Nonhealing leishmaniasis

Macrophages

$\Rightarrow$ poor T cell activation

In patients suffering from non-healing leishmaniasis, T cells have an impaired capacity to produce Interferon gamma.

What is required to activate T cells?

Arginase activity

L-arginine $\Rightarrow$ T cells

T cells proliferate and produce cytokines

T cells unconditionally require L-arginine to become efficient effector cells

What can reduce the levels of L-arginine?

Arginase-induced L-arginine depletion results in T cell hyporesponsiveness

Our hypothesis

High arginase $\Rightarrow$ low L-arginine

$\Rightarrow$ poor T cell activation

Pilot study

- 16 localised cutaneous leishmaniasis patients
- 11 diffuse cutaneous leishmaniasis patients
- 10 controls

Specimens
1 x 3 mm skin biopsy

Arginase activity

Results
High arginase is expressed in the biopsies, i.e. at the site of pathology

Future work

- Recruit more cutaneous leishmaniasis patients
- Recruit visceral leishmaniasis patients (Gondar and Arba Minch)
- Measure the levels of Arginase
- L-arginine