ALTERNATIVE METHODS TO

# Cell-based intestinal absorption models combined with food and digestive matrixes to study toxicity and in vitro bioavailability of food bioactives and contaminants 

Commonly used acronym: bioavailability
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## PARTNERS AND COLLABORATIONS

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SCOPE OF THE METHOD

| The Method relates to | Human health |
| :--- | :--- |
| The Method is situated in | Basic Research |
| Type of method | In vitro - Ex vivo |
| Specify the type of cells/tissues/organs | intestine, liver, immune cells |

## Method keywords

bioavailability
digestion
intestine
food
bioactives
toxins
epithelial barrier function

## Scientific area keywords

bioaccessibility
bioavailability
food
effect of food matrix on availability of compounds
cytotoxicity
digestion

## Method description

A set of protocols to combine the widely used Caco-2 cell line with digests from in vitro digestion models (small intestine, colon) to study toxicity, intestinal barrier integrity, bioavailability and, when combined with other cell models (immune, liver, endothelium), bioactivity of food related bioactives and contaminants.

## Lab equipment

- Cell culture facilities;
- Trans-epithelial electrical resistance measurements;
- Fluorescence plate reader;
- Advanced analytical techniques.


## Method status

History of use
Published in peer reviewed journal

## PROS, CONS \& FUTURE POTENTIAL

## Advantages

- Includes relevant food and digestive matrices;
- Barrier and transport assays combined.


## Challenges

- Case-per-case optimization;
- Toxicity.


## REFERENCES, ASSOCIATED DOCUMENTS AND OTHER INFORMATION

## References

Van Rymenant, E., Salden, B., Voorspoels, S., Jacobs, G., Noten, B., Pitart, J., Possemiers, S., Smagghe, G., Grootaert, C., Van Camp, J. A critical evaluation of in vitro hesperidin 2 S bioavailability in a model combining luminal (microbial) digestion and Caco-2 cell absorption in comparison to a randomized controlled human trial. 2018. MOLECULAR NUTRITION \& FOOD RESEARCH. 62(8).

## Associated documents

