

AOP TRANS

Assessment of intestinal absorption



ASSAY TYPE

Cell-based efficacy assay

SPECIFICITY

Evaluation of intestinal absorption or trans-epithelial transport through enterocyte-like model

STUDY SPECIFICATIONS

- Two doses of test compound loaded on intestinal cell monolayers in apical chambers of transwell inserts
- Evaluation of Trans Epithelial Electric Resistance (TEER)
- Collection of basolateral and apical compartments
- Analytical report and monographs

ASSAY PRINCIPLE

Intestinal epithelium functions as a physical barrier between the contents of the gut lumen and internal milieu of our body, and is responsible for efficient absorption and uptake of essential nutrients. *In vitro* - differentiated human epithelial cell monolayers allow for testing of absorption and active and passive transports through the intestinal epithelium (1). The read-out parameter of the study is effect of the test sample on the epithelial barrier function, i. e. absorption or transepithelial transport. As the barrier function depends on the uniformity and integrity of the confluent and polarized cell monolayer cultivated on the permeable support, intestinal cells monolayer integrity is verified by measuring transepithelial electric resistance (TEER). After absorption, the apical and basolateral compartments are collected for further experiments. In option, these fractions could be tested on different human cells as target organs, for direct or indirect antioxidant activity testing (AOP1, AOP2, AOP3 tests) (2), or anti-inflammatory cytokine production (AOP IMM test on human peripheral blood cells).

VALIDATION METHOD

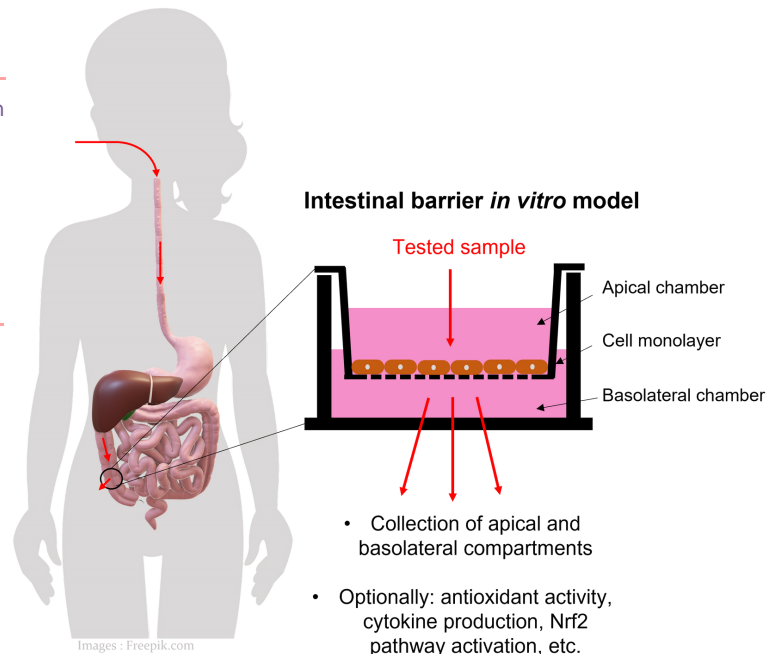
Cytotoxicity assessment (LUCS)
TEER (Measure of resistance in ohms (Ω) x cm²)

ASSAY FORMAT

12-well cell culture plates

CELL MODEL

intestinal cells



(1): Hubatsch I, Ragnarsson EG, Artursson P. Determination of drug permeability and prediction of drug absorption in Caco-2 monolayers. *Nat Protoc.* 2007;2(9):2111-9.

(2): Furger C, Gironde C, Rigal M, Dufour C, Guillemet D. Cell-Based Antioxidant Properties and Synergistic Effects of Natural Plant and Algal Extracts Pre and Post Intestinal Barrier Transport. *Antioxidants (Basel).* 2022 Mar 16;11(3):565.