

# YOUR PARTNER IN BIOMARKER ANALYSIS



**TNO** triskelion bv

TNO Triskelion is a contract research organisation active in toxicology, analytical research and chemical risk assessment. The mission of TNO Triskelion is to guarantee the quality and safety of food ingredients, food products, chemical substances and pharmaceutical products. TNO Triskelion is a trusted partner for the food industry, offering fast and reliable services for both established biomarker analysis as well as those research questions where you would like us to unravel the analytical complexity to target your compounds of interest.

## **CAPABILITIES IN BIOMARKER DISCOVERY AND ANALYSIS**

We have a strong scientific track record in analytical studies on the health benefits or disease reduction properties of food ingredients. Depending on your specific needs we provide tailor-made services, combining sample integrity knowledge with the right selection of analytical platforms and a targeted approach in data handling and interpretation.

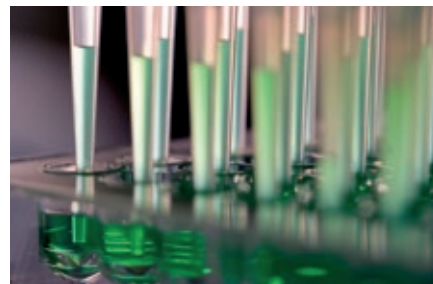
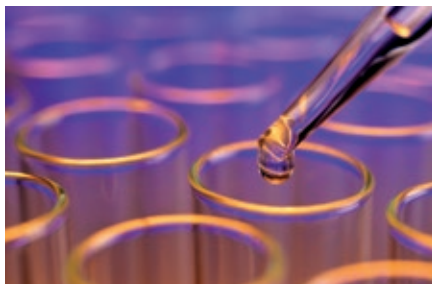
Sample handling experience include all biofluids, tissues, hair and cell culture material.

Our platforms are chosen and designed with a focus on cardiovascular diseases, metabolic syndrome, the management of obesity, satiation, satiety and weight, osteoporosis and oxidative stress.

## **Examples of tailored projects are:**

- Metabolic profiling as well as multi-target methods for specific classes of metabolites
- Identification of specific metabolites using high-resolution MS
- Biomarker discovery and biological validation from animal disease models to man (and vice versa)

In relation to data handling and interpretation, we have practically all that it takes, including chemometrics, algorithms for data preprocessing (e.g. deconvolution) and modelling and statistics, (e.g. PCA, PLS, PLS-DA). On request, we can also help you with the Design Of Experiments (DOE), which ensures that you gain maximum data output from minimal experimental input.



Typical application areas are:

- metabolomics/biomarker discovery and systems biology
- exchange sensory analysis with instrumental analysis
- discovery of quality determining substances in food
- toxicological assessments

#### **ANALYTICAL CAPABILITIES**

TNO Triskelion's food quality laboratories work with GLP compliance and ISO/IEC 17025 accreditation (see the accreditation scope for details on [www.triskelion.nl](http://www.triskelion.nl)). The TNO Triskelion laboratories are equipped with modern analytical instrumentation, including the latest LC-MS and GC-MS equipment, Multiplex Sector Imager 2400 and Luminex 200 (Linco Plex), Biacore T100, Spectramax, RT-PCR, Wallac Microbeta and other radioactivity counters along with an Accelerator Mass Spectrometer to determine <sup>41</sup>Ca as bone-turnover biomarker.

Our dedicated platforms target the following compound groups:

- free fatty acids and polar lipids (e.g. (lyso-) phosphatidylcholines, sphingomyelins);
- neutral lipids (e.g. triglycerides, diglycerides, ceramides and free cholesterol);
- bile acids (LCA, CDCA, DCA, UDCA, CA, GCDCA, GCA and many others);
- amino acids and amines (primary and secondary);
- endocannabinoids (AEA, 2-AG, o-AEA, DLE, DEA, NADA, PEA and others);
- eicosanoids (6-keto-PGF1a, PGF2B, 8-iso-PGF2a, thromboxane B2 and others);
- (sugar-) nucleotides, sugar phosphates, co-enzyme A esters and other polars;
- oligosaccharides (Siallactose, galacto-oligosaccharides and others);
- organic acids (short chained fatty acids and others);
- metabolite profiling (global GCXGC-MS) of up to 1500 different metabolites.

## **WWW.TRISKELION.NL**

#### **TNO TRISKELION BV**

TNO Triskelion is a contract research organization active in toxicology research, analytical chemistry and chemical risk analyses. The mission of TNO Triskelion is to guarantee the quality and safety of food ingredients, chemical substances and medicines. TNO Triskelion is a subsidiary of TNO, the Netherlands Organisation for Applied Scientific Research.

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