

Role of matrix metalloproteinases 2 and 9 in ex vivo *Trypanosoma cruzi* infection of human placental chorionic villi

Castillo, C.

López-Muñoz, R.

Duaso, J.

Galanti, N.

Jaña, F.

Ferreira, J.

Cabrera, G.

Maya, J. D.

Kemmerling, U.

Background: Chagas' disease is caused by the haemoflagelated protozoan *Trypanosoma cruzi* (*T. cruzi*). During congenital transmission the parasite breaks down the placental barrier. In the present study we analyzed the participation of matrix metalloproteases (MMPs) in the extracellular matrix (ECM) remodeling during *T. cruzi* ex vivo infection of human placental chorionic villi explants.

Methods: Chorionic villi from healthy woman placentas were incubated in the presence or absence of 105 or 106 *T. cruzi* trypomastigotes (Y strain) with or without the MMPs inhibitor doxycycline.

Effective infection was tested measuring parasite DNA by real time PCR (qPCR). MMP-2 and MMP-9 expression were determined by western blotting and immunohistochemistry and their activities were measured by zymography. The effect of MMPs on ECM structure was analyzed histochemically. **Results:** *T. cruzi* induces the expression and activity of MMP-2 and MMP-9 in chorionic villi. Inhibition of the MMPs prevents the tiss