

## ORT\_13 - Transforming growth factor beta neutralization reduces *Trypanosoma cruzi* infection and improves the cardiac performance

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**Introduction:** The antiinflammatory cytokine transforming growth factor beta (TGF-beta) plays an important role in Chagas disease, a parasitic infection caused by the protozoan *Trypanosoma cruzi*.

**Objective:** The aim of this study was to investigate the effect of 1D11, a neutralizing antibody to all three isoforms of TGF-beta, on *T. cruzi* infection: *in vitro* and *in vivo*.

**Methodology:** To this end, cardiomyocytes were seeded for 24h, incubated with trypomastigotes and treated with 1D11 (100ug/ml). C57BL/6 mice were also infected with *T. cruzi* (10<sup>2</sup> parasites from the Colombian strain) and, after 120 dpi, treated with 1D11(10mg/kg).

**Results:** In the present study, we show that the addition of 1D11 greatly reduces cardiomyocyte invasion by *T. cruzi*, *in vitro*. Further, the treatment significantly reduces the number of parasites per infected cell. In a murine experimental model, the *T. cruzi*-infection altered the cardiac electrical conduction: decreasing the heart rate, increasing the PR interval and the P wave duration. The treatment with 1D11 reversed this process, improving the cardiac performance and reducing the fibrosis of the cardiac tissue. Taken together, these data further confirm the major role of the TGF-beta signaling pathway in both *T. cruzi*-infection, *in vitro* and *in vivo*.

**Conclusion:** The therapeutic effects of 1D11 are promising and suggest a new possibility to treat cardiac fibrosis in the chronic phase of Chagas' heart disease by TGF-β neutralization.

**Keywords:** Chagas disease; TGF-beta and 1D11