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Resumo de Posters / *Abstracts of Posters*

P1 Characterization of Quercus spp. pollen potential allergens: profilin and Bet v 1-homologues

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Bet v 1- homologues belong to a multigene family of pathogenesis-related proteins (PR). These proteins are expressed in gymnosperms and angiosperms in response to biotic and abiotic stress, assuming an important mechanism of defence. Profilin is a ubiquous protein involved in cell development, cytokinesis, membrane trafficking and cell motility. Bet v 1 related proteins and profilin are conserved proteins and have been described as pollen allergens [1 - 2].
The aims of this work were to identify and characterize profilin and Bet v 1 homologues of Quercus spp pollen. Samples of pollen from different Quercus species (Q. suber, Q. robur, Q. rubra, Q. faginea, Q. imbricaria) were collected during the Spring of 2010. Soluble proteins extracts were assayed by SDS-

PAGE. Immunoblotting was performed using these extracts and specific antibodies to Zea mays profilin and to Betula pendula Bet v 1. The results revealed the presence of profilin-like and Bet v 1 related proteins in Quercus spp. pollen extracts.
Total RNA from Quercus spp. pollen were analysed in agarose gel by RT-PCR using degenerate primers for profilin and for Bet v 1 based on the sequences of other genes preferentially belonging to Fagales order. There were cDNA amplifications of ~ 400 bp and ~ 500 bp for profilin and Bet v 1- homologues, respectively. The amplified cDNA of profilin and Bet v 1- homologues of Quercus spp. will be sequenced. Subsequently, the sequences obtained will be submitted to bioinformatic analysis.
References:
[1] Midoro-Horiuti, T., Brooks, E.G., Goldblum, R.M. (2001), Pathogenesis-related proteins of plants as allergens, Ann Allergy Asthma Immunol., 87 (4): 261-71.
[2] Krishnan, K. and Moens, P. D. J. (2009), Structure and functions of profilins, Biophys. Rev., 1: 71-81.

P2 Induction of cellular stress responses by phytochemicals for nutritional applications toward anti-aging intervention

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Aging is an important risk factor for the development of age-related diseases and is associated with decreased cellular antioxidant defenses. Under the scope of the undergoing NaturAge project, our group is currently investigating the ability of some plant extracts and isolated phytochemicals to induce antioxidant defenses through Nrf2/ARE signaling. That, will be associated with possible anti-aging effects using normal human skin fibroblasts undergoing aging in vitro.

Recently, we have shown the ability of the polyphenol curcumin to induce cellular antioxidant defenses through induction of a stress response in normal human skin fibroblasts, affording protection from a further oxidant challenge with tert-BOOH [1]. Curcumin incubation for 24h induced heme oxygenase-1 (HO-1) protein levels, GST activity, GSH levels and GSH/GSSG ratio. These effects were preceded by induction of oxidative stress as shown by increased levels of ROS and DNA damage, and impairment of the cells' GSH redox state. The induction of antioxidant defenses in human fibroblasts was shown to be redox and PI3K/Akt dependent [1]. In conclusion, these results support the view that phytochemical-induced hormetic stimulation of cellular antioxidant defenses can be a useful approach toward anti-aging intervention.

[1] Lima CF, Pereira-Wilson C, Rattan SIS (2011). Mol. Nutr. Food Res., 55: 430-42.

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P3 Cellular distribution and regulation of intestinal SGLT1

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Diabetes is achieving epidemic proportions in many countries. In addiction to high blood glucose it is associated with increased intestinal expression of the sodium-glucose cotransporter (SGLT1). This transporter is located in brush-border membrane (BBM) of the enterocytes and is responsible for transporting glucose and galactose from the intestinal lumen into the cytosol, using the inward Na^+ gradient maintained by the basolateral Na^+/K^+-ATPase. Our previous results show that the adaptive response to increase dietary carbohydrates also involves increased intestinal expression of SGLT1 at the BBM. This raise does not seem to reflect changes in mRNA suggesting an involvement of posttranscriptional mechanisms in SGLT1 BBM expression. In Caco-2 cells, the intracellular SGLT1 resides in endosomes and the abundance of the transporter at BBM seems to be affected by the cellular endocytic pathway. Currently, we are focusing our studies on the regulation by glucose, insulin and other dietary factors on the cellular distribution of SGLT1 and the mechanisms of its traffick to the plasma membrane in Caco-2 cells.

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P4 Autophagy triggered by ursolic acid synergistically enhances 5-fluorouracil induced cell death in HCT15 (MSI p53 mutant) colorectal cancer cells

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Colorectal carcinoma (CRC) is a common cause of cancer-related death and tumors with microsatellite instability (MSI) and p53 mutations have been shown to be resistant to chemotherapy with 5-fluorouracil (5-FU). Therefore, it is essential to find compounds that could contribute to treatment efficacy by increasing the sensitivity to 5-FU. HCT15, a MSI human CRC derived cell line that harbours a p53 mutation, was incubated with the triterpenoid ursolic acid (UA) at a concentration that induces approximately 50% cell death (measured by PI stainning) after 48h. A synergistic enhancement of apoptosis was observed when co-incubating 5-FU with UA (measured by TUNEL assay). UA induction of apoptosis was totally abolished by the JNK inhibitor SP600125 (SP), but not by the caspase inhibitor zVAD-fmk. Apoptosis did not account