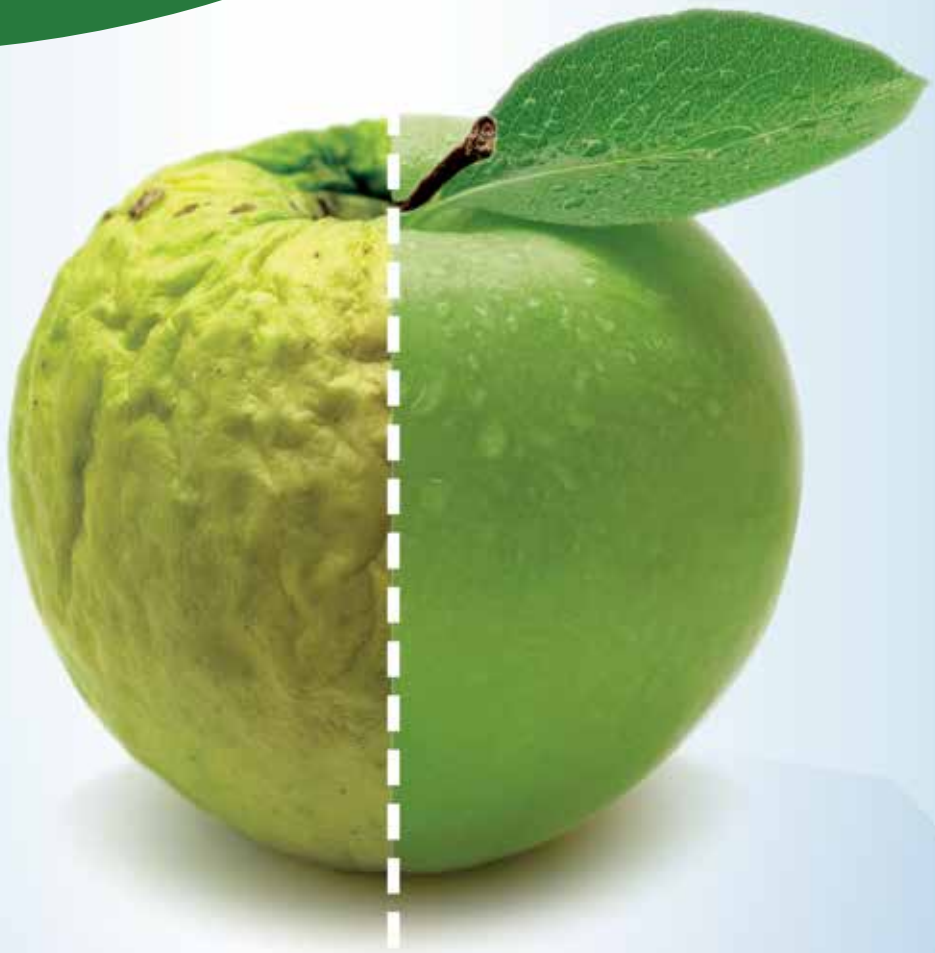
FRAS 5

The new frontier for the evaluation of oxidative stress



H&D

Life with less stress

Know the dangers of OXIDATIVE STRESS!

The body maintains a delicate balance between free radicals working to oxidize toxic compounds, and the antioxidant defence system.

When this balance is upset, we enter in "Oxidative Stress" which causes the appearance of cellulare lesions. If unchecked, Oxidative Stress can lead to accelerated aging, and to a greatly increased risk of disease.

Intervention at the point of crisis (disease) is obviously not an efficient strategy.

The earliest possible diagnosis of Oxidative Stress, at the onset of cellular damage, is now a reality with H&D's FRAS 5.

FRAS 5 enters the medical practice from vanguard scientific research

It is important to verify the necessity to intake antioxidants and to monitor their efficacy.

FRAS 5 is the most advanced system for measuring oxidative stress. **FRAS 5** uses plasma or serum instead of whole blood, and therefore, it is not influenced by the hematocrit that causes altered and thus inaccurate values.You need only one blood withdrawal to perform the two tests d-ROMs fast and PAT.

Reading times are the shortes: two and half minutes for d-ROMs fast test and 1 minute for PAT test. **PAT** is the most recent evolution in the test for the evaluation of antioxidants: it is the only test that eliminates the interferences of phosphates and therefore it is both the most specific and the fastest. The SAT test allows the evaluation of the antioxidant activity of saliva helping the prevention of problems and diseases in the oral cavity

Thanks to these real-time tests, it is possible to establish an accurate and reliable diagnosis of oxidative stress. By these assessment only, you can optimize **specific** antioxidant therapies and monitor their effectiveness.

d-ROMs fast test
is covered by international patents.

d-ROMs fast test - REFERENCE VALUES

250-300	***Normal value***
301-320	***Border line***
321-340	***Low*** *level of oxidative stress*
341-400	***Middle*** *level of oxidative stress*
401-500	***High level*** *of oxidative stress*
> 500	***Very high level*** *of oxidative stress*

Unit of measurement: U. Carr
1 U.Carr = 0.08 mg H_2O_2 /dl

- ✔ **d-ROMs fast test** (patended) is the evolution of the well-known d-ROMs test that increases the speed of execution only. In fact, the execution time is halved and changes from 5 minutes to **2 minutes and 30 seconds**.
- ✔ **d-ROMs fast test** measures the haematic concentration of ROM ("Reactive Oxygen Metabolites," Free Radicals) and it is precise, reliable, and repeatable.
- ✔ The Italian CNR (National Research Center) has confirmed that the results of the **d-ROMs test**, and the results of the ESR test ("Electron Spin Resonance", the gold standard) are, in fact, interchangeable.
- ✔ Test results are expressed in U CARR, the unit of measurement of Free Radicals and the only one used by the international scientific community.
- ✔ You only need a small drop of blood from the fingertip, to perform a **d-ROMs fast test**.

PAT test
is covered by international patents.

PAT test - REFERENCE VALUES

> 2800	***Very high*** *level of antioxidants*
2200-2800	***Normal value***
2200-2000	***Border line***
2000-1800	***Sligh shortage*** *of antioxidants*
< 1800	***Shortage*** *of antioxidants*

Unit of measurement: U. Carr

- ✔ **PAT test** (patended) is precise, reliable, and repeatable. It measures both the scavenger and antioxidant haematic concentrations in **only 1 minute**.
- ✔ **PAT test** is able to detect and to quantify in a specific manner the scavenger and antioxidant activities in a living organism.
- ✔ You only need a small drop of blood from the fingertip to perform a **PAT test**.

OSI Index
Oxidative Stress Index

OSI test - REFERENCE VALUES

< 40	***Normal***
41 - 65	***Borderline:*** *alert status, first symptoms of a possible failure*
66 - 120	***High:*** *critical situation, failure in progress*
> 121	***Very High:*** *very critical situation*

The OSI index (Oxidative Stress Index) sums up in a single value the information obtained from the d-ROMs test and the PAT test and makes easier and more immediate the interpretation of the results.
In order to evaluate the validity of OSI, we created a table of 366 OSI values derived by the same number of combinations of d-ROMs and PAT values that is summarized by the table on the left.
The OSI index is a perfect starting point for the evaluation of the oxidative stress by the doctor and for an easier understanding from the patient. It also allows for a fast and certain evaluation of the improvement or worsening by therapies and sickness.

OBRI test
Oxidative Balance Risk Index

OBRI test - REFERENCE VALUES

0,8 - 1,2	***Normal***
1,3 - 1,7	***High***
1,8 - 2,2	***Very High***
> 2,2	***Extremely High***

The OBRI index (Oxidative Balance Risk Index - patended) determines the status of the oxidative balance according to the cholesterol levels and is an interesting predictive index for the cardiovascular risk (*Belcaro, Cornelli, Finco*). The carotid intima-media thickness modification following atorvastatin is bound to the modification of the oxidative stress, *Journal of cardiovascular pharmacology and therapeutics, 2014*).
OBRI evaluates in a reliable, reproducible and repeatable way the cardiovascular risk connected to an altered oxidative balance.
OBRI is based on the determination of total cholesterol (CH), of Oxidatibe Index (OI) and of Protective Index (PI):

$$OBRI = \frac{OI}{PI} \, x \, 0{,}0455 \, x \, CH$$

The OBRI index accounts for OI and PI indexes and for the total cholesterol and represents an important indication of the cardiovascular risk.

SAT test
is covered by international patents.

SAT test - REFERENCE VALUES

< 1000	***Shortage** of antioxidants*
1000 - 1500	***Optimal values** of antioxidants*
1500 - 2000	***Normal values** of antioxidants*
2000 - 2500	***Border line***
> 2500	***Possible inflammatory processes***

Unit of measurement: mEq/L of Vitamin C of antioxidant - µMol/L

- ✔ **SAT test** is an innovative test for the measurement of antioxidants in saliva.
- ✔ It is fast (reading time: 1 minute), precise and repeatable.
- ✔ It is covered by international patents
- ✔ When the antioxidant capacity is poor, the oral cavity is not protected enough from the aggression of cariogenic and gram-negative bacteria that cause tooth decay and periodontal diseases.
- ✔ Knowing the antioxidant capacity of saliva is therefore useful in the prevention of caries and periodontitis.

OB Manager
the software for the diagnosis of Oxidative Stress.

- ✔ The interpretation of d-ROMs fast test and PAT test must be performed by a medical practitioner.

We recommend **OB Manager** software as an aid to the diagnosis of Oxidative Stress.

FEATURES

- *Performs risk assessment.*
- *Saves and files test results.*
- *Calculates the date to begin a regimen of vitamins and antioxidants, where appropriate.*
- *Highlights the date for the next Oxidative Stress check up.*
- *Prints custom reports for both doctor and patient.*

SCIENTIFIC VALIDATION OF FRAS 5 – supported by over 700 scientific references

Areas of interest and some applications of FRAS 5 in human medicine, according to the currently available scientific literature

Medical field	Conditions in which FRAS 5 has been use
• Antiaging and aesthetic medicine	Skin ageing
• Alternative medicine	Ozone-therapy; effects os transcutaneous ginkgo biloba administration
• Bronchopneumology	Chronic obstructive pulmonary diseases and other respiratory diseases
• Cardiology and angiology	Blood hypertension; coronary heart disease; venous insufficiency; atherosclerosis
• Gastroenterology	Crohn's disease
• Gynecology and Obstetrics	Taking the pill; menopouse
• Hepatology	Liver diseases
• Homeopathic medicine	Primary lymphoedema of low extremities
• Infectious diseases	AIDS
• Neonatology and pediatrics	Post-partum asphyxia; newborn's phototherapy; Down's syndrome
• Nephrology and urology	Chronic renal failure/dialysis; kidney transplantation
• Neurology and psychiatry	Alzheimer' disease; amyotrophic lateral sclerosis
• Nutrition and metabolism	Dietary supplementation assessment; diabetes; obesity; dyslipidemia
• Oncology	Radio and chemotherapy effects; antioxidant therapy efficacy
• Ophtalmology	Ageing-related maculopathy; cataract
• Otolaryngology	Ménière's sindrome
• Rheumatology	Rheumatoid arthritis
• Sport medicine	Cycling; football; swimming; golf; other sports
• Stomatology	Caries prevention; periodontal diseases control

FRAS 5 - Free Radical Analytical System

- *EASY TO USE*
- *BRAND NEW TECHNOLOGY*
- *SELF-INSTRUCTING TOUCH SCREEN DISPLAY*
- *RESULTS IN FEW MINUTES*
- *PRECISE*
- *CONVENIENT*

TARGET AUDIENCE:

The latest system by of H & D is available to physicians, health professionals and private laboratories.

GOAL

FRAS 5 performs a global evaluation of oxidative stress by means of the d-ROMs fast test and the PAT tests.

HOW DIFFICULT IS IT TO USE?

FRAS 5, is a dedicated photometer, with a built-in centrifuge, it allows the operator to perform the d-ROMs fast test and the PAT test in a simple, step by step procedure, guided by clear prompts on the display.
The built-in printer provides a "ticket" with the results and the date of testing. Software updates and additional tests, when available, are downloaded through a USB port.

SCIENTIFIC VALIDATION OF FRAS 5 – supported by over 700 scientific references

Targets and goals of d-ROMs fast test

TARGETS	EXAMPLES	GOALS
Healthy, clinically asymptomatic subjects, without any risk factors for OS*.	All the apparently healthy peoples and amateurs athletes.	To identify and to prevent OS* and its consequences (early aging, diseases).
Healthy, clinically asymptomatic subjects, with one or more risk factors for OS*.	Subjects exposed to radiation sources and/or air pollutants, subjects with overweight or obeses, heavy drinkers, smokers, subjects which made inadequate exercise, subjects which follow an unbalanced diet, etc.	To identify and to prevent OS* and its consequences.
Subjects with OS*-related diseases.	Patients with one or more of following diseases: Alzheimer's disease, Parkinson's disease, stroke, infarction, blood hypertension, peripheral vascular diseases, chronic obstructive pulmonary diseases, celiac disease, Crohn's disease, pancreatitis, hepatitis, AIDS, rheumatoid arthritis, chronic renal failure, mielodysplastic syndromes, diabetes, dislipidaemias, Down's syndrome, some cancers, etc.	To monitor OS* and to prevent its consequences. To monitor efficacy of the specific therapy on current disease. To monitor efficacy of the specific therapy, eventually combined with integrative antioxidant therapy, on oxidative stress which is associated with the current disease.
Subjects which undergo some treatments at risk for OS* generation.	Patients which undergo pharmacotherapy (chemotherapeuticals, hormone replacement therapy, pill, etc.), hemodialysis, organ transplantation, surgical bypass, etc.	To identify and to prevent OS* and its consequences. To monitor efficacy of eventual measures carried out in order to prevent tissue oxidative damage.

**OS: oxidative stress*

H&D
Life with less stress

Find more on H&D Tests and visit:
www.hedsrl.it

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