Long term *in vitro* culture of adult *Brugia malayi* parasites

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The preclinical assessment of new macrofilaricides against filarial parasites, which cause lymphatic filariasis and onchocerciasis, necessitates *in vivo* experimentation because currently, adult parasites cannot be generated from infectious stage larvae *in vitro* and adult female reproductively active parasites have a very limited life-span in culture.

The current *in vitro* systems are maintained for only short periods (<1 week). Arguably, this period of time is not sufficient to accurately simulate effects of *in vivo* drug exposures and may not accurately inform *in vivo* preclinical testing parameters. We have developed an *in vitro* co-culture system with human lymphatic endothelial and myeloid cell lines which more accurately replicates the environment in which lymphatic parasites inhabit, making it possible to maintain parasite 'fitness' for a period of 2-3 weeks, comparable to those isolated from animal hosts. The longevity of this culture system should facilitate the more accurate *in vitro* assessment of treatment efficacy, thereby reducing dependence upon *in vivo* models. As the *in vitro* co-culture system is more representative of the parasitic niche, it may be used for a first stage drug screen in order to reduce the numbers of animals used. Additionally, our *in vitro* co-culture system allows for interrogations of host-pathogen relationships and parasite biology to be explored in further detail, again reducing the need for animal experiments.