SOX6) and microRNAs (miR-1, -133a, -29b) and miR-208a is expressed from an intron of MYH6, miR-208b from an intron of MYH7, and miR-499 from an intron of MYH7B), based on bioinformatic predictions and databases.

In adult human failing hearts, we found the slow-twitch myosin heavy chain MYH7 (~98%) to be the predominantly expressed isoform whereas fast-twitch MYH6 isoform constitutes just about 1% of all myosin isoforms. This excessive expression of MYH7 is regulated by several transcription factors and microRNA, The increase expression of miRNA-208a and miRNA 208b has no correlation with expression contractile apparatus of the heart – cardiac myosin switching. miR-1 and miRNA-133a seems to be in close relation with other cardiac microRNA included in this study. The consequent change from fast-twitch alpha-isoform to the slow-twitch beta-isoform (known as myosin switching) could be one of the main causes of heart failure. Expression of myosin heavy chain isoforms is regulated through a complex net of relationships between MHCs – transcription factors – epigenetic modulators – microRNAs.

Conclusively, dysregulated gene expression of myosin heavy chains resulting in MYH7 upregulation and MYH6 downregulation might be an adaptation in heart failure and interesting target for future pharmacotherapy.

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***PO-25***

*Track: Diabetes and Obesity Drug Discovery & Therapy*

## EFFECT OF ASTAXANTHIN ON THE EXPRESSION OF PPARγ: A *IN VITRO* STUDY

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Peroxisome proliferator-activated receptor gamma (PPARγ) is important for the regulation of insulin sensitization. Astaxanthin has been reported to lower insulin resistance in animal model of diet-induced obesity. The aim of this study was to evaluate the effect of astaxanthin on the expression of PPARγ *in vitro*. 3T3-L1 cell was used to be the tested cell model. In part I study, different concentrations of astaxanthin (0.01-10 mg/mL) were prepared for the MTT assay and to evaluate the cell viability. In part II study, different concentrations of astaxanthin (20 μg/mL-20 mg/mL) were prepared for the PPAR ELISA and to measure the ability of astaxanthin to activate the PPARγ. Results showed that the cell viability was enhanced in astaxanthin concentrations between 0.01-10 mg/mL. Astaxanthin activated the expression of PPARγ significantly in 3T3-L1 cell under the concentration of 10 and 20 mg/mL. The PPARγ stimulation index at 10 and 20 mg/mL is 3 and 5 times compared to positive control group. We concluded that astaxanthin may have the potential to activate the PPARγ in the 3T3-L1 cell model. Further animal or human studies are needed to make sure the biological effect of astaxanthin on the PPARγ.

**Keywords**: Astaxanthin, PPARγ, 3T3-L1 cell.

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***PO-100***

*Track: Inflammation and Immunology*

## IMMUNOSUPPRESSIVE EFFECT OF CARYOPHYLLATA FLOS AND ITS ACTIVE COMPOUND ON DENDRITIC CELL ACTIVATION AND FUNCTION

**Ming-Kuem Lin, Chao-Jung Chen, Hui-Chi Huang, Meng-Shiou Lee, Wen-Te Chang, Chi-Chen Lin**

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Caryophyllata Flos, dried flower buds of Eugenia caryophyllata Thunb. Which belong to the family Myrtaceae is widely applied to Chinese medicine? It has been reported to have an activity of asthma and allergic relief. However, the molecular and cellular mechanisms of the immune response remain unclear. Especially, the critical compounds contribute the effect on dendritic cell (DC), a critical role in regulation of innate and adaptive immunity is still unknown. In this study, the effects of methanolic extract and the major compound eugenol of Caryophyllata Flos on DC activation. Our results clearly showed that methanolic extract and eugenol decreased the production of cytokines (IL-12 and IL-6) in a dose-dependent manner in LPS-induced DCs and inhibited LPS-induced DC maturation as the expression levels of MHC class I, MHC class II and costimulatory molecules on LPS-induced DCs were decreased. In addition, contact



hypersensitivity responses were inhibited in mice cosensitized with the methanolic extract or eugenol. Therefore, we demonstrate for the first time that the Caryophyllata Flos and its active ingredient eugenol exhibit an immuno-suppressive effect on DC function.

**Keywords:** Dendritic cell, immunosuppressive, contact hypersensitivity, Caryophyllata Flos, eugenol.