

International Conference on

# Medical Parasitology and Zoology

October 17-19, 2016 Houston, USA

## *In vitro* permissiveness of bovine neutrophils and monocyte derived macrophages to *Leishmania donovani* of Ethiopian isolate

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**Background & Aim:** Epidemiological studies in Ethiopia have documented that the risk of visceral leishmaniasis (VL, Kala-azar) is higher among people living with domestic animals. The recent report on isolation of *Leishmania donovani* complex DNA and the detected high prevalence of anti-leishmanial antibodies in the blood of domestic animals further strengthen the potential role of domestic animals in the epidemiology of VL in Ethiopia. In mammalian hosts polymorpho-nuclear cells (PMN) and macrophages are the key immune cells influencing susceptibility or control of *Leishmania* infection. Thus to substantiate the possible role of cattle in VL transmission we investigate the permissiveness of bovine PMN and monocyte derived macrophages (MDM) for *Leishmania donovani* infection.

**Materials & Methods:** Whole blood was collected from pure Zebu (Boss indicus) and their cross with Holstein Friesian cattle. *L. donovani* (MHOM /ET/67/HU3) wild and episomal green fluorescent protein (eGFP) labeled stationary stage promastigotes were co-incubated with whole blood and MDM to determine infection of these cells. Engulfment of promastigotes by the cells and their transformation to amastigote forms in MDM was studied with direct microscopy. Microscopy and flow cytometry were used to measure the infection rate while PCR-RLFP was used to confirm the infecting parasite.

**Results:** *L. donovani* infected bovine whole blood PMN in the presence of plasma factors and all cellular elements. Morphological examinations of stained cytospin smears revealed that PMN engulfed promastigotes. Similarly, we were able to show that bovine MDM can be infected by *L. donovani*, which transformed to amastigote forms in the cells.

**Conclusions:** The *in vitro* infection of bovine PMN and MDM by *L. donovani* further strengthens the possibility that cattle might serve as source of *L. donovani* infection for human.

### Biography

Ketema Tafess Tulu has completed his DVM in Veterinary Medicine from Addis Ababa University. He is currently a Researcher and Publication Association Director in the Arsi University, Ethiopia. He has published more than 25 papers in reputed journals.

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