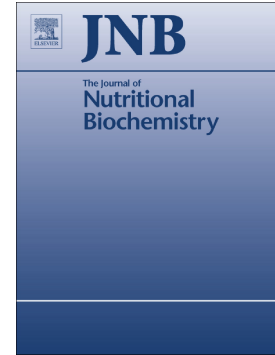


## Accepted Manuscript

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**Zinc deficiency drives Th17 polarization and promotes loss of Treg cell-function.**

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**Abstract**

A high number of illnesses and disorders are connected to zinc deficiency. Equally, T cell polarization and a balance between different T helper (Th) cell subsets is essential. Therefore, in this study the influence of zinc deficiency on T cell polarization and on respective signaling pathways was investigated. We uncovered a significantly increased number of regulatory T cells (Treg) and Th17 cells in expanded T cells during zinc deficiency after three days of combined treatment with IL-2 and TGF- $\beta$ 1 (Treg) or IL-6 and TGF- $\beta$ 1 (Th17). No difference in Th1 and Th2 cell polarization between zinc deficient and zinc adequate status was prominent. On the molecular level, Smad signaling was significantly enhanced by stimulation with TGF- $\beta$ 1/IL-6 during zinc deficiency compared to adequate zinc condition. This

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