Instituto de Medicina Molecular João Lobo Antunes

Master Project Proposal

Title: Harnessing the potential of *Trypanosoma brucei*-derived compounds to tackle obesity

Synopsis: *Trypanosoma brucei* is an unicellular and extracellular protozoan parasite that causes sleeping sickness in humans and nagana in cattle. In the mouse model of infection, *T. brucei* colonizes the adipose tissue (AT) in disproportionately high numbers when compared to other organs[1,2]. During this colonization, the host experiences a marked loss of AT mass through a process dependent on adipocyte neutral lipolysis[3]. Interestingly, induction of adipocyte lipolysis is recapitulated *in vitro* using adipocyte-*T. brucei* co-cultures or following stimulating adipocytes with molecules secreted by the parasite. In this project, we aim to establish the feasibility of using *T. brucei*-derived compounds for the treatment of obesity, a major public health problem. To achieve this, the selected candidate will use a combination of biochemical and genetic tools to identify and isolate lipolysis-inducing compounds. Afterwards, the most promising compounds will be tested in preliminary pre-clinical safety and subsequent preliminary pre-clinical efficacy studies using appropriate rodent models.

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Bibliography:

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