



CENTRE FOR CYANOBACTERIA AND THEIR TOXINS

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Project MŠMT LH12034 CHEMOPREV - Novel *in vitro* approach for identification of chemopreventive effects and mechanisms of phytochemicals.

The project is funded from the programme „Kontakt II“ of the Czech Ministry of Education, and focuses on the support of international collaboration in the research of phytochemicals with chemopreventive and anticancer activities.

We cooperate with:

- [Michigan State University](http://www.msu.edu), East Lansing, MI, USA
- [RECETOX – Centre for Toxic Compounds in the Environment](http://www.recetox.cz), Masaryk University, Brno, Czech Republic

Project team of Institute of Botany:

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The project focuses on the research of **phytochemicals**, i.e. plant-produced or derived chemical compounds, and on their **chemopreventive or anticancer effects**, i.e. their ability to either prevent cancers or suppress growth of already existing tumors.

It has been demonstrated that functional **gap junctional intercellular communication (GJIC)** represents a key homeostatic mechanism in tissues, whose dysregulation is associated with tumor promotion and progression, whereas its stimulation suppresses tumor growth.

The main goal of the project is to employ *in vitro* evaluation of **GJIC as a biomarker indicating possible chemopreventive or anticancer activity of chemicals**. Within the project, it is studied whether the selected phytochemicals can:

- Block inhibitory effects of known or newly identified tumor promoters and epigenetic toxicants on GJIC in normal rat liver epithelial cell line WB-344
- Restore GJIC in WB cells transformed with selected oncogenes
- Alter GJIC in adult human liver stem cell line

The project will bring **new information on effects of phytochemicals on GJIC** and will **contribute to further development of effective and relevant *in vitro* tools for screening and identification of compounds with chemopreventive or anticancer activity** and characterization of their mode of action.