OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference on
Clinical & Cellular Immunology
October 15-17, 2013 Hampton Inn Tropicana, Las Vegas, NV, USA

DNA methyltransferase 1(DNMT1) induced the expression of suppressors of cytokine signaling3 (Socs3) in a mouse model of asthma

Mukesh Verma[1] and B. D. Chattopadhyay[2]
[1]CSIR-Indian Institute of Toxicology Research, India
[2]Jadavpur University, India

DNMT1 is the most important methyltransferase enzyme, involved in the regulation of gene expression and appropriate histone modification. It interacts with proliferating cell nuclear antigen (PCNA), SNF2 family member ATP-dependent chromatin remodeling enzyme (hSNF2H), cyclin dependent kinases inhibitor (p21WAF1), E2F1 transcription factor and HDACs to form a repressor complex known as HDAC complexes. The interaction of DNMT1 with numerous protein suppressors of promoters suggests that the enzyme is a crucial element of the transcription suppression complex. Since the mechanism behind over expression of socs3 in asthma is unclear, we study the epigenetic mode of overexpression of socs3 in terms of methylation/acetylation/inactivation of HDACs/activation of HATs enzymes in a mouse model of asthma. The results show that low expression of DNMT1 might indirectly induce the expression of socs3 and HAT, and inhibit the expression of HDACs family. Furthermore, knockdown of DNMT1 by siRNA induced expression of socs3 while knock down of socs3 by siRNA has no effect on DNMT1 expression. Our result suggests that the over expression of socs3 was due to the inhibition of HDACs complex and hyperacetylation of histones molecule with down regulation of DNMT1 gene. In depth study on DNMT1 might be useful for the development of therapeutic drug against asthma/allergic diseases.

mviitr@gmail.com