

A stable efficacious *Toxoplasma* vaccine

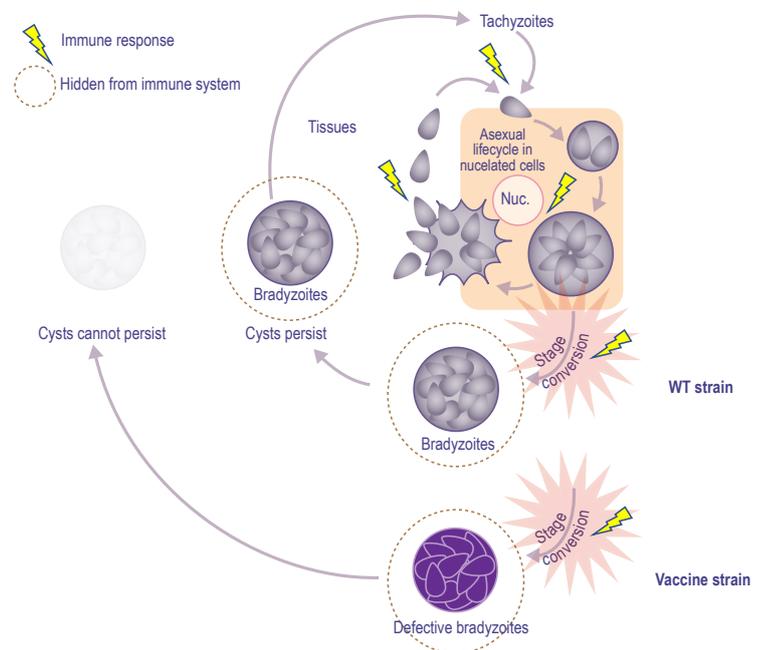
- ▶ *Toxoplasma* infection causes huge losses for livestock industry.
- ▶ The current vaccine has limitations and is not approved for use in Australia.
- ▶ Our vaccine strain is genetically defined and prevents both acute and chronic infection.

The opportunity

Toxoplasma infection, caused by ingestion of food contaminated with infected cat faeces, leads to huge losses of livestock from abortion (particularly in sheep), and results in chronic infection due to formation of tissue cysts. Ingestion of meat containing cysts transmits the infection. Currently there is no treatment for chronic infection and the existing agricultural vaccine is not approved for use in many markets, including Australia.

The technology

We have developed a genetically defined attenuated *Toxoplasma* mutant that cannot regulate its carbohydrate storage, resulting in hyperaccumulation of starch, which renders it unable to form persistent cysts or chronic infection. This strain is an excellent vaccine candidate strain as it can produce short-lived cysts and elicit a complete immune response in the host. Animals infected with our strain show no evidence of toxicity indicating the strain is safe.



Opportunities for partnership

This opportunity is to develop a stable, safe and efficacious vaccine for toxoplasmosis that can be used to prevent livestock abortion.

We have:

- A safe *Toxoplasma* strain, with easily scalable growth, for vaccine development.
- A PCT application: parasite vaccine.
- An exceptional team with expertise in *Toxoplasma* biology.

We are seeking a partner to:

- Co-develop a novel livestock vaccine, assist with veterinary trials and advise on regulatory issues.
- Commercialise and market this novel vaccine for toxoplasmosis in livestock.

Scientific team

Associate Professor Chris Tonkin

Laboratory head, Infection and Immunity division

At the Walter and Eliza Hall Institute our multidisciplinary research teams are focused on solving complex biological questions by integrating expertise in bioinformatics, clinical translation, computational biology, epidemiology, genomics, medicinal chemistry, proteomics, structural biology and systems biology. Our innovative science expands and improves the understanding of human biology and enables the translation of this new knowledge into novel therapies that benefit patients worldwide.

Project pipeline - available for partnering

	Project	Mode of action*	Target validation	Hit discovery	Lead generation	Lead optimisation	Indication
Cancer	Targeting minor class splicing	Inhibitor					Mutant K-Ras, B-Raf tumours
	Targeting EBV malignancies	Inhibitor					Burkitt's lymphoma
	Treating drug resistant cancers	Inhibitor					Cancer
Immune health and infection	pDC therapy for lupus	Inhibitor					Systemic lupus erythematosus
	RIPK2: Intercepting Inflammation	Inhibitor					Inflammatory bowel disease
	Rethinking CD52	Biologic					Autoimmunity
	SOCS mimetic	Inhibitor					Inflammatory bowel disease
	A complete cure for HBV	Inhibitor					Hepatitis B
	Novel malaria vaccine	Vaccine					Malaria
	Toxoplasma vaccine	Vaccine					Animal health: Toxoplasmosis
	Precision prebiotics	Prebiotic					Inflammation
	Healthy development and ageing	Precision epigenetics	Inhibitor				
FSHD epigenetic therapy		Activator					Facioscapulohumeral dystrophy
Improving retinal detachment outcomes		Inhibitor					Ophthalmology

*Activator or Inhibitor refers to small molecule compounds

To discuss partnering opportunities, please contact **Dr Anne-Laure Puaux**, Head of Commercialisation, by email partnering@wehi.edu.au.