

# PHYLOGICA

BREAKTHROUGH PEPTIDE THERAPEUTICS

## New delivery vehicles show improved performance inside cells

**PERTH, Australia, 5<sup>th</sup> September 2017:** Phylogica Limited (ASX:PYC) (**Phylogica** or the **Company**), developer of a leading intracellular drug delivery platform technology, is pleased to provide an update on its core Functional Penetrating Peptide (FPP) platform delivery technology.

Phylogica's primary objective is to harness the ability of its FPP platform to deliver drug cargoes inside cells as next generation therapies for a range of diseases. Delivering drug cargoes inside cells provides access to 10 times as many drug targets as those currently accessible. A key activity for this half of CY2017 is expanding the number FPPs that have the ability to deliver drug cargo into cells.

Phylogica has engineered new FPPs with significantly greater potency than the Company's current lead FPP (named '1' in the images below) which, in turn, has been shown to be approximately 40 times as effective as the previous gold standard intracellular drug delivery technology known as Tat. Phylogica's FPPs are able to achieve this substantially improved performance over conventional Cell-Penetrating Peptides (CPPs) such as Tat due to their ability to escape from the endosomes that are formed around them as they are transported across the cell membrane. Release from the endosome is a major challenge with intracellular drug delivery and represents the critical hurdle in accessing this high value environment to deliver therapeutics.

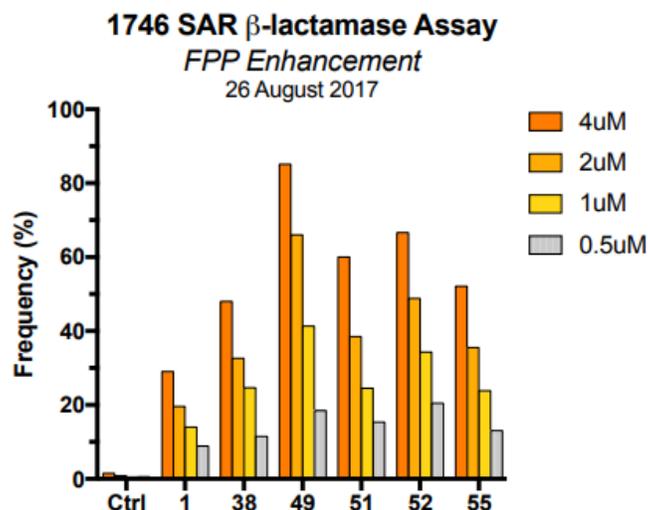


Figure 1

The image above shows the performance of six different FPPs (horizontal plane) in an experiment designed to evaluate each FPP's ability to deliver a cargo (here the enzyme beta-lactamase) inside the cell (measured as a percentage in the vertical plane) against the control. The higher the bar in the chart, the greater the ability of the FPP to reach the inside of the cell.

The experiment shows the company's previous lead FPP designated '1' is outperformed by five new FPPs (38, 49, 51, 52 and 55 - with FPP49 performing the best in this experiment) at a range of different concentrations (represented by different colour codes) ranging from 0.5uM (lowest dose) to 4uM (highest dose).

The second experiment (Figure 2) also measures the overall uptake in the cell but breaks this down further by showing how much of the enzyme is delivered when the enzyme reacts with a dye that converts from green to blue. This is an important experiment as it shows the FPP's ability to cross the cell membrane with delivery of the attached cargo inside the cell (which will be required for a drug candidate such as the company's in-house lead iMyc).

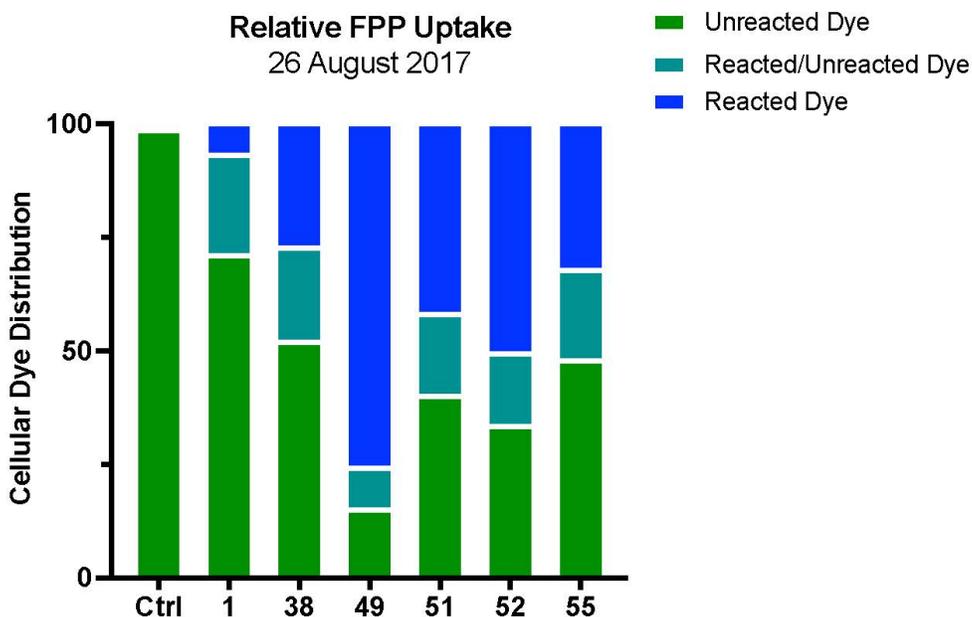


Figure 2

The panel above shows the ability of different FPPs to import active beta-lactamase (a 42 kDa protein cargo) into cells. Blue bars show dye residing inside a cell (simulating a drug target) that has been cleaved by the beta-lactamase that the FPP has carried across the cell wall and outside of the endosome (successful delivery of the cargo to the target).

The bright green shows unreacted dye inside the cell due to failure of the FPP to import sufficient active lactamase to its target (failure to deliver the cargo to the target). As can be seen by the significant quantities of blue dye for some variants of FPPs, the potent FPPs on the previous panel (Figure 1) can efficiently import active enzyme (a type of drug cargo) into the cytoplasm of the cells represented here (Figure 2). These highly potent FPPs will be assessed for further optimization work and evaluation in the Company's animal models in early 2018.

Commenting on recent progress with Phylogica's FPP platform technology, Chief Scientific Officer Rob Hayes stated, "it is excellent to see Phylogica's research team continue to identify more potent FPPs and demonstrate that they can import an active cargo."

Chief Executive Officer, Stephanie Unwin commented that "Phylogica aims to maximize value from the FPP delivery technology by identifying a fleet of FPPs with potency and cell reach, providing a platform for selecting an FPP that delivers a commercial product into the intracellular environment where the target is located. We are confident that this work gives the company a model for near term commercial value, and will be validated when the FPPs are demonstrated to work by delivering a functional cargo in the live animal (in vivo) models expected to be completed in the first quarter of 2018."

**ENDS**

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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 Phylomer 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 called Phylomers, which have the ability to act as effective drug delivery agents and drug cargoes, to reach previously 'undruggable' targets across a range of disease types. Phylogica's platform of proprietary cell-penetrating peptides is showing promise in delivering a diverse range of drug cargoes into cells, and the company's lead asset program has identified at least two Phylomers which can inhibit Myc, a protein responsible for the regulation of cancer cell growth. The company has collaborated with several pharmaceutical companies including Roche, Medimmune, Pfizer and Janssen and is currently working with 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 ASX announcement include known and unknown risks. Because actual results could differ materially to assumptions made and Phylogica's current intentions, plans, expectations and beliefs about the future, you are urged to view all forward-looking statements contained in this ASX announcement with caution. Phylogica undertakes no obligation to publicly update any forward-looking statement whether as a result of new information, future events or otherwise.

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