# INVESTIGATION OF SKIN IMMUNE SYSTEM IN ROSACEA

Dajnoki Zsolt[1, 2]

Béke Gabriella[1, 2], Mócsai Gábor[1, 2], Kapitány Anikó[1, 2], Gáspár Krisztián[1, 2], Bíró Tamás[3], Veres Imre[2], Szegedi Andrea[1,2]

[1]Division of Dermatological Allergology, [2]Department of Dermatology, [3]DE-MTA „Lendület" Cellular Physilogy Research Group, Department of Physiology, Faculty of Medicine, University of Debrecen, Hungary

**Introduction:** Much evidence proved that low concentration of IL-7-like cytokine Thymic Stromal Lymphopoietin (TSLP) has tolerogenic effect in gut epithelium, hence it has key role in maintaining gut homeostasis. On the contrary, TSLP protein expression in skin is described only in the pathologic condition of atopic dermatitis in extremely high levels. Until now the presence of TSLP in healthy skin has not been described and no data can be found about its possible tolerogenic effect in the skin. We sought to investigate and compare TSLP protein and gene expression in KCs, and also T and dendritic cell (DC) counts in healthy skin sites [sebaceous gland rich (SGR) and sebaceous gland poor (SGP)] and Rosacea.

**Methods:** 8 rosacea, 8 healthy sebaceous gland rich (SGR) and sebaceous gland poor (SGP) skin biopsies were gained. Half of the biopsies were paraffin-embedded and used for TSLP immunohistochemistry. $CD3^+$ T cells and $CD11c^+$ DCs were also immunostained. Then slides were digitalized. Quantification of TSLP levels and cell counts was performed by Pannoramic Viewer software. The other half of skin biopsies were used to mRNA isolation to quantify TSLP gene expression by qPCR. To measure TSLP levels of stratum corneum by immunocytochemistry tape stripping technique was used.

**Results:** The expression of TSLP protein was described first time in SGR healthy skin sites by our workgroup. TSLP levels were significantly higher in SGR skin compared to SGP skin sites. TSLP contents of Rosacea samples were lower compared to SGR skin and were significantly higher than in SGP skin. Results of stratum corneum TSLP level measurements were parallel to our IHC study. No significant differences were found between the gene expression of SGR, SGP and rosacea skin samples, but the highest expression was found in SGR skin. T cell and DC counts were significantly higher in SGR and Rosacea skin compared to SGP skin and the difference was also significant between SGR and rosacea skin with a higher number of immune cells in rosacea samples.

**Conclusion:** In comparison to SGP skin the presence of TSLP and elevated numbers of T cells and DCs in SGR skin without inflammation may point to the fact that low levels of TSLP have tolerogenic effect in healthy skin. Our hypothesis may be strengthen by the fact that decreased TSLP levels were detected parallel to elevated T cell and DC counts in inflamed rosacea skin.