

GPR30/ER-binding small molecules from environmental and dietary sources and their relevance for human cell aging

Projektlaufzeit:

2013 bis 2019

Mittelgeber:

Stiftungen & interne Mittel

Zusammenfassung:

Among environmental or dietary relevant compounds, some have been demonstrated to exert a hormonal effect in the animal and human organism. Xenoestrogens and phytoestrogens own a structure similar to the endogenous steroid hormone estrogen. From it, an affinity follows for estrogen receptors (ER) and in the consequence the ability to modify ER receptor dependent signal transduction. Beside the effect on fertility, growth and development, endocrine active small molecules are suspected to promote the development of certain tumors, as for example breast cancer. Based on current data derived from animal models and epidemiological studies, these compounds are regarded to present a significant concern to public health. Especially, since human exposure is widespread and occurs through food ingestion, inhalation or dermal contact. Known endocrine active small molecules of anthropogenic origin are e.g. bisphenol A, phthalates, polychlorinated biphenyls, and diverse organochlorine pesticides. In addition, many foods present dietary sources of exposure to hormonal active compounds such as isoflavones from soy.

In this project we study the impact of endocrine active small molecules for their impact on human telomerase and cell aging using human cell culture based in vitro models. The knowledge generated from this research should help estimate and evaluate positive and possible adverse effects for human health.