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Curcumin as important epigenetic modulating agent and its effects on the steroidogenic pathways in adrenocortical carcinoma (NCI-H295R) cells

Veronika Fialkova

AgroBioTech Research Centre, Slovak University of Agriculture in Nitra, Slovak Republic

Curcumin (diferuloylmethane) is a popular active natural polyphenol derived from rhizomes of the turmeric Curcuma longa, which has attracted attention due to a wide broad of biological effects which are mediated through epigenetic modulations. Epigenetic changes including changes in DNA methylation, histone modifications, and altered microRNA expression patterns are increasingly regarded as key events in the development of some cancers and have been established as a promising approach in human clinical trials. The majority of epigenetic changes are induced by lifestyle, diets and environmental factors. In this regard naturally occurring phytochemicals have emerged as a promising source that are able to reverse epigenetic alterations, to regulate gene expression and thus convenient and promising targets in anticancer strategies and prevention and management of age-related diseases. Recently, several studies have reported the role of curcumin as epigenetic modulator of pivotal genes regulating various intracellular pathways via inhibition of DNA methyltransferases, regulation of histone acetyltransferases and deacetylases but a little is known about its effects on steroidogenic pathways.

Steroidogenesis is critical for adrenocortical function and presents multiple molecular targets for toxicity of various endocrine disruptors. The human adrenocortical carcinoma (NCI-H295R) cell line represent unique model system and it is used as an in vitro steroidogenesis screening assay to assess the impact of endocrine active chemicals capable of altering steroid biosynthesis

Biography

Veronika Fialkova has completed her PhD at the Department of Medical, Clinical and Pharmaceutical Biochemistry, Jessenius Faculty of Medicine in Martin, Comenius University in Bratislava, Slovakia (2017). She is working as a scientific researcher in the AgroBioTech Research Centre, Slovak University of Agriculture in Nitra, Slovakia. She has experience in genetics, molecular biology and clinical cancer research fields. She has published more than 40 scientific publications or papers, including 7 articles in reputed journals

veronika.fialkova@uniag.sk