



THE UNIVERSITY  
of ADELAIDE



# ZIKA NS1 DNA VACCINE

## A plasmid DNA vaccine that encodes a secreted form of Non-Structural protein 1

### Benefits

A simple and intensive DNA vaccine that elicits robust humoral and cell mediated immune response to the Zika virus NS1 protein, resulting in protection against challenge. Key features include:

- Complete protection against infection
- Synthesizes a specific antigen response
- Excellent safety profile
- No risk of antibody dependent enhancement of infections
- No vector immunity: prime – boost
- Low reactogenicity (candidate for pregnant women)
- No need for adjuvant
- Stable for transportation and storage
- Easy manufacturing process.

### Applications

A vaccine that protects and eliminates Zika virus and has the potential to treat or reduce transmission of Zika virus infection and to block transmission of Zika in mosquitoes.

### Technology overview

We have developed a simple and intensive DNA vaccine that elicits robust humoral and cell-mediated immune response to the Zika virus NS1 protein. It is highly immunogenic and offers complete systemic protection from Zika in vaccinated mice. The vaccine protects and completely eliminates Zika virus in pre-clinical studies.

We have modified the plasmid DNA vaccine to include a leader sequence upstream of the NS1 gene, resulting in secretion of NS1 from vaccine-transfected cells – similar to what happens with NS1 during natural Zika infection in humans.

The immunogenic portion of the sequence elicits various responses including T-helper response, a cytotoxic-T-cell response, and/or a B-cell response.

### Development Status

TRL 3-4: Series of compounds optimised. PK/ toxicity tested in relevant in vivo models. Efficacy demonstrated in vivo. Finalised formulation for route of administration. Relevant patent literature has been surveyed to identify white space. The technology was recently published in Science Advances.

### Opportunity

Partners sought for development, non-human primate pre-clinical testing, clinical trials, and product commercialisation. Exclusive and non-exclusive licences available.

### IP status

International patent application filed. Provisional patent filed for other non-structural proteins.

### Inventors

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## FURTHER ENQUIRIES

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