N-Acetyltransferase 2 (NAT2)

163.87 € + TAX ***)**

The NAT2 functions to both activate and deactivate arylamine and hydrazine drugs and carcinogens. Polymorphisms in this gene are responsible for the N-acetylation process in which humans are segregated into rapid, indermediate or slow acetylator phenotypes.

Lack of NAT2 function is associated with higher incidences of cancer and drug toxicity. Rapid acetylators have a higher risk for colorectal cancer. (Osian G., Procopciuc L, Vlad L. Nat2 gene polymorphism and sporadic colorectal cancer. Prevalence, tumor stage and prognosis. J.Gastrointestin Liver Dis. 2006; 15(4):357-53)

Apolipopotein E (Apo E)

65.55 € + TAX ***)**

Apolipoprotein E is a apolipoprotein essential for the metabolism of triglyceride-rich lipo-protein consituents. it has been recognized for its importance in lipoprotein metabolism and cardiovascular disease.

ApoE genotyping may help guide lipid treatment when cardiovascular risks are high. It is used as an adjunct test to aid in the diagnosis of dementia and Alzheimer Disease, but an association has not been confirmed.

Abnormalities in the ApoE gene have been found in neonates with brain injuries and/or defects, and may increase the risk for Cerebral Palsy. (Kuroda MM, Weck ME, Sarwark JF, Hamidulla A, Wainwrigt MS. Association of apolipoprotein E genotype and cerebral palsy in children. Pediatrics 2007; 119(2):306-313

Test material: 1ml EDTA blood or 5 drops of whole blood on filter paper

***)** Tax will be added, depending on tax regulation.

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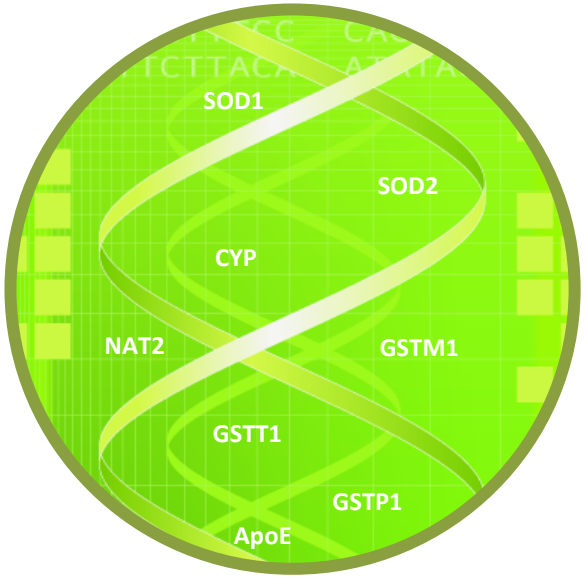
Micro Trace Minerals

Genetic Testing



Phase I Enzymes

While much is known about the role of Phase I enzymes in the metabolism of pharmaceuticals as well as their activation by environmental toxins, the role of Phase I detoxification in clinical practice has received less consideration than the Phase II enzyme systems.

Enzymes involved in the Phase I metabolism are Cytochrome P450, and the SOD Enzymes.

Cytochrome P450 1A1 (CYP1A1)

57.14 € + TAX ***)**

These enzymes are involved in the metabolism of drugs or exogenous toxins such as chemical solvents or drugs, including steroids. The amount of the CYP enzymes present in the liver reflects their importance in the detoxification process.

The Superoxide Dismutase (SOD) Enzymes are present in practically all cells and in extracellular fluids. The SODs are considered free radical scavengers, preventing oxidative damage and thus are considered important to delay the aging process. Genetic polymorphism in SOD enzymes and their altered expressions and activities are associated with oxidative DNA damage and an increased cancer risk.

(Khan MA, Tania M, Zhang D, Chen H. Antioxidant enzymes and cancer. Chin J Cancer Res 22(2);87-92. 2010)

Superoxide Dismutase 1 (SOD1)

57.14 € + TAX ***)**

SOD1 is also called the copper/zinc superoxide dismutase or CuZnSOD. It is present in the cytosol, the nucleus and the mitochondria. Its primary function is to act as an antioxidant enzyme, lowering the steady-state concentration of superoxide. High concentrations are found in liver, brain and testes, but also in red blood cells, pancreas and the lung. Inactivity of an SOD enzyme disturbs the cell metabolism.

A copper or zinc deficiency reduces the function and activity of the SOD1 enzyme.

Superoxide Dismutase 2 (SOD2)

57.14 € + TAX ***)**

This gene, also called MnSOD, is a member of the iron/manganese superoxide dismutase family. Mutations in this gene have been associated with idiopathic cardiomyopathy, premature aging, (IDC) sporadic motor neuron disease, and cancer. (NCBI Report. SOD2 superoxide dismutase 2. upd. May 2011)

SOD-Gene defects have been associated with diseases such as Amyotrophic lateral sclerosis (ALS) (Banzi et al. SOD1 and amyotrophic lateral sclerosis: mutation and oligomerization. PLoS 3/-/2008. NCBI; Furukawa Y et al. Complete loss of post-translational modifications triggers fibrillar aggregation of SOD1 in familial form of ALS. J. Biol. Chem. 283/35/2008)

A reduced Phase I Metabolism reduces the detoxification ability of a variety of xenotoxins including the potentially toxic metals.

Phase II Enzymes

Phase II reactions follow Phase I reactions. Also known as conjugation reactions (e.g. with gluthation or amino acids or sulfonates), the Phase II system is an important defense mechanism against intake of toxins. The Gluthation Transferases and N-Acetyltransferase 2 (NAT2) belong to the group of Phase II Enzymes.

A reduced phase II detoxification leads to the accumulation of toxins. Gene variants in the glutathione S-transferases (GST) may lead to poor management of the extremely radical intermediates from the Phase 1 responses and thereby transmit a predisposition for diseases associated with oxidative stress.

The glutathione S-transferases (GSTM1, GSTT1, etc.) are one family of enzymes responsible for the detoxification process, particularly mercury and other toxic metal compounds. These enzymes are also known to play a role in the detoxification of polycyclic aromatic hydrocarbons found in tobacco smoke.

Glutathion-S-Transferase M1 (GSTM1)

57.14 € + TAX ***)**

GSTM1 is produced in the liver. Through conjugation with glutathion, it functions in the detoxification of environmental toxins and products of oxidative stress, electrophilic compounds, including carcinogens and therapeutic drugs.

Individuals with the GSTM1 */0 Genotype do not have this functioning enzymes and are at greater risk to develop carcinomas.

Glutathion-S-Transferase T1 (GSTT1)

57.14 € + TAX ***)**

GSTT1 is found in lymphocytes and the liver, and is involved in the detoxification process of a variety of environmental chemicals, such as the ones used in polymer productions. Like all GST Enzymes, GSTT1 detoxifies cancer-causing chemicals as found in cigarette smoke. Approximately 38% of Kaukasions show a complete lack of GTT1 activity. This group with the GSTT1 */0 Genotyp shows a high risk for carcinoma of the lung, breast and larynx.

Glutathion-S-Transferase P1 (GSTP1)

57.14 € + TAX ***)**

GSTP1 is build in blood lymphozytes and tissues such as prostate, lung, breast and brain. It plays an important role in detoxification by catalyzing the conjugation of many drophobic and electrophilic compounds with reduced glutathion.

About 50% of the caucasion population shows complete loss of function, which aids the accumulation of reactive products and thus increases the risk of cancer and neurological diseases.