FRONTAGE

EUROPE

Metabolite Profiling and Identification Services

At Frontage Europe, our scientific staff applies state-of-the-art techniques and best-in-class approaches to generate data for critical milestones and decision-making during drug discovery and development.

Frontage Europe provides **comprehensive metabolite identification services** across both ***in vitro*** and ***in vivo*** platforms, with unlabeled and ^{3}H and ^{14}C labeled compounds, helping streamline your drug development process. We analyze metabolites across various matrices, including **microsomal incubations, hepatocyte incubations,** and **biological samples such as plasma, urine, and other matrices**.

System	*Un-labelled New Chemical Entity*	*^{14}C-labelled New Chemical Entity*
In vitro	Cross Species Metabolic Stability, Metabolite Profiling and Identification	Cross Species Quantitative Metabolite Profiling and Identification
In vivo	Plasma, Urine from pre-clinical and clinical studies	Plasma, Urine, Faeces, Bile and Organs from tox animal species

Frontage Europe tailors **metabolite profiling services** to meet your specific needs in terms of study design (matrices, species, timepoints, cofactors, labeled or unlabeled compounds) and offering flexible levels of detail and interpretation to support your research.

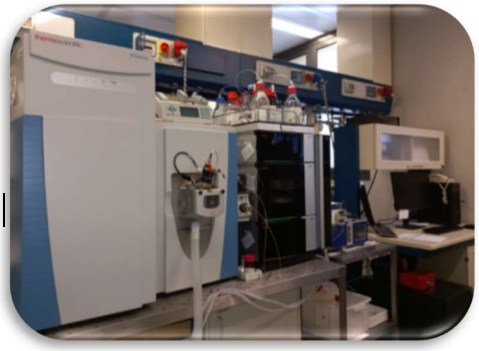
Options of deliverables, according to the scope and complexity of metabolite profiling

- **Essential Plan with Short Report – unlabeled –** *in vitro* or *in vivo* experiment – fit for purpose LC-HRMS/MS analytical method– up to main 5 to 10 metabolites or down to 0.1 to 1 % of drug-related material; summary, materials and methods, experimental, tabulated results; suggested metabolic pathway with proposed biotransformation.

- **Essential Plan with Standard Report – unlabeled –** *in vitro* or *in vivo* experiment – fit for purpose LC-HRMS/MS analytical method – up to main 5 to 10 metabolites or down to 0.1 to 1 % of drug-related material; summary, materials and methods, experimental, results and conclusions, tabulated results with relative abundance, graphical profiles of parent and metabolites; HRMS/MS patterns with fragment assignments, suggested metabolic pathway with proposed biotransformation.

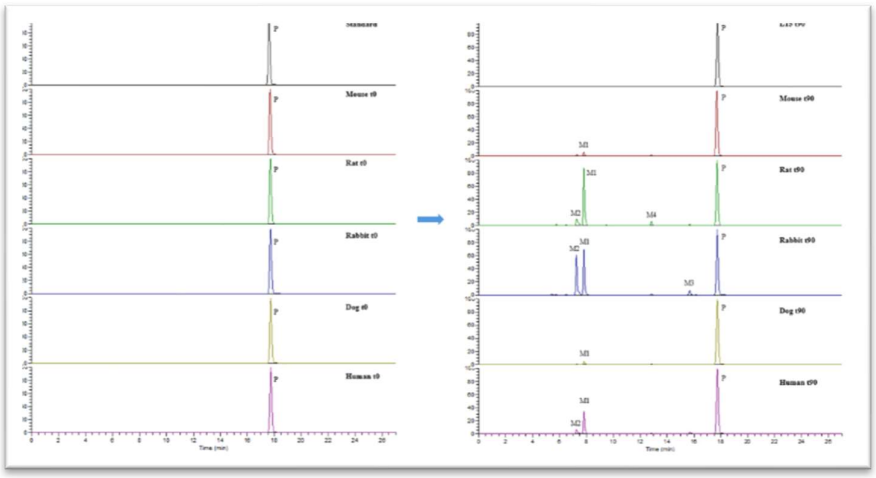
- **Essential Plan with Standard Report – ^{3}H or ^{14}C labeled –** *in vitro* or *in vivo* experiment – fit for purpose LC-UV-RAD analytical method, fit for purpose extraction procedure for parent and metabolites from biological matrices, assessing sample recovery and residual radioactivity in pellets by LSC; summary, materials and methods, experimental, results and conclusions, tabulated results with percentage of radiolabeled material, graphical profiles; HRMS/MS patterns with fragment assignments, suggested metabolic pathway with proposed biotransformation, recovery of radioactivity from HPLC column by LSC.

Custom designs and optional enhancements are readily available to accommodate specific research needs.



Frontage Europe's service employs **high-resolution mass spectrometry**, utilizing advanced instrumentation and software to precisely measure mass and determine the structure of metabolites. This approach enhances both **sensitivity and identification accuracy**.

The available equipment includes **Thermo_Fisher's Orbitrap QExactive** and **Orbitrap LTQ systems**, integrated with UV detectors. For labeled compounds, these systems include **radio detectors** for accurate analysis.



Extracted ion chromatograms at the main metabolites masses in mouse, rat, rabbit, dog and human hepatocytes samples at the start of the incubation (t0) and after 90 minutes incubation at the concentration of 10 µM.

FOR MORE INFORMATION, CONTACT US AT: sales@ frontagelab.com OR VISIT US AT: frontagelab.com

Frontage Laboratories, Inc. is a contract research organization (CRO) that provides integrated, science-driven, product development services throughout the drug discovery and development process to enable pharmaceutical and biotechnology companies to achieve their development goals. Comprehensive services include ***drug metabolism and pharmacokinetics, analytical testing and formulation development, preclinical and clinical trial material manufacturing, bioanalysis, preclinical safety and toxicology assessment and early phase clinical studies****. Frontage has enabled many biotechnology companies and leading pharmaceutical companies of varying sizes to advance a myriad of molecules through development and file regulatory submissions in the United States, China, and other countries.*