Title of the project: Influence of inositol hexaphosphate, inositol and sodium selenite on proliferation and apoptosis colorectal carcinoma cells

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Principal Investigator: L. Schröterová

Co-investigators:

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Summary of 2007 results

Title of the presentation: Selenium inhibits growth of malignant colonic cells

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Colon cancer is a major cause of cancer-associated mortality in the Czech Republic. Therefore it is necessary to broaden chances of anti-cancer therapy. Several selenium compounds have been studied in in vitro models as potential anti cancer agents. Induction of apoptosis and inhibition of cell proliferation are considered important cellular events that can account for the cancer preventive effect of selenium.

We studied the effect of sodium selenite, seleno-L-methionine and Se-(Methyl)selenocysteine on proliferation, metabolic activity and apoptosis in three colorectal cell lines with different malignant potential (HT-29, SW 480 and SW 620). Proliferation was measured as BrdU incorporation, total protein amount using Brilliant Blue staining and colorimetric WST-1 assay. Cytotoxicity was assessed by neutral red test. Induction of apoptosis was measured as caspase-3 activity fluorescence assay. Changes in cell morphology were studied by phase-contrast microscopy. Cells were exposed to selenium in concentrations 0-240 uM. Brilliant Blue and Neutral red results indicated that Se-(Methyl)selenocysteine was the most potent in grow inhibition of HT29, SW480 and SW620 cells. The most potent compound in induction of apoptosis was Se-(Methyl)selenocysteine.

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