

Successful *in vivo* results – peptide vaccine T-cell expansion

Phylogica (ASX:PYC) is the owner of a peptide library containing the extraordinary richness and diversity of nature. We are using these libraries to develop a drug delivery platform capable of reaching the highest value drug targets located inside cells. Our delivery platform enables drug cargoes to cross the cell membrane and directly reach their target.

27 July 2018:

PYC is pleased to announce successful *in vivo* results in the evaluation of its peptide vaccine program.

Highlights:

- PYC's Cell Penetrating Peptides (CPPs) elicit a **substantially stronger CD8+ T cell expansion than the 'gold standard' CPP 'TAT' *in vivo***;
- Phylogica's CPPs triggered an antigen-specific immune response similar in magnitude to that raised against a **Herpes Simplex Virus (HSV)** infection (an indication of the strength of T cell response to be expected from a healthy mouse in response to a strong viral stimulus);
- In a complementary experiment, the T-cells generated in response to the vaccination **had the ability to kill cells expressing the receptor** that they are created to recognise (target cells); and
- In combination, the experiments demonstrate the efficacy of the CPP-antigen conjugate in stimulating a CD8+ T cell immune response that is **capable of recognising and killing the target cell**.

The results

Phylogica's peptide vaccine program continues to produce encouraging *in vivo* data and has now been expanded beyond oncology to include viral illnesses that can be treated via the same vaccination strategy (T cell expansion and effector function).

In the most recent *in vivo* experiments, mice were treated with a range of different CPPs joined to a common antigen from HSV capable of triggering the creation of cytotoxic CD8+ T-cells when delivered into the cytoplasm (across the cell membrane) of dendritic cells. After administration of the various CPP-antigen vaccines and allowing time for the generation of an immune response, spleens were taken from the mice to measure the levels of CD8+ T-cells that their immune system had created that were specific to the antigen introduced by the CPP.

Phylogica's CPPs produced the greatest expansion in CD8+ T cells across all groups of treated mice. The level of T-cell expansion for Phylogica's CPPs approached that seen in response to HSV (a strong viral stimulus).

In a complementary experiment, the vaccinated mice also received cells expressing the HSV antigen. This experiment simulates a disease state such as a virus or cancer where the target cells express the receptor towards which the vaccine was directed. The CD8+ T-cells stimulated by the vaccine were able to recognise and kill the target cells which expressed the HSV antigen with a high degree of efficiency – confirming that the CPP-antigen vaccination approach is effective both at stimulating a CD8+ T-cell response and the effector function of those CD8+ T-cells in recognising and killing their target.

The peptide vaccine program continues to progress in the context of multiple different antigens (cargoes) and disease indications towards its ultimate read-out of complementarity to existing therapies in each of these indications to demonstrate improved treatment efficacy.

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About Phylogica

Phylogica Limited (ASX: PYC) is a biotech company focused on commercialising its intracellular drug delivery platform and screening its peptide libraries to identify drug cargoes for development against a wide range of disease targets. Phylogica controls access to the world's most structurally diverse source of peptides which have the ability to act as effective drug delivery agents and drug cargoes, penetrating cell walls to reach previously 'undruggable' targets across a range of disease types. Phylogica's platform of proprietary cell penetrating peptides has been validated across multiple animal models for the ability to deliver a diverse range of drug cargoes into cells. The company has collaborations with several pharmaceutical companies including Roche, Medimmune, Pfizer, Janssen and Genentech.

Forward looking statements

Any forward-looking statements in this ASX announcement have been prepared on the basis of a number of assumptions which may prove incorrect and the current intentions, plans, expectations and beliefs about future events are subject to risks, uncertainties and other factors, many of which are outside Phylogica's control. Important factors that could cause actual results to differ materially from assumptions or expectations expressed or implied in this

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