

An organotypic model for the study of retinal *T. gondii* infection

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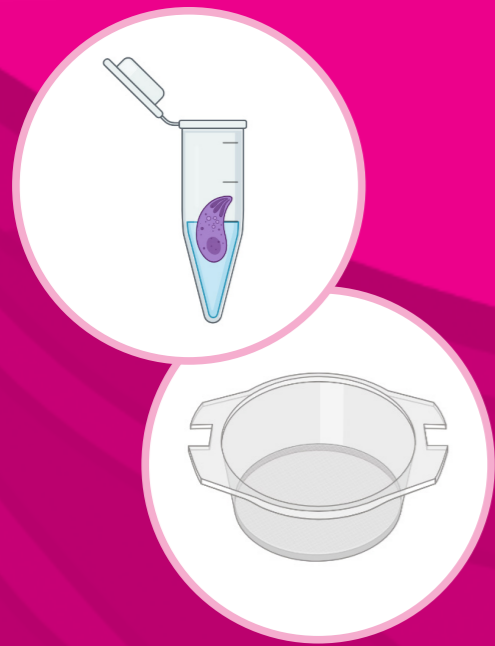
Background

Ocular toxoplasmosis (OT) is caused by infection of the eye with the parasite *Toxoplasma gondii* and it is the most common cause of eye inflammation in the world. However, little is known of the reaction to infection of specific cellular types of the retina, or whether different retinal cell types display different sensitivities to infection.

Aim

Most experimental models used to date are *in vitro* or *in vivo*. An almost unexplored possibility is the use of organotypic, *ex vivo* retinal explants, which offer the advantage of easy manipulation and fast and reliable observation of the effects of exogenous compounds while maintaining the complexity and the extracellular environment typical of the *in vivo* setting.

Methods



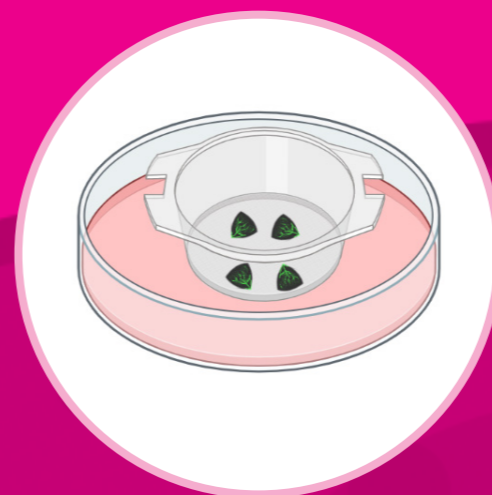
1

Rafts of nitrocellulose filters were first soaked in different concentrations of *T.gondii* (2×10^3 t.gondii/mL, 20×10^3 t.gondii/mL and 200×10^3 t.gondii).



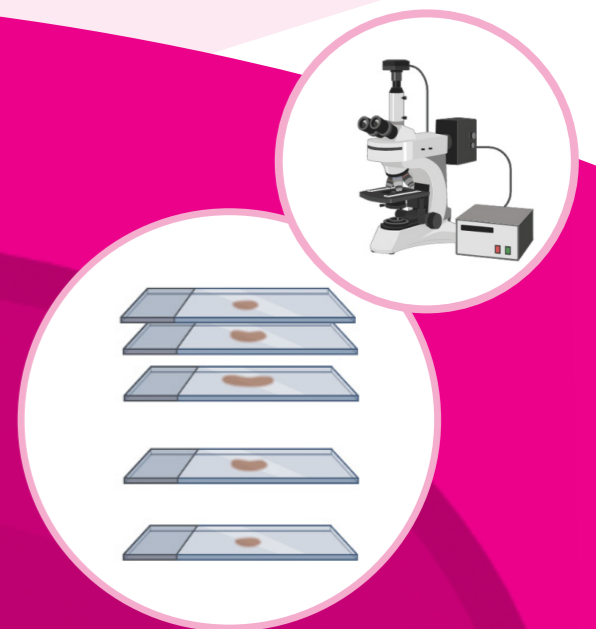
2

Extracted adult murine retinas were placed with photoreceptor layer facing downward on the filters previously soaked with *T. gondii*.



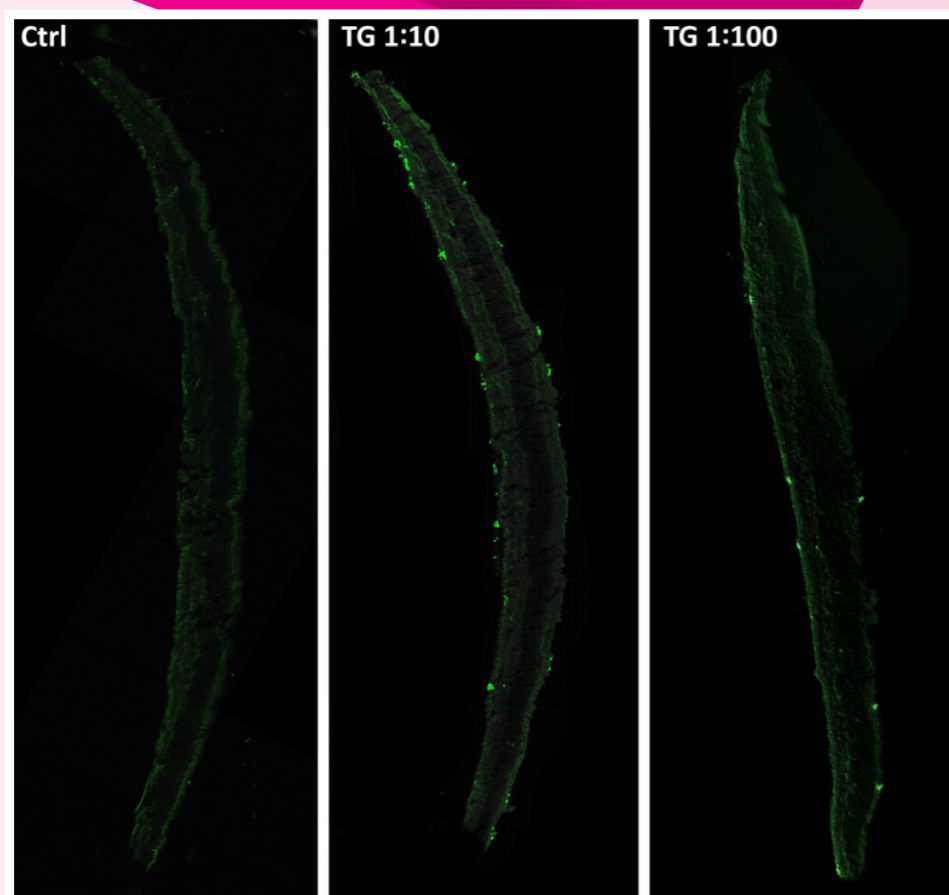
3

Retina explants were maintained in culture for 24 hours, 3 days, 7 days or 10 days, changing the culture medium every two days.



4

After incubation the retinas were fixed with 4% paraformaldehyde, cut with a cryostat and processed for immunohistochemistry for *T. gondii* detection.



Preliminary results

Set up experiments showed a successful infection of the retinal explants by *T. gondii*, but the best concentration of the parasite was not established yet. We are currently running experiments with different parasite concentrations.

Future perspectives

The ongoing experiments will allow us to determine in which areas of the retina *Toxoplasma* is most present, and which infection time and parasite concentration are optimal for model establishment.



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