

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. [Session III Possible ways to evaluate in the short to medium term and 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. [References: Gut Reactions](#)
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 AI can be utilised to **process information and extract relevant trends** or results.