

RESEARCH PROJECT

 Institute
Life Technologies

Absorption and metabolism studies of hydrolysable and condensed tannins with an in vitro Caco2 transwell model

Partner(s) SCIEX (Scientific Exchange Programm between the new member states of the EU and Switzerland),
The Rectors' Conference of the Swiss Universities CRUS

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Description The interest in polyphenolic compounds was evoked by a growing body of epidemiological evidence that regular consumption of polyphenol rich foods prevents against degenerative. In this context the questions about bioavailability of polyphenolic compounds is of vital importance. In the last years, numerous publications appeared on transport experiments applying a Caco2-transwell system. Human colonic cell line Caco-2 as a model of human intestinal absorption is useful to study the intestinal epithelial transport of bioactive compounds. The apical to basolateral flux and reverse as well as hydrolysis of glycosides and the glucuronidation and sulfation of phenolic substances by the enterocytes can be investigated. This literature-known and well described model is intended to be used to give answers to the questions asked above. The project aims to give answers to the following questions: How are tannins transformed during the digestion process? What are the size limits for absorption via intestinal Caco2 cells for condensed and hydrolysable tannins? Are the tannins absorbed without metabolic transformations or what are the actual metabolites arriving at the blood side of the model? This demanding project gives profound insight into the absorption process of hydrolysable and condensed tannins. Health-promoting effects of functional foods are determined not only by the content of bioactive compounds but also by their bioavailability. Therefore, the knowledge gained in this project will give information about the selection of raw material but also the processing of functional food, in a way which enables to incorporate a maximum content of absorbable bioactive compounds into the final product.

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