Universität Basel

Research Project

Epigenetic regulation of thyroid development

Third-party funded project

Project title Epigenetic regulation of thyroid development
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Organisation / Research unit
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Reversible histone modification represents a major epigenetic mechanism controlling gene expression in differentiating cells. Normal thyroid follicular cell (TFC) precursors are characterized by the simultaneous expression of a specific set of a few transcription factors, while differentiated TFCs express all functional proteins necessary for thyroid hormone synthesis. We have previously demonstrated that thyroid specific genes are activated in a sequential manner during normal human thyroid development. Preliminary results in the murine model in vivo and in vitro support the concept of developmentally regulated levels of histone modifying proteins during TFC differentiation. The incomplete understanding regarding the epigenetic mechanisms underlying TFC differentiation provides the rationale for the proposed project. Expanding our previous work, the current research project aims to investigate the effect of histone modifications during different stages of TFC differentiation. The clinical significance of this knowledge lies in the association of aberrant epigenetic changes and thyroid disease. Deciphering the epigenetic regulation of TFC differentiation is likely to provide a better understanding how human thyroid diseases, such as thyroid dysgenesis and thyroid cancer are linked to a deregulated histone code.

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