MetAbolomics ring-Trial for CHemical groupING (MATCHING) - Assessing the Repeatability of Metabolomics Within a Regulatory Context Through a Multi-laboratory Ring-trial (LRI C8)

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On behalf of the MATCHING team

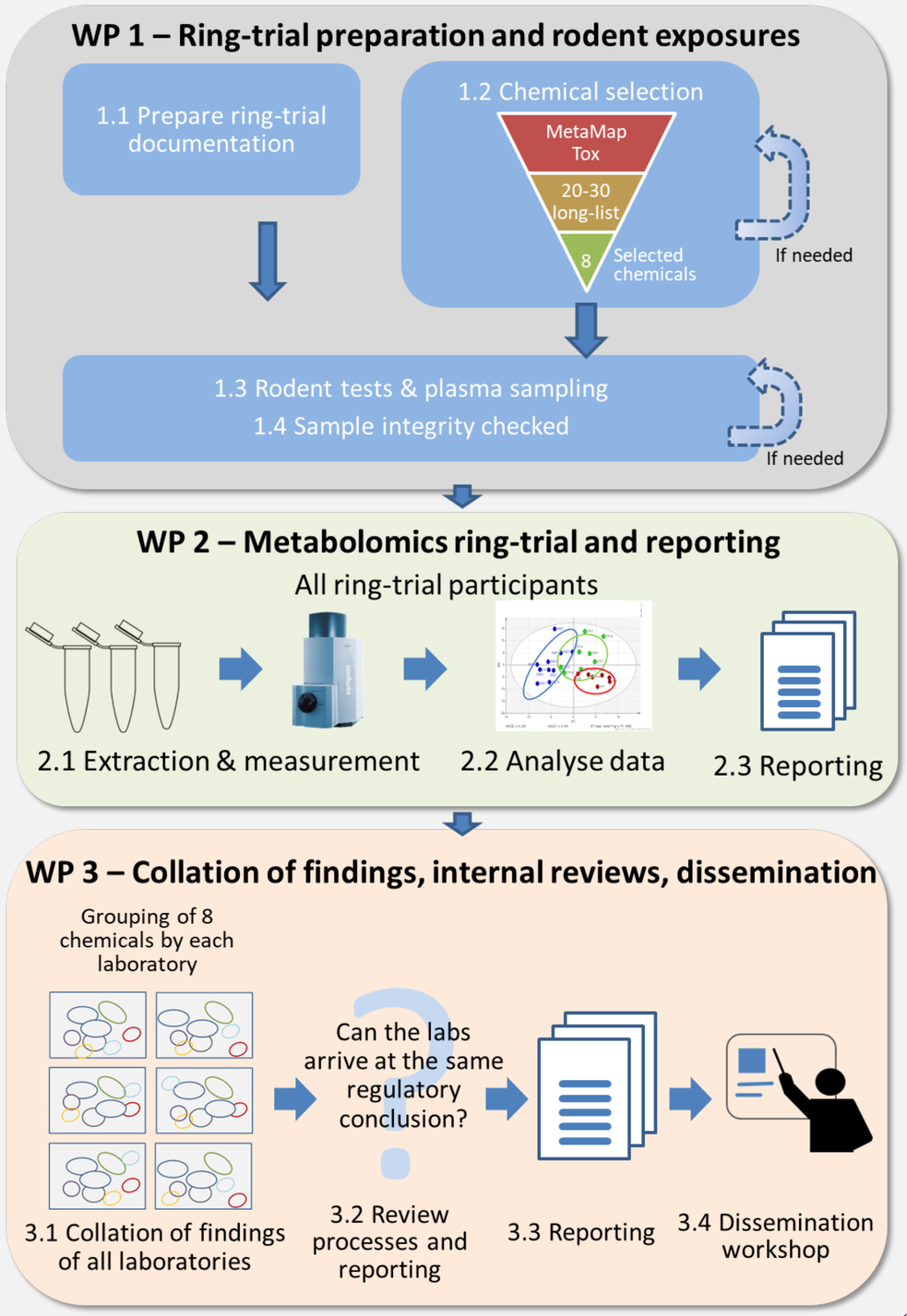
Rationale

- Metabolomics is a widely used technology in academic research, yet its application as a New Approach Methodology (NAM) in regulatory science has been limited, in part because its reliability has yet to be evaluated.
- The principal objective of this project is to **demonstrate** that **multiple metabolomics laboratories**, **each analysing and reporting metabolomics data** from a **single rodent toxicity study**, **can arrive at the same regulatory conclusion**.
- A consortium of multiple industrial, government and academic partners has undertaken this metabolomics ring-trial.

Objectives

- Objective 1: Preparing quality-checked plasma samples for the metabolomics ring-trial, derived from **28-day rodent tests** that were exposed to **8 chemicals**.
- Objective 2: Conduct a **blinded ring-trial** including the grouping of the 8 chemicals, and report findings using the new OECD Metabolomics Reporting Framework (MRF).
- Objective 3: **Collate and evaluate all ring-trial findings**, review all statistical analyses and the reporting template used, recommend amendments to the OECD MRF, and disseminate project outcomes to regulators and industry.

Work packages



MATCHING Ring-trial Team

Independent agency: ECHA EUROPEAN CHEMICALS AGENCY

Progress to Date

- 1.1 Ring-trial documentation prepared, including detailed planning and preparation of QA/QC samples (from BASF and Syngenta)
- 1.2 Chemicals selected by BASF and European Chemicals Agency (ECHA) (all metabolomics ring-trial partners are blinded to identities)
- 1.3 28-day rat exposure studies and plasma sampling completed by BASF
- 2.0 Plasma and QC samples being shipped to partners in Nov 2021 for metabolomics analyses
- 2.1-2.3 Metabolomics data generation and analysis by each partner, including grouping of the 8 chemicals based on the similarities of metabolomics data, and reporting to ECHA to occur Nov 2021-Feb 2022.

Anticipated impact

The findings could either support changes in regulatory practice through a demonstration of the high reproducibility of metabolomics, or identify further technological improvements needed before metabolomics can be more widely adopted into regulatory toxicology.

Cefic-LRI Programme
European Chemical Industry Council - Cefic aisbl

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