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Executive Plus Check Sample

14.04.2006

Dear Mr. Sample,

Your samples have been tested using the OTA Analysis method.

Enclosed you will find an evaluation and interpretation of your measurement values.  
Should you have any further questions, please discuss them with your therapist.

We are pleased to see that you are actively working towards better health and taking preventative action against illness. However, please do not forget that the measurement itself does not constitute a therapy.

If the deficit in micro nutrient and preventative care is not remedied, then a long-term improvement in your condition is scarcely foreseeable. A promising therapy requires that the following points be observed:

- A healthy and balanced diet as a basis
- Individual supplementation (vitamins, fibre, amino acids, fatty acids, minerals and trace elements) in accordance with your personal risk level and health status
- Avoidance of detrimental factors such as smoking
- Achievement of contentment and harmony, for example through relaxation training (psychological components)
- Concerted physical exercise

Implementation of these principles leads to a greater feeling of well-being and health. With our personalized micro nutrients we accompany you along the path to achieving your goal.

With all good wishes for your health

SALUSMED ASIA LTD.

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## OTA Analysis Results

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Client	Executive Plus Check Sample		
Hight	180 cm	Weight	75 kg
Date of birth	10.10.1952	Body Mass Index	23
Analysis Nr.	Executive Plus Check Sample	Date of registration	<b>10.04.2006</b>
		Last Analysis	

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### Antioxidative Capacity

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With this measurement your blood test is subject to exposure to a specific load of free radicals. The more free radicals your body is able to intercept, the better it is able to protect itself from oxidative stress. The assessed value indicates the reserves which are available to detoxify the body of free radicals. With this test a whole range of Antioxidants are considered, which contribute to this radical detoxification. However, apart from the known vitamins C, E or Glutathione, for instance, uric acid also belongs to the antioxidant effective substances. With the measurement of the anti oxidative capacity the teamwork of the anti oxidative system can be determined, which would not be possible by single determination of Antioxidants. Too low values indicate a lack of anti oxidants. The reference area lies between 1.3 and 1.8 mmol/l.

Antioxidative Capacity                      1.47                                            Target range                      1.35 - 1.8 mmol/L

Your anti oxidative reserves are enough, the measured value lies within the reference area.

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### Glutathione Peroxidase GPx

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Our body is equipped with an efficient anti oxidative system which is based on enzymatic effects. The Glutathione peroxidase is a key enzyme in the anti oxidative metabolism because it continues the work of the SOD and converts reactive byproducts to water and oxygen. Glutathione peroxidase (GPx) catalyzes the reduction of hydro peroxides, including hydrogen peroxides, by reduced glutathione and functions to protect the cell from oxidative damage. In addition, the GPx can inactivate damaged fatty acids, so that these cannot initiate chain reactions and damage further molecules. So that this enzyme can also function optimally, it is depended on the presence by selenium and diminished Glutathione. The activity of the GPx assesses the presence and amounts of the important trace element selenium.

Glutathione Peroxidase GPx                      5.5                                            Target range                      > 6 U/mL

The activity of the Glutathione peroxidase is slightly below the target range. The concentration in selenium, the cofactors of this enzyme, has been increased in your supplement formulation.

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## Superoxide Dismutase SOD

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Like the Glutathione peroxides the SOD takes an important place in the enzymatic radical decontamination system. There are different sub-groups of this important oxidative enzyme in the human organism whose activity is dependent on the trace elements manganese, copper and zinc. All forms detoxify the agile O<sub>2</sub>-radical which is a cursor for radical damages. The activity of the SOD is also dependent on the load. This indicates an adaptive protection mechanism for the body. This will allow the diagnostic potential to determine the individual toxicity of a foreign agent in a body, such as mercury.

Superoxide Dismutase SOD	121.0		Target range	100 - 144 U/mL
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Your SOD - activity is within the target range.

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## Glutathione

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Glutathione is actually a tripeptide made up the amino acids gamma-glutamic acid, cysteine, and glycine. The primary biological function of glutathione is to act as a non-enzymatic reducing agent to help keep cysteine thiol side chains in a reduced state on the surface of proteins. Glutathione is also used to prevent oxidative stress in most cells and helps to trap free radicals that can damage DNA and RNA. There is a direct correlation with the speed of aging and the reduction of glutathione concentrations in intracellular fluids. As individuals grow older, glutathione levels drop, and the ability to detoxify free radicals decreases. Glutathione is most important intracellular Antioxidant which the body has available. It can detoxify by itself reactive connections and regenerate spent Antioxidants like vitamin C. Gluthione supports the enzymatic decontamination system as a reaction partner. Glutathione can reactivate other enzymes again which can no more fulfill their metabolic function due to oxidative processes. Glutathione also serves as a decontamination vehicle for the cell with whose help toxins can be removed from the body. The entire functionality of the cell mechanism is dependent on the sufficient concentration of intracellular reduced Glutathione.

Glutathione	850.0		Target range	> 800 µmol/L
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Your intracellular Glutathione content is within the target range.

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## Lipid peroxidation (8-iso-PGF<sub>2</sub> alpha, MDA)

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If free radical damage extends to the cells or other biological structures, we refer to oxidative stress. With the determination of the Lipid peroxidation it is ascertained, to what extent damage by free radicals of the cell membrane has already taken place. The cell membrane exists for an essential part of unsaturated fatty acids which can react very fast with radicals. The magnitude of damage can be assessed by looking at the concentration

of the oxidation products from these membrane fatty acids. The hereby established Isoprostane counts as an expressive marker to Oxidative stress. It works in the metabolism by constricting the blood vessels and can therefore contribute to the increase in blood pressure. Increased levels of Lipid peroxidation indicate weaknesses in the radical detoxification and with it raised Antioxidant needs.

8-iso-PGF2 alpha                      48                                            Target range                      20 - 80 ng/mmol Creatinine

The values of the Lipidperoxidation marker are in the target range.

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## Oxidized LDL-Cholesterin

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Cholesterol is a substance (a steroid) that is essential for life. It forms the membranes for cells in all organs and tissues in your body. It is used to make hormones that are essential for development, growth and reproduction. It forms bile acids that are needed to absorb nutrients from food. The LDL-cholesterol modified by oxidative stress - can no more be recognized and absorbed by the body cells. Oxidized LDL - cholesterol counts as the single most important risk factor in the event of cardiovascular disease. Oxidized LDL-cholesterol remains in the blood circulation and must be disposed of by killer cells (macrophages).

These macrophages take up so much oxidized LDL-cholesterol that, in the end, they become immobile and settle on the vessel wall. This leads to the development of foam cells and thus to the promotion of deposits in the blood vessels. Oxidized LDL- cholesterol strengthens at the same time the development of additional oxidative stress and with it also the increased build-up of more oxidized LDL. This process also strengthens the inflammatory processes and therefore accelerates arteriosclerosis. Antioxidants, as for example vitamin E can, in high doses, raise the resistance of LDL-cholesterol particles against oxidation and therefore favorably influence atherosclerotic events.

Oxidized LDL                                      72.2                                                                            Target range                                      < 55 U/L

Your percentage of oxidized LDL - cholesterol is higher than the target range. In your supplement formulation those Antioxidants which can improve the oxidation shield of the Lipoproteins have been added.







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## Lipid profile

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The lipid profile is a group of tests that are often ordered together to determine risk of coronary heart disease. The tests that make up a lipid profile are tests that have been shown to be good indicators of whether someone is likely to have a heart attack or stroke caused by blockage of blood vessels ("hardening of the arteries"). Heart disease is almost always associated with high cholesterol value; however, this assessment alone is rarely conclusive to predict coronary risk factors. Hence, a high total-cholesterol value is not necessarily indicative of an elevated cardiovascular risk. The lipid profile includes total cholesterol, HDL-cholesterol (often called good cholesterol), LDL-cholesterol (often called bad cholesterol), and triglycerides. Sometimes the report will include additional calculated values such as HDL/Cholesterol ratio or a risk score based on lipid profile results, age, sex, and other risk factors. The cholesterol is transported in the blood by different particles: LDL cholesterol circulates in the blood and is taken up by the cells. Oxidation-altered LDL-cholesterol which is created by either a surplus in free radicals or a deficiency in Antioxidants - can deposit on the artery wall. HDL cholesterol transports

cholesterol from the tissue back to the liver, hence, it is referred to as " good cholesterol ". In combination with the values of the neutral fats (Triglycerides) we can generate a value spectrum which can be an indicator for the assessment of the cardiovascular risk factors. The computed quotients total- cholesterol / HDL and LDL/HDL are portrayed in this review as graphic chart.

Total cholesterol	5.87		Target range	3.9 - 6.0 mmol/L
LDL-cholesterol	3.90		Target range	0.2 - 3.8 mmol/L
HDL-cholesterol	1.04		Target range	1.0 - 1.5 mmol/L
Triglycerides	1.87		Target range	0.5 - 2.25 mmol/L
Quotient T-Chol / HDL (calculated)	5.64		Target range	0.0 - 4.6
Quotient LDL / HDL (calculated)	3.75		Target range	0.0 - 3.0

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## Homocysteine

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Homocysteine is an amino acid in the blood. Too much of it is related to a higher risk of coronary heart disease, stroke and peripheral vascular disease (fatty deposits in peripheral arteries). Homocysteine is a by-product of the protein metabolism. The homocysteine itself is not required by the metabolic process - to the contrary - it has so many unfavorable qualities that the body tries to hold the concentration as low as possible. However, for this the body needs enough B vitamins. Homocysteine is considered an independent risk factor to the onset of atherosclerotic disease. A lower value of homocysteine indicates a lower risk for cardiovascular disease. Other evidence suggests that homocysteine may promote atherosclerosis (fatty deposits in blood vessels) by damaging the inner lining of arteries and promoting blood clots. However, a causal link hasn't been established. New investigations also confirm the connection of raised homocysteine levels with dementia, especially Alzheimer disease. Moreover, homocysteine is probably involved in the origin of other disease such as osteoporosis. Hence, this value gains increasingly in diagnostic importance. Besides genetic factors, a deficiency in vitamins B6, Folic acid and B12 is responsible for a rise in homocysteine levels. The risk factors can be considerably lowered by the taking these vitamins regularly.

Homocysteine	13.3		Target range	< 10 µmol/L
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Your homocysteine level lies clearly outside the target area, the dosage in B vitamins has been raised, and you should analyze the value after 2 months.

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## Lipoprotein (a)

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The Lipoprotein (a) is a fat molecule related to the LDL. It promotes the development of atherosclerotic changes of the vessel walls. (Atherosclerosis is a condition in which fatty material is deposited along the walls of arteries. This fatty material thickens, hardens, and may eventually block the arteries.) In addition, it influences the blood coagulation and promotes the inclination to the thrombosis development.

Lipoprotein (a), a risk factor for cardiovascular disease, is in the focus of scientific interest. Studies have shown that patients with coronary heart disease show clearly increased Lp (a) concentrations. If the Lp (a) concentration is higher than 30 mg / dl, the KHK risk rises 2.5 times. If at the same time there is an

elevated LDL concentration of more than 3.9 mmol/l (150 mg / dl), the KHK risk increases even 6 fold. The level of the Lp (a) is different individually and is determined by genetic factors. Lp (a) is not influenced by Lipid reducers, however, scientific research has shown that higher doses of vitamin C, Niacin (vitamin B3), L-cysteine and Omega-3 fatty acids can contribute to reducing Lp (a) levels.

Lipoprotein (a)	17.2		Target range	0 - 30 mg/dL
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Your Lp (a) is in the target range

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### CRP ultrasensitive

This tests the highly sensitive C-reactive protein (hs-CRP) test. CRP is an inflammatory marker found in the blood. Several studies have demonstrated that increased concentrations of CRP appear to be associated with increased risk for coronary heart disease sudden death and peripheral arterial disease. The determination of the C-reactive protein is known in the assessment of acute inflammations for a long time. Since it is known that also with the onset of cardiovascular disease, inflammation reactions are also involved, this parameter has won new interest. However, the inflammatory reactions in the blood vessels cause only one slight increase of the CRP value, thus highly sensitive assessment methods are required. Numerous studies show that CRP is useful as a prediction factor for cardiovascular risks at all stages of this illness, as well as for the risk evaluation of healthy persons. This value is independent of other risk factors. Condition for the interpretation is the absence of inflammatory illnesses or acute infections.

CRP ultrasensitive	0.08		Target range	< 1 mg/L
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Your CRP is in the target range

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### Relative cardiovascular risk

Based on the risk factors analyzed in this evaluation we have projected the cardiovascular risks.

Risk	16		Target range	<= 20 %
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Your cardiovascular risk is not raised, your supplements formulation has preventive effect in this area.

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### Pyridinium Crosslinks

Throughout your lifetime, old bone is removed (resorption) and new bone is added to the skeleton (formation). During childhood and teenage years, new bone is added faster than old bone is removed. As a result, bones become larger, heavier, and denser. Bone formation continues at a pace faster than resorption until peak bone mass (maximum bone density and strength) is reached around age 30. After age 30, bone resorption slowly begins to exceed bone formation. Bone loss is most rapid in the first few

years after menopause but persists into the postmenopausal years. Osteoporosis develops when bone resorption occurs too quickly or if replacement occurs too slowly. Osteoporosis is more likely to develop if you did not reach optimal bone mass during your bone building years. The bone, but also cartilages consist of collagen molecules which are stabilized by cross links. These cross links are in the bone principally as deoxypyridinoline (DPD), in the cartilage, however pyridinoline (PD). With accelerated decay these products of the cross interlinking (cross link) are delivered to the blood and are eliminated in the urine. The amount of the eliminated Pyridinium cross links are dependent on the magnitude of the dismantling processes. Because the excretions are influenced neither by the new synthesis of bone substance, nor by collagen-containing food components, deoxypyridinoline is considered the best marker for selectively assessing bone resorption. The normal relation of PD to DPD is below 4.5. Higher proportionality factors with at the same time high pyridinium values indicate a higher rate in dismantling processes of the cartilage like it happens, for example, with the rheumatoid arthritis.

DPD / Crea	8.0		Target range	0 - 10.0 nmol/mmol Creatinine
PD / Crea	27		Target range	0 - 52.0 nmol/mmol Creatinine

The excretion of deoxypyridinolin lies within the target range.

Quotient PD / DPD	3.4		Target range	0 - 4
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The relation of the Pyridinium - excretions lies in the target range.

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## Calcium and phosphate in urine and serum

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These markers serve with the bone-specific alkaline Phosphatase and the Deoxypyridinoline of the assessment of the bone material change and to the evaluation of possible deficiencies. Thus calcium is released, for example, by the bone dismantling in the blood and is eliminated via the urine.

Calcium serum	2.36		Target range	<b>2.25 - 2.60 mmol/L</b>
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## TSH (Thyroid Stimulating Hormone)

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TSH is produced by the pituitary gland in the brain and released into the blood. This hormone controls the thyroid gland and hence regulates formation of the thyroid hormones T3 and T4. The greater the circulation of TSH, the greater the level of T3 and T4 formation in the thyroid gland. To prevent an excessive level of these hormones from being produced, the T3 and T4 thyroid hormones formed inhibit the production and circulation of TSH in a feedback mechanism. Excessively high TSH values can be caused by hypothyroidism, as in this case the inhibition by T3 and T4 ceases and the pituitary gland produces increasing levels of TSH. However, the TSH value can also increase through failure of the pituitary gland, which then leads to hyperthyroidism.

Excessively low values can consequently be brought about by hyperthyroidism (inhibition by T3 and T4) or by an underproduction of the pituitary gland and the hypothyroidism associated with this. Recording the thyroid hormone level (for example FT4) is therefore important for an evaluation.

TSH	0.78		Target range	0.27 - 4.2 mU/L
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## IGF BP3, IGF1

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The growth in length of a person and the development of bones is determined by hormones. Human growth hormone (HGH or somatropin) plays a key role here. It is produced by the pituitary gland. The pituitary gland releases the growth hormone spasmodically into the blood circulation - the largest amount occurring during sleep. Human growth hormone stimulates the production of a growth factor referred to as IGF-1 in the liver, which promotes a growth in length in child bones and muscle tissue. The growth hormone also intervenes in the fatty acid and sugar metabolism and hence provides energy reserves for growth processes. The pituitary gland normally produces growth hormones throughout an individual's lifetime. At the same time though, the concentration of growth hormone in the blood of older people is lower than in younger people. IGF BP3 is a binding protein and serves as an indicator for growth hormone release.

IGF BP3	1.79		Target range 1.31 - 2.52 mg/L
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## DHEA-S

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DHEA and DHEA-S are mild steroid hormones and are formed from cholesterol predominantly in the adrenal glands. DHEA is, for the most part, converted into DHEA-S in the adrenal cortex. DHEA-S is a precursor hormone (prohormone) and is essential for production of the effective sexual hormones testosterone (in men) and estrogen (in women). However, DHEA also exerts autonomous, androgenic and anabolic (tissue-constructive) hormonal effects. It provides protection against bacterial and viral infections, i.e. it improves the immune defense and is believed to have a therapeutic effect for allergies and autoimmune diseases. The effects of DHEA on the central nervous system are important, as it stim cells are associated with this. The concentration of DHEA-S falls in adulthood by around 10 percent per decade.

At the age of 80, humans have only around 10 to 20% of their original concentration of DHEA-S.ulates serotonin formation in the hypothalamus. An improvement in learning ability and the degradation of fat

DHEA-S	329		Target range 20 - 415 mg/dL
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## Sexual Hormone Binding Globulin SHBG

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Steroid compounds, such as the sexual hormone testosterone, are bound to a protein in the bloodstream enabling them to be transported. SHBG is therefore a transport protein. In the blood, around 45% of testosterone is bound to sexual hormone binding globulin (SHBG) and around 55% is bound to albumin. Estrogens are also bound by these transport proteins, but the binding affinity is much lower. Only free (bio-available) testosterone can realize its effect at the target organ, with the result that the ratio of free testosterone to free estradiol is affected by the SHBG concentration.

SHBG	58		Target range 10 - 73 nmol/L
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## Estradiol

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Estradiol belongs to the group of estrogens and is formed in the ovaries. Estrogens have a variety of effects on our body as well as far-reaching effects on an individual's general psychic condition, as they determine the first half of the extremely complex female menstrual cycle.

The estrogens fulfill a further important effect by stimulating growth in the sex organs. Estradiol is responsible for development of the secondary female sexual characteristics (higher pitched voice, female breast, female hair growth and fat distribution patterns), whereby a considerable part of this physical form results from the distribution of bodily fat lying below the skin. Estradiol is therefore responsible for an enlargement of the subcutaneous fat depot. Estrogens also reduce sebum production and inhibit growth of the sebaceous glands. They are important for bones, as they increase the absorption and storage of calcium in the bones. Estradiol is responsible for the growth in length of bones during puberty. Estrogens reduce the level of cholesterol and lead to increased water storage in tissues.

Estradiol	41		Target range	< 54 ng/L
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## Testosterone

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Testosterone is the most important male sexual hormone. However, women also produce smaller amounts of testosterone in the ovaries and adrenal cortexes. Testosterone has various functions: In both men and women alike, it stimulates bone growth during the growth period. It is responsible for an increase in the muscular tissue and a rise in protein formation. At the same time, it reduces the level of cholesterol.

In men, testosterone is responsible for the formation and development of the male sex organs. It also ensures the typical male appearance: amongst other effects, it stimulates height growth and causes the voice to break, leads to increased bodily hair growth (for example the beard) and a greater muscular mass. In adult men, testosterone controls all sexual functions (potency, fertility, libido). It helps keep the male organism healthy and physically strong and has a crucial effect on mood and wellbeing. If women have too high a level of testosterone, this leads to more masculine characteristics in general and an increased sex drive. Testosterone is partly bound to a protein, sexual hormone binding globulin or SHBG. The activity of testosterone depends on whether the form is free of bio-available.

Testosterone	3.75		Target range	2.30 - 6.00 µg/L
Free Androgen Index (calculated)	22.42		Target range	> 15 %
Free Testosterone	0.0497 µg/L or 1.33 %			
Bioavailable Testosterone	1.293 µg/L or 34.48 %			

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## Creatinine in the serum

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This test is an indicator to determine if your kidneys are functioning normally and to monitor treatment for kidney disease. The taking of your supplements is important and condition for a measurable therapy success. Some nutrients can be given in higher dosage, and for their excretion a correct function of the kidneys is important. Creatinine tests can be used for the assessment of your kidney function. Measuring values in the green area indicate an unproblematic situation.

Creatinine in the serum                      74.0                                            Target range                      40 - 97 µm/L

Your Creatinine value is in the target range. This indicates an intact kidney function, your individual nutrients supplementation can be formulated without problems.

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## Uric Acid

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Uric acid is a by-product of the Purine. These are organic nitrogen connections which are needed for numerous material change occurrences in the body. Purines are parts of the hereditary substance (DNA, Desoxyribonucleinic acid) which is contained in all cell nuclei. Excessive Purines must be flushed out of the body daily; these are created by metabolic changes, as well as by the food supplied. For this purpose they are disassembled in the liver gradually and as an end product uric acid are created.

This uric acid must be eliminated by the kidneys. High uric acid values can release attacks of the gout. The onset of disease is favored above all by preponderance, plentiful meat consumption and consumption of alcohol as well as lack of exercise. Besides, the excessive uric acid is deposited in crystal form in the tissue, in particularly in the joints. Potential releases of an acute attack of the gout are eating or drinking excesses, stress, and physical over extension, injuries, dank weather. Also certain medicines (e.g., Diuretica) and fasting cures can lead to the attack of the gout.

Uric Acid    222        Target range    208 - 416 µm/L

Your uric acid value is in the target range.

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## Alkaline Phosphatase

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Alkaline phosphatase (AP) occurs in all cells of the body. The most significant locations of its activity are the bones and the liver. An increase in AP is a sign of liver, bile duct or skeletal illnesses. However, an increase can be normal in childhood as a result of bone growth or in the last trimester of pregnancy owing to production in the placenta. Lower values can indicate hypothyroidism.

Alkaline Phosphatase                              101                                                            Target range                              < 122 U/L

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## Gamma-GT

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Gamma-GT (gamma-glutamyl transpeptidase) is an enzyme occurring in all organs. Despite this, a high concentration in the serum always indicates liver cell damage or damage to the bile duct. Gamma-GT is the most sensitive parameter for determining liver damage. In the event of minor damage, it is sometimes the only evidence in the blood.

Gamma-GT	58		Target range	< 63 U/L
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## GOT, ASAT

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Glutamate oxaloacetate transaminase, abbreviated to GOT and also referred to as aspartate aminotransferase (ASAT), is an enzyme occurring in high concentrations in the cardiac muscle, skeletal muscle and liver. In the event of a cardiac infarction, the GOT value begins to rise after four to eight hours, the maximum value being attained after 16 to 48 hours. The level of the increase depends on the extent of the cardiac infarction. However, a simultaneous increase in GOT and GPT, indicates liver cell damage. Slightly increased values also occur on release from the skeletal muscle after heavy physical work or training.

GOT, ASAT	47		Target range	< 36 U/L
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## GPT, ALAT

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GPT (glutamate pyruvate transaminase), or ALAT (alanine aminotransferase), is a liver-specific enzyme which can also be found in gall duct diseases. Even minor damage to liver cells can result in a measurable increase in the blood.

GPT, ALAT	41		Target range	< 39 U/L
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## Lactate Dehydrogenase (LDH)

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Lactate dehydrogenase (LDH) is an enzyme and occurs in varying concentrations in almost all body cells. It is therefore an unspecific parameter which can be increased in a large number of illnesses. The total LDH measurable consists of 5 sub-enzymes which are demonstrative for definite organs. An increase primarily occurs during cardiac, muscular or liver diseases.

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Lactate Dehydrogenase (LDH)	208		Target range	< 250 U/L
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### Bilirubin

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Bilirubin is the yellow degradation product of hemoglobin, the red colorant of blood. In healthy individuals, bilirubin is degraded in the liver and then largely transported to the intestine with the gall and eliminated via excreta. Various liver illnesses such as liver inflammation or urinary obstruction in the gallbladder lead to an increased concentration of bilirubin. Bilirubin causes so-called jaundice when deposited in the skin.

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Bilirubin	2.3		Target range	< 11 mg/L
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### Total Protein

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The totality of all protein substances present in the blood is referred to as the total protein. A rise in this value can be discerned in chronic inflammation processes or if a definite protein share increases disproportionately. Lower values occur in the event of malnutrition, kidney disorders, burns and tumors. If the value falls below 4 g/dl, the bloodstream starts to become porous, blood fluid finds its way into the surrounding tissue, and so-called "edemas" result.

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Total Protein	67.0		Target range	62 - 85 g/L
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### Iron Metabolism

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Iron is one of the trace elements. The daily requirement is around 1.0 milligrams. In the human body, iron primarily serves as a building block of the hemoglobin responsible for oxygen transport. It is also a component of the muscle protein myoglobin and of enzymes as well as other proteins. It is predominantly stored in the liver, spleen and bone marrow.

Hemorrhages, various metabolic disorders, incorrect nutrition or malicious tumors can lead to premature consumption of the body's iron reserves. As oxygen is vital for all body tissue and this can only be bound and transported with the aid of iron, entire organ systems fail within a short time without it.

Depending on the iron occurrence, a distinction is made between serum and storage proteins, or transferrin and ferritin. The special protein substance transferrin is responsible for transporting iron in the blood to the tissue. The iron is then saved as ferritin in the tissue. To evaluate the iron balance, it is important to know the concentration of both iron substances.

If iron is lacking, correspondingly more transferrin is formed in order to mobilize the last iron reserves. Both the transferrin concentration in the blood and the level of iron in the transferrin are determined when examining for iron deficiency. On the other hand, the amount of ferritin ascertained in the blood roughly corresponds to the iron reserves in the body. If the amount of ferritin in the blood is lower than normal, this is an indication of iron deficiency.

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Iron	1.09		Target range 0.35 - 1.68 mg/L
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## Potassium

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This is a positively charged ion which plays a crucial role in the proper functioning of all cells in the body, above all the nerves and muscles.

Potassium occurs in very high concentrations inside cells, but only in very low concentrations outside the cells. As with sodium, the concentration gradient at the cell wall is actively maintained with the aid of the sodium potassium pump. The resulting voltage enables the transfer of information between the cells of the body.

Potassium is responsible for the fluid content in the cell, as it is by far the most frequently occurring ion there. It plays a role in protein degradation and carbohydrate utilization. Potassium controls the conduction of nerves and, in conjunction with calcium, the ability to contract of the skeletal muscles as well as the muscles of the heart and arteries.

In contrast to sodium, the potassium level in the body is freely exchangeable. In the event of potassium loss, e.g. as a result of diarrhea, the potassium content of the blood serum can be rapidly compensated with the help of reserves inside the cells. A risk results if a relevant potassium deficit in the cells cannot be detected owing to a normal serum potassium level present for a long period. The potassium level is closely linked to the acid-base equilibrium, as this influences the potassium distribution between the cell interior and cell exterior.

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Potassium	4.0		Target range 3.5 - 5.6 mmol/L
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## Sodium

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Like potassium, this is a positively charged ion. Sodium is the most important ion outside cells, i.e. in the extracellular space. The largest share of sodium is available as a reserve if sodium is lost short-term in the plasma as a result of sweating, diarrhea or vomiting.

Sodium usually enters the body as common salt. In primitive tribes, salt consumption is lower by more than half, with the result that high blood pressure illnesses very seldom occur in such societies.

Sodium has a high concentration outside the cell and a low concentration inside the cell. This concentration gradient is maintained in the cell membrane by means of a pump (sodium potassium pump) during energy consumption. The sodium transport is closely linked to the potassium transport.

The differences in concentration between both cations across the cell membrane are essential for proper functioning of the cell and information transfer between the cells.

Sodium has another important function in regulating the volume of free water in the body. The sodium and water balances are interlinked in a complex manner. Sodium binds water. If a lot of sodium is present in the blood or the extracellular space, a large volume of water also collects there, which can lead to high blood pressure. If too little sodium is present in the blood or extracellular space (because the kidneys have lost sodium for example), there will also be a shortage of fluid there. In the event of a water loss (e.g.

through fever), the sodium content increases relatively in the serum. When an individual vomits, the body loses water and sodium, with the result that excessively low serum sodium levels occur.

Sodium

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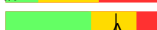






Target range 134 - 150 mmol/L

## Data sheet

### Client:

Last name: Mr. Sample  
Date of birth: 10.10.1952  
Sex: male  
Analysis Nr.: Executive Plus Check Sample  
Date of Analysis: 10.04.2006

	Reading	Graphics	Target range (specific)	Unit
Antioxidative Capacity	1.47		1.35 - 1.80	mmol/L
<b>Radical metabolism</b>				
Glutathione Peroxidase	5.5		> 6	U/mL
Superoxide Dismutase	121.0		100 - 144	U/mL
Glutathione	850.0		> 800	µmol/L
8-iso-PGF2 alpha	48		20 - 80	ng/mmol Creatinine
<b>Lipid profile</b>				
Total cholesterol	5.87		3.9 - 6.0	mmol/L
LDL-cholesterol	3.90		0.2 - 3.8	mmol/L
HDL-cholesterol	1.04		1.0 - 1.5	mmol/L
Triglycerides	1.87		0.5 - 2.25	mmol/L
Quotient T-Chol / HDL (calculated)	5.64		0.0 - 4.6	
Quotient LDL / HDL (calculated)	3.75		0.0 - 3.0	
<b>Cardiovascular risk factors</b>				
Homocysteine	13.3		< 10	µmol/L
Lipoprotein (a)	17.2		0 - 30	mg/dL
CRP ultrasensitive	0.08		< 1	mg/L
Oxidized LDL	72.2		< 55	U/L
Relative cardiovascular risk	16		<= 20	%
<b>Bone metabolism</b>				
Calcium serum	2.36		2.25 - 2.60	mmol/L
DPD / Crea	8.0		0.0 - 10.0	nmol/mmol Creatinine
PD / Crea	27.0		0 - 52.0	nmol/mmol Creatinine
Quotient PD / DPD	3.38			
<b>Hormone metabolism</b>				

TSH	0.8		0.27 - 4.2	mU/L
IGF BP3	1.79		1.31 - 2.52	mg/L
DHEA-S	329		20 - 415	mg/dL
SHBG	58		10 - 73	nmol/L
Estradiol	41		< 54	ng/L
Testosterone	3.75		2.30 - 6.00	µg/L
Free Androgen Index (calculated)	22.42		> 15	%
Free Testosterone	0.0497 / 1.33			µg/L / %
BAT	1.293 / 34.48			µg/L / %
<b>Scening parameters</b>				
Uric Acid	222		208 - 416	µm/L
Creatinine in the serum	74		40 - 97	µm/L
Alkaline Phosphatase	101		< 122	U/L
Gamma-GT	58		< 63	U/L
GOT, ASAT	47		< 36	U/L
GPT, ALAT	41		< 39	U/L
Lactate Dehydrogenase (LDH)	208		< 250	U/L
Bilirubin	2.3		< 11	mg/L
Total Protein	67.0		62 - 85	g/L
Potassium	4.0		3.5 - 5.6	mmol/L
Sodium	138		134 - 150	mmol/L
<b>Iron Metabolism</b>				
Iron	1.09		0.35 - 1.68	mg/L