

## 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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## SCOPE OF THE METHOD

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

## DESCRIPTION

### 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 2S 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).

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