Thymic Stromal Lymphopoietin Participates in the Host Response to Intra-Amniotic Inflammation Leading to Preterm Labor and Birth

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**Thymic Stromal Lymphopoietin Participates in the Host Response to Intra-Amniotic Inflammation Leading to Preterm Labor and Birth**

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**ABSTRACT**

**Objective:** To determine if bacteria (*Ureaplasma parvum* and *Sneathia* spp.) associated with intra-amniotic infection can trigger the induction of cytokine Thymic stromal lymphopoietin (TSLP) in human amnion epithelial cells (hAECs) in vitro.

**Material or subjects:** Amniotic fluid and chorioamniotic membrane (CAM) were collected from women with sPTL who delivered at term (n=30) or preterm without intra-amniotic inflammation (n=34), with sterile intra-amniotic inflammation (SIAI, n=27), or with intra-amniotic infection (IAI, n=17). Amnion epithelial cells (AECs), *Ureaplasma parvum*, and *Sneathia* spp. were also utilized.

**Methods:** The expression of TSLP, TSLPR, and IL-7Rα was evaluated in amniotic fluid or CAM by RT-qPCR and/or immunoassays. AECs co-cultured with *Ureaplasma parvum* or *Sneathia* spp. were evaluated for TSLP expression by immunofluorescence and/or RT-qPCR.

**Results:** TSLP was elevated in amniotic fluid of women with SIAI or IAI and expressed by the CAM. TSLPR and IL-7Rα had detectable gene and protein expression in the CAM; yet, CRLF2 was specifically elevated with IAI. While TSLP localized to all layers of the CAM and increased with SIAI or IAI, TSLPR and IL-7Rα were minimal and became most apparent with IAI. Co-culture experiments indicated that *Ureaplasma parvum* and *Sneathia amnii* upregulated TSLP expression in AECs.

**Conclusions:** *Ureaplasma parvum* and *Sneathia* spp. triggers induction of TSLP, a central component of the intra-amniotic host response during sPTL.