SIFR - predictive ex vivo gut microbiome simulation

Commonly used acronym: *SIFR*

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Organisation

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SCOPE OF THE METHOD

The Method relates to	Animal health, Human health
The Method is situated in	Basic Research, Translational - Applied Research
Type of method	In vitro - Ex vivo

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 *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

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Associated documents

2023 - SIFR validation.pdf

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