**Abstract**

The innate and adaptive immune processes are modulated by hormones including glucocorticoids and by microbiota. The exact mechanisms underlying the microbial and hormonal contributions to this control are not completely clear.

Present study is therefore focused to crosstalk between microbiota and *de novo* biogenesis or local regeneration of glucocorticoids. In particular, the study analysed the effect of commensal microbiota on expression of genes encoding steroidogenic enzymes (Star, Cyp11a1, Hsd3b1, Cyp21a1, Cyp11b1) and regeneration of glucocorticoids (Hsd11b1) in adrenal glands, colon, spleen and mesenteric lymph nodes using conventional and germ-free mice. The expression of all 5 components of steroidogenesis was identified only in the adrenal gland and colon, whereas the lymphoid organs expressed predominantly Star, Cyp11a1 and Hsd3b1 indicating the ability to produce only progesterone but not corticosterone. Microbiota decreased the expression of Star in all studied tissues but the expression of other genes was insensitive to microbiota or did not respond homogenously depending on the tissue and gene.

Hsd11b1 expression was upregulated by microbiota in the spleen but not in other tissues. Similarly, the *in vitro* treatment of immune cells isolated from mesenteric lymph nodes by microbial structures activated Toll-like receptor pathway but didn't affect the expression of Hsd11b1. In summary, microbiota seems to influence the biogenesis of glucocorticoids at the level of Star, the rate limiting link of steroidogenesis, whereas its effect of regeneration of glucocorticoids is less obvious.