SIFR - predictive ex vivo gut microbiome simulation

Commonly used acronym: SIFR

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Organisation

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SCOPE OF THE METHOD

<table>
<thead>
<tr>
<th>The Method relates to</th>
<th>Animal health, Human health</th>
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<tbody>
<tr>
<td>The Method is situated in</td>
<td>Basic Research, Translational - Applied Research</td>
</tr>
<tr>
<td>Type of method</td>
<td>In vitro - Ex vivo</td>
</tr>
</tbody>
</table>

DESCRIPTION

Method keywords

gut microbiota
metabolomics
metagenomics
screening
mechanism of action
gut health
predictivity
humans

**Scientific area keywords**

- fibre
- probiotic
- prebiotic
- postbiotic
- api
- drug-bug interaction
- host-microbiome interaction
- inter-individual variability
- IBD
- pathogen
- digestion
- colonic fermentation
- kinetics

**Method description**

The Systemic Intestinal Fermentation Research technology, SIFR in short, is a uniquely validated simulation of gut microbial ecosystems, shown to be predictive for clinical outcomes. The SIFR can simulate a wide variety of gut microbiota from humans (infants, adults, elderly; healthy, diseased) to animals (pig, poultry, cat & dog). Working *ex vivo* (maintaining the integrity of the gut microbiome during the investigation) and integrating robotics for a high throughput, this versatile technology can address early and late preclinical needs: screening and in-depth mechanistic characterisation. Each study addresses interindividual variability in the target population.

**Method status**

- History of use
  - Internally validated
  - Published in peer reviewed journal

**PROS, CONS & FUTURE POTENTIAL**
Advantages

- Validated to be predictive for clinical outcomes
- Can address simultaneously a wide array of analytics: compositional, metabolic, host-microbiome interactions, fingerprinting...
- Gets rid of \textit{in vitro} bias
- Embraces biological variation
- High-throughput and technically robust thanks to automation

Modifications

The SIFR is modular: pre-digestion, mucosal simulation, host-microbiome module.

REFERENCES, ASSOCIATED DOCUMENTS AND OTHER INFORMATION

References


Associated documents

2023 - SIFR validation.pdf