Gut Reactions: Xenobiotics and the Microbiome Workshop Report London, UK 2024

Concluding thoughts

In this guide

In this guide

- 1. Gut Reactions Workshop
- 2. Background and Objectives
- 3. Workshop Overview
- 4. Introductions and aims of the day
- 5. Session I Interactions of the host-microbiome system
- 6. Session I Roundtable Summary
- 7. Session II Gut microbiome and xenobiotics
- 8. Session II Roundtable Summary
- 9. Session III Assessing the impact microbiome
- 10. <u>Session III Possible ways to evaluate in the short to medium term and</u> microbiome interventions for maintaining health and treating disease
- 11. Session III Roundtable Summary
- 12. Session IV Future Directions
- 13. Session IV Roundtable Summary
- 14. Concluding thoughts
- 15. Prioritisation of knowledge gaps and moving forward
- 16. <u>References: Gut Reactions</u>
- 17. Abbreviations: Gut Reactions

Concluding thoughts



Microbiome is **highly complex** and varied between individuals. We are not yet able to define a "healthy" microbiome i.e. a baseline. Going forward we should perhaps try to define "reference populations".



Guidelines on specification, or an 'average' characterisation including parameters, ranges, diversity and species information. Defining a 'range' of microbiomes e.g. structure, function might help identify what types of microbiomes increase the risk of adverse effects.



Investigate how microorganisms process chemicals, considering the **chemical conversions** that occur in the gut including toxicokinetics e.g. metabolism of **xenobiotics into toxic metabolites** and how this might be considered in an assessment.



Continue the **development of integrative multi-omics** approaches, to provide comprehensive and holistic understanding of host microbiome interactions. Functional studies *in vitro* can complement *in vivo* investigations.



Challenge in trying to **distinguish between causality, correlation or association.**



Increase in databases with microbiological, metabolome and genomic data, where Al can be utilised to **process information and extract relevant trends** or results.