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Speaker's Abstract

Extra-adrenal glucocorticoid synthesis in the intestinal mucosa and the skin: implications for local immune homeostasis

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Epithelial surfaces are a major contact zone between our body and the outside world. Thus, the intestinal mucosa and the skin are home of a large and diverse set of immune cells in order to defend the body from potential pathogens. Uncontrolled and excessive immune reactions at these sites can, however, also be destructive and compromise the function of these organs, as seen in inflammatory bowel disease or atopic dermatitis. Glucocorticoids are steroid hormones with important functions in the regulation of immune responses and inflammation. Glucocorticoids are primarily produced in the adrenal glands in response to emotional, physical and immunological stress. In the last two decades, however, additional sources of immunoregulatory glucocorticoids have been identified. In this presentation, I will discuss our findings on the regulation and function of the extra-adrenal glucocorticoid synthesis in the intestinal mucosa and the skin. In particular, I will discuss the transcriptional control of the glucocorticoid synthesis in the intestinal epithelium by the nuclear receptor LRH-1, and what the consequences of deregulated LRH-1 activity are for the development of inflammatory bowel disease and colorectal tumor development. Furthermore, I will discuss evidence that the induced genetic deletion of a key enzyme involved in the local glucocorticoid synthesis in keratinocytes leads to spontaneous development of psoriasis-like skin inflammation.

Overall, I will aim to present the extra-adrenal synthesis of glucocorticoids in epithelial surfaces as a local negative feedback mechanism involved in the regulation of local immune homeostasis.

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