ATTACHMENT:

Useful remarks for patient and doctor, to be associated to the analytical results. Your doctor should interpret this report.

Cod. ID: 123456
CCV: 3e5
Date: 01/01/2013
Patient: Rossi Mario

Rapport de:
NatrixLab
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Aut.n. 67 del 26.01.10
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CELLULAR AGING FACTORS (C.A.F.)
(Profile of Cellular Ageing)

WHAT IS THE C.A.F. PROFILE?

In the twenty-first century, most people are still looking for answers to questions referring to our health and nutrition.

- Why take vitamins in the form of supplements if you plan to follow a healthy diet? Which vitamins and which supplements should you take and in what doses?
- Can you live longer and healthier through proper exercise and by taking supplements? Can you lose weight this way?
- What is meant by anti-ageing therapy? Would it suffice to make changes to your lifestyle, such as a new diet regime, regular exercise or other treatments?
- Can you reduce the risk of developing age-related diseases such as cardiovascular disease, diabetes mellitus type II, Alzheimer's, osteoporosis, arthritis or anxiety?
- If you are already suffering from a disease, can you change your lifestyle in an easy and realistic way to make yourself feel better?

These are the questions we are trying to answer with our test, which arose from a need felt by the population to age more slowly and more healthily. The CELLULAR AGING FACTORS test allows the assessment of oxidative stress and cellular ageing, based on the analysis of different biomarkers. Scientific tests have shown that some of these parameters can be altered to influence a person's wellbeing.

AGEING AND THE ENVIRONMENT

Recent studies have shown that our environment is able to strongly influence certain internal processes within the body and cause premature ageing.Alteration in these processes, if not properly monitored, can lead to inevitable cell damage.This is because in all living organisms, particularly in humans, there is a delicate balance between the production and the elimination of free radicals at the hands of our antioxidant defence systems. Free radicals are directly responsible for increased oxidative stress, which is normally a physiological process that occurs during the digestion of food. Under normal conditions, antioxidant agents are able to neutralise the potentially damaging free radicals and reduce the level of their activity.
A disturbance in the delicate balance explained above, due to conditions of excessive stress or chronic diseases, causes the onset of cell damage which, if severe and protracted, leads to an acceleration of the ageing process and the onset of numerous disorders.By improving lifestyle and diet, and sometimes also by decreasing our daily calorie intake, the problem can be reduced and may even be completely resolved.Ageing is also the result of modifications in gene expression within the human body. These changes lead to the deterioration of vital organs with age; research on longevity shows that reducing calorie intake can slow the deterioration of the body's physiological functions. Given that genetic factors are crucial to health, some studies state that diet and lifestyle play a key role in ensuring a healthy old age. Bad habits can lead to the onset of chronic diseases such as cardiovascular diseases (*hypertension, atherosclerosis, myocardial infarctions, strokes*), diabetes, neurological diseases, allergies, autoimmune diseases (*systemic lupus erythematosus, psoriasis, rheumatoid arthritis*), ageing of the skin with loss of elasticity and the appearance of wrinkles and cellulite.
There are four key processes related to all this:

- **Oxidation**: As already mentioned, these are reactions that lead to the formation of free radicals which cause damage to DNA, proteins and consequently to cells themselves.
- **Methylation**: This allows the regulation of gene expression (*stimulation* or *inhibition*). It is therefore essential at the DNA level and is related to the health of the heart and blood vessels.
- **Inflammation**: An immune response to cell damage which can be acute or chronic. In the latter case it may affect all organ systems.
- **Glycation**: The regulation of blood sugar (glucose concentration in the blood) and the factors that control it. Excessive glycation of proteins and lipids in tissue leads to loss of elasticity in proteins and lipids, with subsequent changes and abnormalities in their functions.

All of these processes, governed by various actors, refer to uniquely biochemical conditions, so in most cases they do not lead to subjective or objective clinical manifestations. Therefore they remain undiscovered, causing inevitable damage to the body, until the moment that specific tests such as the C.A.F. are performed to identify them.

METHYLATION

Methylation is a mechanism necessary for the proper formation and repair of DNA, for the regulation of cell growth, for proper gene expression, as well as for the production of several neurotransmitters (*serotonin, melatonin, adrenaline*). It has a fundamental role in the formation of the *myelin sheath*, in the production of hormones, lipids and proteins. If the body is lacking in certain methylation factors (eg: *group B vitamins*), essential functions of detoxification, repair and construction become damaged. Free radicals attack nucleic acids and in turn alter the processes of methylation. Among all of the various signals, the accumulation of homocysteine in the blood is an important marker of inefficient methylation. The three elements measured in our tests are homocysteine, folic acid and vitamin B12.

HOMOCYSTEINE: is an amino acid that is formed from methionine, and seems to be an important marker of cardiovascular disease risk. High levels can also be found in other neurological and muscular diseases, such as rheumatoid arthritis, systemic lupus erythematosus, hypothyroidism, and in patients undergoing certain drug treatments. Some of the factors that increase the levels of homocysteine are:

- Gender and genetic predisposition
- Tobacco use
- Excessive intake of coffee and alcohol
- Hormonal imbalances
- Diet lacking in vitamin B

FOLIC ACID: A very important vitamin for the body, particularly during the period of pregnancy. Its function lies in the multiplication of cells, as B vitamins which intervene in the formation of red blood cells (*the anti-anemic factor*). It is an important factor in balancing the nervous system. Recent studies have shown that taking this vitamin decreases the chance of heart attacks and diabetes and it has been found useful in preventing certain deformities in the nervous system of unborn babies (*spina bifida*).

Natural sources:

Vegetables

- Artichokes - Asparagus - Chicory - Brussels sprouts - Boiled Swiss chard - Green broccoli - Spinach - Green beans - Boiled cauliflower - Cherry tomatoes

Fresh and dried fruit

- Oranges - Pistachios - Strawberries - Almonds - Grapefruits - Clementines - Hazlenuts - Walnuts

Pulses

- Peas - Chickpeas - Kidney beans - Lentils

People who require additional amounts:

- Subjects with an inadequate dietary intake
- Elderly persons
- Pregnant women or women who are breastfeeding
- Women who use oral contraceptives
- Individuals who abuse alcohol and drugs

VITAMIN B12: A vitamin essential for the synthesis of haemoglobin. It works in conjunction with folic acid for a perfect haematopoiesis. A deficiency thus provokes symptoms similar to that of folic acid. A severe deficiency not only leads to anaemia, but can also provoke chronic fatigue syndrome. A proper dose of vitamin B12 increases the appetite and gives greater vigour, improves the symptoms of neuropathy caused by diabetes and accelerates the healing of cold sores or herpes zoster virus. Like folic acid, vitamin B12 has proved effective in treating bowel syndrome, accelerating recovery from viral and bacterial infections and sometimes also the postoperative course. Vitamin B12 alleviates neuropsychiatric disorders and prevents mental degeneration.

Natural sources:

- Fish meal - Oysters - Calf liver - Pig liver - Lean beef - Casein - Milk

People who require additional amounts:

- Vegetarians who have a deficiency of intrinsic factors
- Individuals suffering from gastroenteritis
- Patients with atrophy of the gastric mucosa
- Individuals with an inadequate nutritional intake
- Subjects who have had their ileum removed

INFLAMMATION

There are two types of inflammation, differing according to the duration of their presence within the body. Acute inflammation is the process that occurs after a trauma, injury or infection, following which the body tries to heal itself, but in doing so interferes with the functioning of our cells. Chronic inflammation, by contrast, is a condition of persistent irritation which may not cause symptoms for many years but may be more destructive to the vital tissues than acute inflammation. It effects the immune balance and also leads to the phenomena of glycation, causing free radical damage, oxidative stress and alteration of the balance of fatty acids typical to ageing phenomena.
Inflammation in the long run may cause the rupture of arterial plaques. Moreover, it can lead to the gradual death of brain cells. The *beta amyloid*, a protein which accumulate in conditions such as Parkinson's and Alzheimer's disease within the brain cells, sometimes works as a protective response to oxidative stress damage. The chronic diseases associated with inflammation are many and varied: cardiac conditions, such as stroke, myocardial infarction, atherosclerosis; allergies including sinusitis, eczema, and asthma; autoimmune diseases such as lupus erythematosus, psoriasis, rheumatoid arthritis; neurological conditions like bone pain and conditions arising due to surgical complications.
Cytokines and other inflammatory molecules involved in chronic inflammation which are studied in our tests are *interleukin 6* (*IL-6*), *the C-reactive protein* (*CRP*), Ferritin and the main families of *fatty acids*.

INTERLEUKIN 6: Pro-inflammatory cytokine plays a primary role in fever and in the acute phase of inflammatory response. IL-6 is produced in high concentrations in the presence of visceral fat (android obesity or "*apple*" type obesity). Excessive concentrations of IL-6 in the blood are predictive of cardiovascular disease and diabetes. This molecule stimulates hepatic production of another important marker of inflammation, the C-reactive protein, which further increases cardiovascular risk in patients. It has been shown that there is a correlation between the concentration of IL-6 and that of the C-reactive protein, both of which are involved in the pathogenesis of diabetes mellitus type 2 and infarction.

C REACTIVE PROTEIN : Produced by the liver in the acute phase of various diseases, inflammatory processes in bacterial and viral infection, during myocardial infarction, acute articular rheumatism, SLE and Crohn's disease. Elevated levels of CRP indicate that the body is subject to considerable stress. Currently this parameter is considered to be predictive of cardiovascular events: the higher the CRP levels, the higher the risk of having a myocardial infarction or stroke. It has also been shown that this value further increases the risk faced by individuals suffering from hypertension. It is important to note that elevated levels of CRP, in people with moderate to severe high blood pressure, may double the risk of heart attack or stroke.

FERRITIN: Ferritin is a protein that is found in all the tissues, but above all the liver, spleen, bone marrow, muscles and also small amounts in the plasma. The primary function of ferritin is to create a significant iron deposit in the organism. High ferritin levels can be associated with acute or chronic inflammatory states. When the ferritin level is low, it is advisable to eat more iron-rich foods: meat, pulses, fish, shellfish, nuts and fresh fruit, especially citrus fruits, to guarantee the right intake of ascorbic acid to the organism (vitamin c, which is important to absorb this mineral).

FATTY ACIDS: The term *fat* does not only refer to the visible fat deposits, which sometimes may cause aesthetic problems. Within each cell of our body there are other fats, which play important functions; *visceral fatty acids*, with metabolic, structural and energy functions. These are the precursors of substances similar to powerful local hormones (*eicosanoids*) and are important because they control inflammation, immune response and blood pressure. They can be classified as *saturated fatty acids* (*SFA*) and *unsaturated*. The latter category is divided into *monounsaturated fatty acids* (*MUFA*) and *polyunsaturated* (*PUFA*).

The fatty acids of the omega-3 class (n-3):

- *Alpha-linolenic acid* (C 18:3; LNA) is considered the progenitor of the fatty acids in the n-3 class. Recent studies indicate that a diet rich in ALA results in a reduced risk of mortality from cardiovascular disease.

- Eicosapentaenoic acid (C 20:5, EPA) has important anti-aggregating properties and competes with arachidonic acid to prevent its conversion to inflammatory metabolites.
- Docosahexaenoic acid (C 22:6, DHA) has a mainly structural function; its primary role is to ensure fluidity in the cell membrane. It plays an important role in cerebral development and maturation, as well as in retinal tissue, and even in the reproductive organs.
- *Docosapentaenoic acid* (C 22:5; DPA) Its levels in the blood are correlated with the improvement of insulin resistance in patients with type 2 diabetes.

The fatty acids of the omega-6 class (n-6):

- *Linoleic acid* (C 18:2, LA) is considered the precursor of fatty acids in the n-6 class. From it AA is derived, from which in turn stem molecules with pro-aggregating and pro-inflammatory functions. This fatty acid is present in high concentrations in seed oils.
- *Arachidonic acid* (C 20:4, AA) is the precursor of pro-inflammatory molecules. Appropriately balanced with DHA acid from the n-3 class, it is important for embryonic development and growth in children. When in excess, it can cause damage to cells as well as to mitochondria, as it gives rise to pro-inflammatory molecules when oxidized .

All this leads to the increased production of free radicals, an increase in oxidative stress and activation of NF-kB that determines the stimulus to the production of inflammatory cytokines such as IL-1, IL-6 and TNF alpha.

Monounsaturated fatty acids (MUFA):

- *oleic acid* : present in high concentrations in olive oil, reduces the levels of total cholesterol and helps to raise levels of HDL (good cholesterol).
- *palmitoleic acid*

Saturated fatty acids (SFA) :

- *Palmitic acid*
- *Stearic acid*

Are fats considered harmful to the body. They contain calories and cause stiffening in the cell membrane, reducing its permeability. Consumed in excess, they can lead to an increases in cholesterol, an increased risk of cardiovascular disease, obesity, the onset of diabetes and metabolic syndrome. The main sources of SFA are meat (beef and to a lesser extent white meat such as chicken and turkey), butter and curd cheese with prevalence in mature cheeses, hydrogenated fats like margarine, coconut oil and palm oil (used extensively in industrial products such as biscuits) and peanut seed oil.

Among the essential fatty acids (which must be introduced via the intake of foods) arachidonic acid (AA) and eicosapentaenoic acid (EPA) are considered very important to the wellbeing and health of the whole body. In reality, what is most important is to maintain a proper balance between omega-6 and omega-3. The quantity and quality of essential fatty acids introduced through our diet affects the amount of omega-3 and omega-6 present in the body and, consequently, the production of eicosanoids (*prostaglandins, leukotrienes and thromboxanes*). Maintaining the right balance between omega-6 and omega-3 is a significantly important factor in preventing certain diseases (for example cardiovascular disease). It is also important to certain physiological states such as pregnancy and ageing. Hence the relationship between AA and EPA indicates whether the patient's intake of omega-6 and omega-3 is balanced. Knowing this relationship allows the daily consumption of fatty acids to be optimised in order to maintain ratio values within their ideal parameters. The ideal values of the ratio between these two fatty acids (AA / EPA) also varies depending on the age of the individual and according to whether or not they take essential fatty acids as supplements. In particular, as can be seen from reference parameters relating to the AA / EPA ratio in plasma, in clinically healthy subjects who are taking omega-3, the ideal AA / EPA ratio varies between 3.7 and 5.1.

An ideal AA / EPA ratio means:

- Greater efficiency of the immune system
- The inhibition of inflammatory processes (which are the basis of many disabling diseases)
- A reduction in the level of circulating triglycerides
- A regression of the atherosclerotic process.

Ultimately it is believed that an optimization of this ratio leads to an improved state of wellbeing. According to the most recent research, when this ratio is not between the ideal values, patients must change their diets in order to increase the intake of omega-3, or more simply supplement their diet with compounds containing a high dose of omega-3.

GLYCATION

Glycation is triggered as a result of poor glucose and lipid metabolism, often caused by an unregulated and excessive diet. The end result is the amplification of oxidative stress, as the lipid and protein compounds are metabolised more slowly and with greater difficulty. Over time they suffer slow and complex rearrangements leading to the formation of advanced glycation end products (AGEs).
AGEs contribute significantly to the processes of cell ageing and pathological processes that lead to diseases such as Alzheimer's, cardiovascular complications of diabetes, atherosclerosis, hypertension, stroke, myocardial infarction, kidney disease, skin ageing, diseases of the connective tissue (aesthetic degeneration, or ageing skin and wrinkles and loss of tissue elasticity), and degeneration of the crystalline lens. The rate of accumulation of AGEs and the tissue alterations they produce are proportional to the percentage of blood glucose. Diet may be a further significant environmental source of AGEs. The amount of AGEs in foods depends on the cooking temperature, cooking time and on the presence of steam. It is important to take into consideration the phenomenon of glycation and oxidative stress and essential to prevent their formation and their effects by developing systems of defence to work against them. Age, obesity and physical inactivity can also alter the secretion of insulin, a hormone that carries sugars into cells. An increase in cholesterol reduces the sensitivity of target tissues (muscle, liver and adipose tissue) to the action of this hormone. Visceral fat plays a major role in the development of insulin resistance, as it frees substances that contribute to its development.
The relationship between blood glucose and insulin resulted in the development of the HOMA index (*Homeostasis Model Assessment*) which allows us to highlight a peripheral insulin resistance in individuals with a normal BMI, as well as in subjects who are obese or pre-diabetic. The normal range is between 0.23 and 2.5.

The markers considered in our tests are *glycemia* (blood sugar levels), *insulin levels*, *glycated haemoglobin* and *fructosamine*.

GLYCEMIA : Values of glucose concentration in the blood. It increases in diabetic subjects and decreases with prolonged fasting. If the supply of glucose combined with existing stocks is insufficient, blood sugar drops (*hyperglycaemia*) and cerebral effects begin to manifest themselves in dizziness and a feeling of exhaustion. The glycemic variations depend on several factors, one of the most important surely being diet. A balanced diet is certainly a key weapon in the prevention and / or treatment of hyperglycaemia. In addition, regular and sufficiently intense sporting activities lower blood sugar.

INSULIN LEVELS: Identifies the amount of insulin in the bloodstream. Faced with a shortage, glucose levels rise significantly (hyperglycaemia), and when it is secreted in excess there is a drop.

GLYCATED HAEMOGLOBIN: Molecules formed by the irreversible binding between glucose and haemoglobin. The higher the blood concentration of glucose, the greater the percentage of glycated haemoglobin. Contained in red blood cells, these circulate in the blood for the entire duration of their life, on average 90 to120 days.
Within certain limits, this is an absolutely normal process which does not involve any danger to the health of the patient. The problems are linked to the high blood glucose levels that accompany it.
Glycated haemoglobin becomes a much more useful parameter than common blood glucose in the diagnosis and monitoring of diabetes; it is in fact an expression of average glycemia in the long term rather than in a single moment, and as such is not subject to acute changes. The glycosylation of haemoglobin has been associated with cardiovascular disease, nephropathy and retinopathy.

FRUCTOSAMINE: Another glycosylated protein that interacts with and binds the glucose in the blood. When levels of sugar in the blood are high for a certain period of time, these molecules bind permanently to the albumin present. The dosage of fructosamine is useful for monitoring the average level of glucose over the last 2 to 3 weeks; in fact it gives a more immediate value of the concentration of glucose in the blood.

OXIDATION

A mechanism which allows us to defend from the attack of free radicals, which inevitably get formed as a consequence of the production of energy by our cells. Under normal conditions, there are within us endogenous antioxidants which limit the damage caused by free radicals by going to block their function. Some of them are endogenous, ie: they are produced by the body of which they are an integral part, while others, such as

vitamins C and E, are exogenous, ie: they must be introduced from the outside, for example through a proper diet.
In situations of stress or certain specific diseases, often these endogenous antioxidants are not sufficient to eliminate all free radicals formed and hence oxidative stress increases. It is therefore essential to have a diet rich in antioxidants.

CAUSES OF INCREASED PRODUCTION OF FREE RADICALS	
ETIOLOGY	**EXAMPLES**
ENVIRONMENTAL FACTORS	RADIATION, POLLUTION
PHYSIOLOGICAL STATES	PREGNANCY
LIFESTYLE	FOOD, ALCOHOL, SMOKING, INTENSE WORKING ACTIVITY, INCONGRUOUS PHYSICAL EXERCISE
PSYCHOLOGICAL FACTORS	PSYCHO-EMOTIONAL STRESS
DISEASES	INJURIES, INFLAMMATION, INFECTION VASCULAR DISEASE, NEOPLASIA
IATROGENIC FACTORS	PHARMACOTHERAPY, RADIOTHERAPY, X-RAYS
CAUSES OF REDUCTION IN ANTIOXIDANT DEFENCE	
ETIOLOGY	**EXAMPLES**
REDUCED EMPLOYMENT OF ANTIOXIDANTS	HYPOVITAMINOSIS, DIET, MONOTONY
REDUCED ABSORPTION OF ANTIOXIDANTS	MALABSORPTION SYNDROMES, CELIAC DISEASE
REDUCED CAPACITY IN UTILISING ANTIOXIDANTS	DEFICIT IN MECHANISMS OF CAPTURE AND / OR TRANSPORT
SHORTAGE OF ENZYMATIC AND ANTIOXIDANT SYSTEMS	GENETIC AND / OR IATROGENIC FACTORS
EXCESSIVE CONSUMPTION OF ANTIOXIDANTS	EXCESSIVE PRODUCTION OF REACTIVE SPECIES
ASSUMPTION OF MEDICATION	OVERLOAD OF THE MICROSOMAL SYSTEM
DISEASES	VARIOUS ENVIRONMENTAL FACTOR (Radiation and Pollution)
PHYSIOLOGICAL STATES	PREGNANCY

The diseases most commonly associated with oxidative stress are: asthma, atherosclerosis, rheumatoid arthritis, cellulitis, dermatitis, diabetes mellitus, hyperlipidemia, alcoholic liver disease, myocardial infarction, infection and inflammation from Helicobacter pylori, hyper-homocysteinemia, hypertension, ischaemia / stroke, SLE, Alzheimer's disease, Parkinson's disease, rheumatic disease, Crohn's disease, obesity, osteoporosis, psoriasis, chronic fatigue syndrome, etc. With our test we are going to determine both the percentage of agents that detect increased oxidative stress, such as *isoprostanes* and FRT (*Free Radicals Test*), but also those that help the body to protect us such as the ACT (*Antioxidant Capacity Test*).

ISOPROSTANES: A family of biologically active lipids, derived from the metabolism of arachidonic acid when attacked by free radicals. They have been recently identified as a new class of specific and reliable indexes for measuring oxidative damage. Increased levels of isoprostanes in serum and urine are associated with an increase in oxidative stress and consequently with an increased cardiovascular risk leading to conditions such as hypertension and atherosclerosis. In atherosclerotic plaques, isoprostanes are located in an amount ten times greater than normal vascular tissue. Elevated levels can also be found in smokers. Studies reveal a correlation between an increase in isoprostanes and an increase in blood sugar level. It has also been shown that individuals with high Body Mass Index (BMI) suffer from greater oxidative stress.

F.R.T. (Free Radical Test): A test that determines the presence of free radicals linked to oxygen. It is important to keep the level of oxidative stress under observation so as to ensure an optimum state of health as well as to combat cellular ageing and to assist in the treatment of degenerative diseases, cardiovascular diseases, skin ageing, etc. Harmful habits such as smoking can increase free radicals, while on the contrary, regular sporting activity and proper nutrition can help prevent them.

A.C.T. (Antioxidant Capacity Test):This test measures the capacity of antioxidants present in the bloodstream to reduce iron ions. This ability can be taken as the measure of the strength of antioxidants in the plasma analysed.The arbitrary range, estimated in "healthy" individuals is between 2200 µmoli / L and 4000 µmoli / L. A reduction of the tested values below this threshold can be correlated with a reduced efficiency of the plasmatic antioxidant capacity.

The objectives of the global assessment of premature ageing are manifold:

- Conservation of our health and prevention of cellular ageing
- The treatment of various diseases (especially those which are degenerative or cardiovascular, as well as those related to skin ageing, cases of psychological and neurovegetative stress and disorders of the reproductive sphere)
- The monitoring of effective metabolic deficiencies of each individual within the context of the same particular disease
- The evaluation of the effectiveness over time of a particular treatment performed

USEFUL TIPS

The ageing process can be influenced and slowed down through lifestyle: choosing foods which favour positive ageing, taking supplements chosen according to the results of new available tests, practicing certain types of physical activity and maintaining a proper composition of the body. On the other hand it is good practice (and definitely a good start towards improving your health) to avoid smoking, eating the wrong foods, not doing exercise and breathing polluted air.

REPEATING THE TEST

We recommend repeating the test after about 4 months. In the case of therapeutic drug monitoring, or pathological conditions, we recommend repeating the test according to the advice of your doctor.
In case of difficulties in interpreting the report or during the course of a pathological condition it is advisable to seek the opinion of a specialist able to provide targeted treatment support.

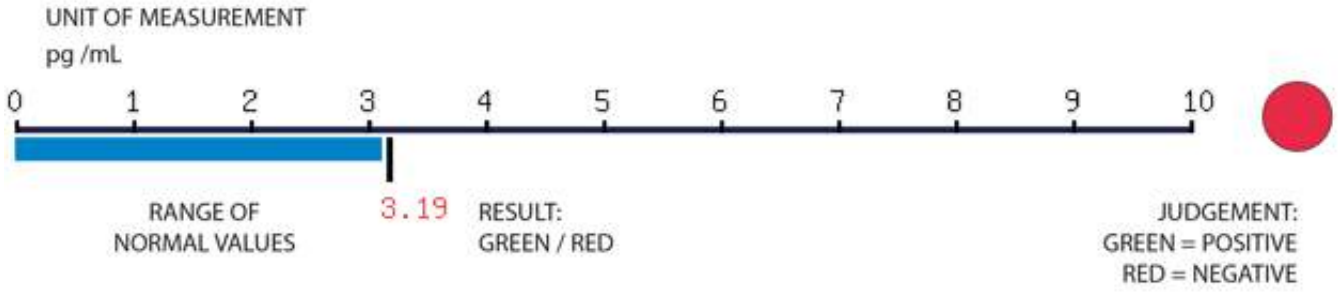
IMPORTANT

The test results must always be framed in a context relevant to the individual patient by his or her physician and regarding their specific clinical situation. This test can not be partially reproduced. The laboratory results, charts and explanations contained within this document should not be treated as a medical diagnosis. They represent only one tool available to the doctor in formulating a correct treatment, and may be used by integrating them with other elements found during a check-up or by other diagnostic tests.

GUIDE TO READING THE TEST

KEY:

- GREEN LIGHT: all values of a marker entering within the normal range
- YELLOW LIGHT: one or more values, fewer in number than half of the tests performed for that marker, which are outside the range.
- RED LIGHT: more than half of the values of that particular marker which are outside the range
- RANGE OF NORMALITY : indicated by the blue bar



TEST RESULTS:

Cod. ID: 123456
CCV: 3e5
Date: 01/01/2013
Patient: Rossi Mario

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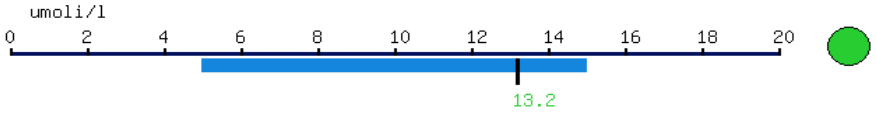
CELLULAR AGEING FACTORS (C.A.F.)
(Profile of Cellular Ageing)

Dott.ssa Ausilia Rausa

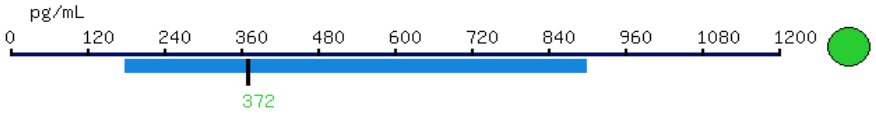
METHYLATION

Homocysteine



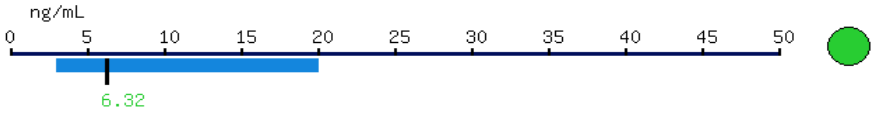
13.2 umoli/l
(5 - 15)

Vitamin B12



372 pg/mL
(180 - 900)

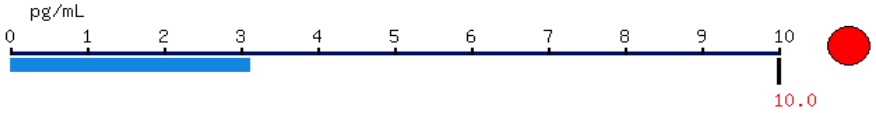
Folic acid



6.32 ng/mL
(3 - 20)

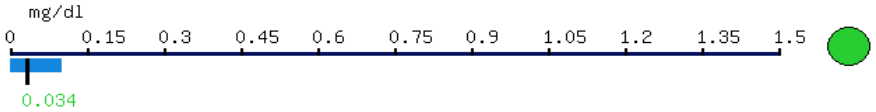
INFLAMMATION

IL-6



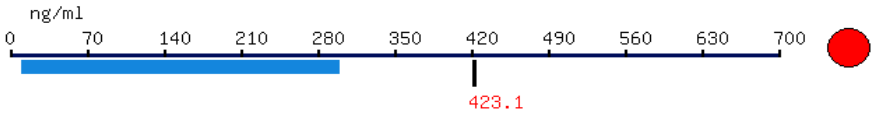
10.0 pg/mL
(0 - 3.12)

Hs-CRP



0.034 mg/dl
(0 - 0.1)

Ferritin



423.1 ng/ml
(11 - 300)

Percentage distribution of plasma fatty acids

Analyte	Description	Result (%)
Palmitic acid	C 16:0	**25.79**
Palmitoleic acid	C 16:1	**3.23**
Stearic acid	C 18:0	**7.59**
Oleic acid	C 18:1	**28.85**
Linoleic acid	C 18:2	**23.46**
Linolenic acid	C 18:3	**0.60**
Eicosatrienoic acid	C 20:3	**1.69**
Arachidonic acid	C 20:4	**6.61**
Eicosapentaenoic acid	C 20:5	**0.58**
Docosapentaenoic acid	C 22:5	**0.45**
Docosahexaenoic acid	C 22:6	**1.15**

	Result (%)	(*) Ideal Values (%)
Summation A.G. SATURATED - SFA	**33.38**	27,00-37,00
Summation A.G. - MONOUNSATURATED - MUFA	**32.08**	22,00-28,00
Summation A.G. - POLYUNSATURATED - PUFA	**34.54**	28,00-40,00

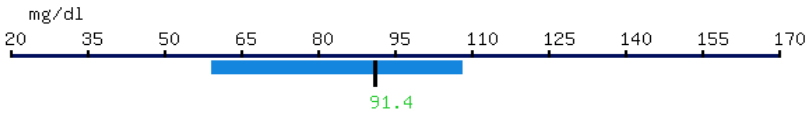
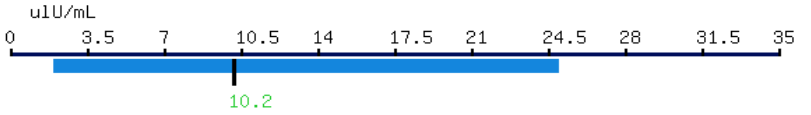
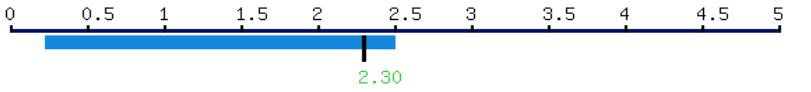
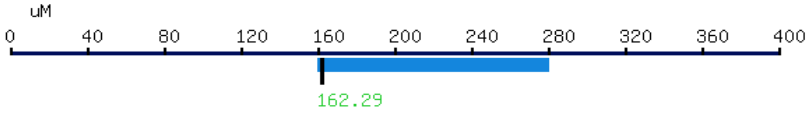
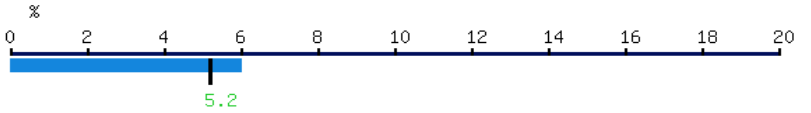
AA/EPA Ratio	**11.41**
AA/DHA Ratio	**5.75**

In clinically healthy subjects taking omega-3, the ideal AA/EPA ratio ranges from 3.7 to 5.1.

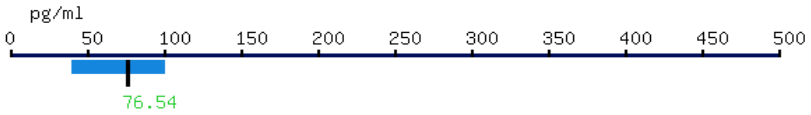
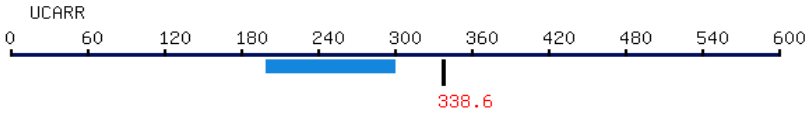
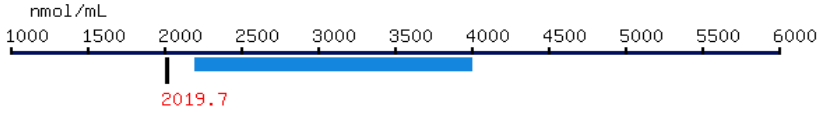
Test performed in external laboratory

(*) The ideal values are referred to clinically healthy Italian subjects. The minimum and maximum ranges are arbitrary and are the result of experimental studies

GLYCATION

Glycemia		91.4 mg/dl (59.46 - 108.11)
Insulin glycatior		10.2 ulU/mL (2 - 25)
HOMA index		2.30 (0.23 - 2.50)
Fructosamine		162.29 uM (160 - 280)
Glycated Hb		5.2 % (0 - 6)

OXIDATION

Isoprostanes		76.54 pg/ml (40 - 100)
F.R.T.		338.6 UCARR (200 - 300)
A.C.T.		2019.7 nmol/mL (2200 - 4000)

The homocysteine, vitamin B12, folic acid, ferritin, glycosylated Hb tests are carried out in an external laboratory.