

Project invitation to Gothenburg Phenomics - Clinical Metabolomics and Proteomics – Proof of Concept

Clinical hearing

Date: 2023-03-01

Time: 13:00-15:00

Location: Arvid Carlsson, Academicum, Medicinaregatan 3, 413 90 Göteborg

Registration: <https://forms.office.com/e/7YCiAPVw7X>

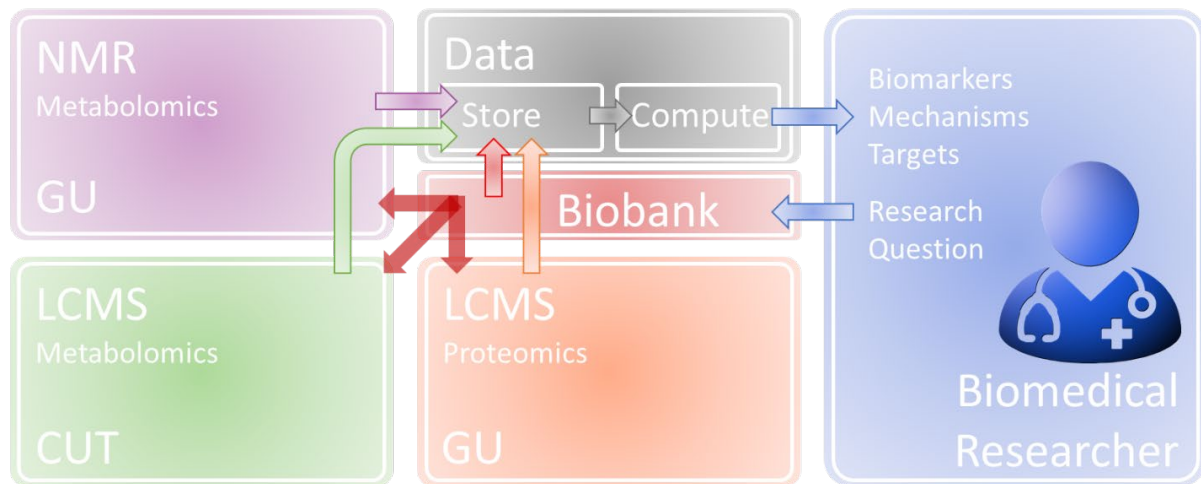
Registration deadline: 2023-02-22

Rationale

In order to improve mechanistic understanding of disease etiology, pathophysiology, and potential biomarkers for early prediction, prevention, diagnosis or prognosis inclusion of several omics layers is warranted. Such biomedical / life science research thus requires collaboration and integration of competence and resources. However, established routines and workflows for such integration are lacking, albeit sorely needed. Consequently, much of the molecular life science research is not efficiently coordinated and not fed back to the “owners” of the (pre-)clinical research questions.

NMR is a robust technique for reproducible metabolomics. Through robust measurements of lipid species and abundantly expressed metabolites, NMR can provide detailed information about phenotype and intermediate risk markers and provide more detailed information about individuals' molecular phenotype / health trajectory. LCMS-based metabolomics and proteomics have the potential to unravel mechanisms and novel biomarkers associated with clinical and molecular phenotype. Together, the incorporation of these molecular techniques with clinical data has the potential to unravel biomarkers and mechanisms or disease as well as to potentially identify actionable targets for intervention or drug design.

Gothenburg has a unique position in Sweden to establish joint initiatives for (pre-)clinical omics research, in particular geared towards molecular phenotype, through a unique combination of competence in NMR and LCMS metabolomics and LCMS proteomics as well as established research and infrastructure collaborations.



Aim

The aim is to establish proof-of-concept for life science research with expressed (pre-)clinical relevance. This will be achieved by forming a closed loop from biomedical research question (initiated by pre-clinical researchers) to returning actionable biological results, in terms of mechanisms and potential biomarkers and targets.

Specific objectives involve:

- Identify clinical research questions where samples and data are available for proof of concept
- Coordinating data deliveries from platforms to data storage
- And via inferential analysis and extraction of biomarkers and mechanisms of interest from compute and back to the biomedical researcher (problem owner)

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