



POSTER PRESENTATION

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Assessment of active TGF β with a bioassay

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Background

Transforming Growth Factor beta (TGF β) is a highly pleiotropic cytokine that is involved in numerous signaling pathways, including immune homeostasis. It is secreted by all immune cell lineages and is classically viewed as an anti-inflammatory cytokine. TGF β is associated with regulatory T cell (Treg) induction, and Treg-function. However, in combination with pro-inflammatory cytokines (IL-6, IL- β and IL-23) TGF β will induce proinflammatory Th17 cells. In several autoimmune diseases, including Juvenile Idiopathic Arthritis (JIA), a disrupted Th17-Treg balance, lower Treg numbers or less functional Tregs have been described.

Unfortunately TGF β production is hard to measure. Popular methods like flow cytometry or ELISA are not reliable, not sensitive or require activation of all latent TGF β present, which might not be representative.

Aim

To develop a reliable and sensitive test to assess active TGF β level in serum, and T cell cultures.

Methods

The mink cell line CCL-64 is used to assess TGF β levels in serum. Cells are cultured in serum free medium for 24hrs before serum is added. After 19hrs incubation 3H-thymidine is added and cell proliferation is assessed after 5hrs.

Evaluation

The highly sensitive cell line CCL-64 is currently established in our lab. The next months serum samples and T cell cultures of JIA and other autoimmune patients will be tested.

Conclusion

A sensitive bioassay for active TGF β may provide a better understanding of the role of TGF β in Treg number and function as well as the Th17-Treg balance in autoimmune diseases.

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