

# BASIC IMMUNOLOGY RESEARCH IN ALLERGY AND CLINICAL IMMUNOLOGY

13<sup>th</sup> EAACI Immunology Winter School



5 – 8 February 2015  
Les Arcs 1800, France  
ABSTRACT BOOK

pathway is essential for cytoplasmic DNA to induce mucin production in human bronchial epithelial cells.

## **P30 B7 Costimulation and Intracellular Indoleamine 2,3-dioxygenase Expression in Umbilical Cord Blood and Adult Peripheral Blood**

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**Background:** Antigen presentation and costimulation are the initial steps in adequate T cell function and play an important role in the coordination of downstream events in immune response. Alterations in the expression of B7 costimulatory molecules and their receptors as well as differences in the tryptophan catabolic pathway may influence immunological reactivity of umbilical cord blood (UCB) compared to adult peripheral blood (APB) T lymphocytes.

**Aim:** We aimed to compare the expression of B7 costimulatory molecules and their receptors on activated monocytes and T cells, respectively, in UCB and APB.

**Methods:** We determined the frequency of activated (CD11b+) monocytes expressing B7-1, B7-2, B7-H1, and B7-H2, and that of T cells and CD4+ T helper cells expressing CD28, CTLA-4, PD-1, and ICOS in UCB and APB samples using flow cytometry (BD FACS Aria). We also examined the intracellular expression of indoleamine 2,3-dioxygenase (IDO) applying flow cytometry and plasma levels of tryptophan (TRP), kynurenine (KYN) and kynurenic acid (KYNA) using high-performance liquid chromatography.

**Results:** The level of CTLA-4 expression on CD4 cells was higher in UCB compared to APB, indicating that the possibility of CD28-mediated costimulation may be decreased. The level of the corresponding costimulator molecule, B7-2 was also elevated. Therefore, this inhibitory relation may function to a higher extent in UCB than in APB. The plasma KYN to TRP (K/T) ratio was two-fold higher in UCB compared to APB. However, the capacity of UCB monocytes compared to APB monocytes was lower to produce IDO, and reverse signalling via B7-2 in UCB monocytes was found to be immature, which suggests that the observed increase in K/T ratio may be due to placental rather than fetal overexpression of IDO in competent cells.

**Conclusion:** These factors may all contribute to the previously observed reduced reactivity of UCB T lymphocytes compared to APB T cells.

**Saturday, 7 February 2015**

**21:00 Poster Session II**

**Innate Immune Responses (P31-P39)**

**P31 Dimethyl sulfoxide inhibits matrix metalloproteinase-9 activity in peripheral blood mononuclear cells**

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**Background:** Dimethyl sulfoxide (DMSO) is a solvent with antioxidant and anti-inflammatory effects. Moreover the epigenetic modifications by DMSO have been shown. Matrix metalloproteinases (MMPs) are a large group of endopeptidases degrade the extracellular matrix and play a key role in airway inflammation in chronic lung diseases such as asthma. Also MMP-9 was detected in bronchial biopsies from allergic asthma patients. In addition the role of epigenetic modifications in asthma development has been revealed. Furthermore the epigenetic alterations of MMP-9 expression have been demonstrated.