

VAPOR-X



Volatile Analysis Platform for eXtended matrices in health and disease

A high-end GCxGC-QTOF-MS analytical platform at the University of Antwerp, supporting high-resolution analysis of volatile and semi-volatile compounds for healthcare applications.

Situation before

Volatile organic compounds (VOCs) and semi-volatile compounds (SVOCs) are metabolic byproducts of human physiology. These compounds are excreted in several biological matrices like breath, sweat, urine, faeces and blood. Molecular 'omics' analysis of these volatiles can thus be used to non-invasively monitor human health.

However, most analytical platforms lack ultralow detection limits and sufficient resolution, hindering accurate identification and quantification needed for VOC biomarker discovery, pathway analysis, and compound monitoring. VAPOR-X addresses this gap. Using state-of-the-art, high-throughput TD-GCxGC-QTOF-MS technology, it combines four complementary injectors, with the unique possibility to analyse, identify and follow-up different sample types (breath, biopsies, cells, faeces, blood) on a single device from one or more patients.

VAPOR-X



Technology

The platform integrates several advanced components:

- **Tube conditioner (TC-20; Markes International):** automated and simultaneous conditioning and dry-purging of up to 20 thermal desorption tubes for the analysis of gaseous samples.
- **Thermal desorber (TD100-xr; Markes International):** a high-throughput platform for the analysis of sub-ppt levels of gaseous samples.
- **Micro chamber/thermal extractor (μ -CTE™, Markes International):** analysing headspace emissions from up to four samples simultaneously from cells, tissues and liquids.
- **PAL3 series II RSI 120 autosampler (Agilent Technologies):** combines liquid, headspace, and Solid Phase Microextraction (SPME) injection into one instrument.
- **Agilent 8890 GC (Agilent):** supports multiple sample inlets, four detectors and four detector signals, with protection against gas contaminants.
- **Agilent 7250 GC/QTOF (Agilent):** Fast acquisition of accurate, reproducible and sensitive detection of accurate mass data with integrated pathway analysis.

For more information

contact

valorisatie@uantwerpen.be

or visit our website



About the researchers

The Laboratory of Experimental Medicine and Pediatrics (LEMP) at the University of Antwerp performs innovative research related to inflammation in a multidisciplinary setting. LEMP houses the Volatomics Lab specifically focusing on the analysis of (semi)-volatiles with proven expertise in cancer research, in vitro research and environmental research. LEMP collaborates with the Toxicology Centre, focusing on steroid analysis using the platform.

Partners we search for

Academic, clinical, pharmaceutical, and biotechnology partners can use this facility to study VOCs as diagnostic, predictive and monitoring markers of health and disease. The platform supports a wide range of sample types (breath, faeces, blood, cells and tissues), in both human and animal experiments.