

European Respiratory Society Annual Congress 2012

Abstract Number: 4488

Publication Number: P2120

Abstract Group: 5.1. Airway Pharmacology and Treatment

Keyword 1: Asthma - mechanism **Keyword 2:** Inflammation **Keyword 3:** Immunology

Title: NFAT subtypes in regulating Th2 lymphocytes

Dr. Xin 27232 Yao xinyao_njmu@yahoo.com.cn MD ¹, Dr. Yue 27233 Teng ty9972@yahoo.com.cn ¹, Prof. Hao 27234 Huang hm6114@126.com ¹, Prof. Ian 27235 Adcock ian.adcock@imperial.ac.uk ² and Prof. Peter 27236 Barnes p.j.barnes@imperial.ac.uk ². ¹ Respiratory Medicine, The First Affiliated Hospital of Nanjing Medical University, Nanjing, China, 210029 and ² Airway Disease, NHLI, Imperial College, London, United Kingdom, SW3 6LY .

Body: Background Nuclear factor of activate T cells (NFAT), consists of five members and plays a pivotal role in regulating T lymphocyte activation. Among the five subtypes of NFAT, NFAT1, NFAT2 and NFAT4 were recognized as the key family members associated with allergic diseases. However, evidence regarding the functions of NFAT1 and NFAT2 in Th2 cells are still conflicting. Aims and objectives Therefore, we explored the functions of NFAT1 and NFAT2 on Th2 lymphocytes. Methods Knockdown of NFAT1 and NFAT2 using small interfering RNA (siRNA) was performed in the murine Th2 lymphocyte cell line (D10.G4.1). Real-time qPCR, Western Blotting and ELISA were performed to test the relatively expression of Th2 cytokine mRNA and protein in cells and culture supernatant. Results D10 cells express IL-4, IL-5, IL13 and GATA3 mRNA level. NFAT1 siRNA and NFAT2 siRNA selectively suppressed the expression of NFAT1 and NFAT2 respectively at both the mRNA and protein level. Higher levels of IL-4, IL-5 and IL-13 were seen in NFAT1 siRNA treated Th2 cells. This suggests that NFAT1 may play a negative role in Th2 cytokine expression. Interestingly, the opposite effect was seen with NFAT2 siRNA. NFAT2 siRNA down-regulated the expression of IL-4, IL-5 and IL13 mRNA levels. This was associated with a reduction in the expression of GATA3 mRNA and protein. Conclusions NFAT1 may play a negative role in regulating Th2 cytokines whilst NFAT2 may have the opposite effect.