PHYLOGICA

BREAKTHROUGH PEPTIDE THERAPEUTICS

Shareholder Update

23 May 2016

Dear Shareholder,

Phylogica Limited (ASX: PYC) is transitioning from a drug discovery platform company to a company with drug development capability. As part of this transition, the company is focussed on the development of its lead candidates into a formal pre-clinical program, followed by evaluation in a clinical trial.

> ***"Phylogica is committed to generating shareholder value by expanding the universe of druggable targets."***

In late 2015, Phylogica's board and management conducted an externally facilitated review of the company strategy, so as to re-define our objectives as we shifted focus from identifying the most promising Phylomers within our libraries to becoming a drug development company. The company has now developed two complementary plans to achieve our strategy:

i) ***a drug development plan*** (the road map from development of lead candidates to clinical evaluation); and
ii) ***a commercialisation plan*** (the approach to building shareholder value as Phylogica demonstrates drug development capability).

In the second half of calendar year 2016, the company is targeting delivery of a 'proof of concept' data pack. This data pack is an **important technical milestone on the drug development pathway**, providing external parties with data on how our Phylomer drug candidates perform in animal models of disease.

With these developments in mind, the purpose of this Update is to provide shareholders with:

i) a short summary of the drug development plan and commercial approach;
ii) the framework used to evaluate the results to be provided in the data pack; and
iii) a high level timeline of the company's activities over the next three months.

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Review of our Strategy

Overarching objective

Phylogica's overarching objective is to ***expand the universe of druggable targets*** by opening up the intracellular space to large molecules (biologic drug cargoes). Currently, there is:

i) increasing competition to drug a finite pool of extracellular targets; and
ii) a very limited subset of the total intracellular target pool amenable to inhibition by existing therapies that can cross the cell membrane.

> ***"Opening up the intracellular target landscape for large molecules holds the promise of new classes of drugs with heightened sensitivity and specificity of interaction, meaning better therapeutics with greater potency and fewer side effects."***

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Understanding our true source of advantage

Phylogica's drug development approach to intracellular delivery of large molecules is modular, where each of four critical properties is conferred by a discrete module of a broader drug compound. The four properties are:

1) the ability to target a particular cell type within the body for delivery of the drug;
2) the ability to **cross the cell membrane** and be active within the cell's cytoplasm;
3) the ability to **interact with a target inside the cell** in a way that beneficially changes the behaviour of that cell; and
4) the ability to protect the drug between the site of administration (typically a vein) and the site of action (a tumour in Phylogica's case).

Phylogica's true source of advantage relates to properties 2 and 3 – the two most unique elements of the drug compound. Phylogica's proprietary Phylomer libraries contain billions of peptides that can be rapidly screened to identify the peptides naturally enriched to cross the cell membrane and interact with a target.

Developing this source of advantage

The next stage for Phylogica is critical. We must demonstrate that our Phylomers can achieve a therapeutically relevant outcome in an appropriately validated animal model of disease. The Board believes that developing a compelling data pack supporting the efficacy of a lead compound in treating lymphoma or leukaemia will create broad interest in Phylogica's platform. The data pack will evidence Phylogica's ability to:

- deliver a large molecule into the intracellular space at a therapeutically relevant concentration; and
- generate drug cargoes with superior efficacy for the novel intracellular targets now opened up to large molecules.

Matching technical advantage to commercial outcome

In producing a sufficiently compelling data pack, Phylogica believes it will have crossed the critical technical threshold that will enable meaningful collaboration with pharmaceutical partners. Phylogica's approach will be to target potential partners who are looking for evidence of in vivo activity of the Phylomers and to then seek financial commitment from them to fund further development to pre-clinical and then clinical evaluation.

The data pack will address the five core questions to establish the properties of a drug:

1) ***Potency*** – how much drug is required to elicit the desired effect?
2) ***Selectivity without toxicity*** – does the drug act specifically on the target to avoid undesirable (toxic) side-effects?
3) ***Serum stability*** – how long does the drug resist being degraded in serum?
4) ***Pharmacokinetic profile*** – how long does the drug remain in the blood before being cleared from the body?
5) ***Efficacy in animal models*** – is the drug effective in well validated animal models of disease following delivery in the blood stream (systemic delivery)?

> *"The proof of concept pack will be delivered in the second half of calendar 2016… which the company believes will be sufficient to attract commercial interest."*

The proof of concept data pack will be completed in the second half of calendar year 2016 with a comprehensive data pack to follow in the second half of calendar year 2017. The company believes the proof of concept data pack will be sufficient to attract commercial interest in the technology.

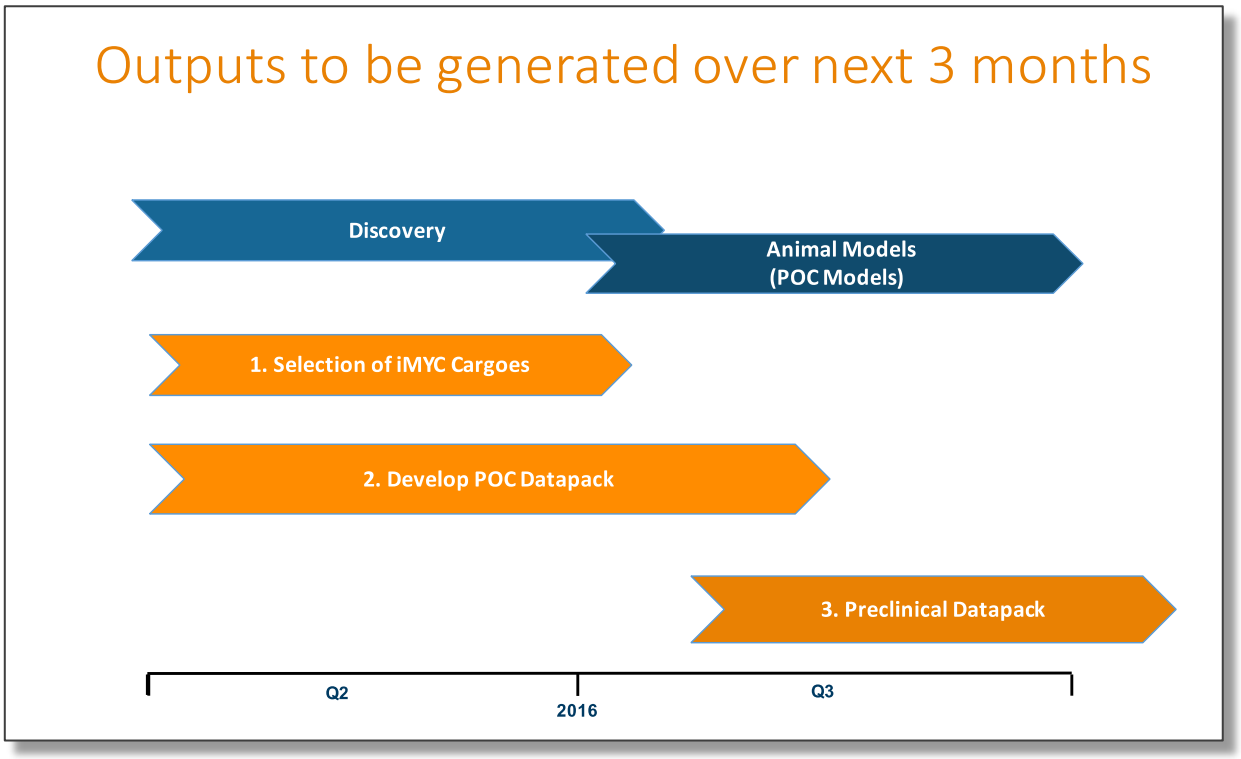
Current activities and timelines

Re-cap of Company activities

Phylogica has an internal program focussed on three high value cancer targets (Myc, Stat5 and YB1) in a common cancer pathway. The company has elected to target lymphoma and leukaemia in the first instance because of the greater accessibility of blood-borne tumours when compared to solid tumours. The delivery of a proof of concept and then comprehensive in vivo data pack for the company's first commercial product in oncology (lymphoma and leukaemia) is Phylogica's core strategic priority.

Phylogica has also established a number of external collaborations which are aimed at providing independent validation of the Phylomer platform as a delivery technology. In this context a collaborator will use a Functional Penetrating Phylomer (FPP) to deliver their designated cargo (a biologic drug) into the intracellular environment. A number of these collaborations are at a similar stage of development to Phylogica's internal program and are expected to begin providing data on the efficacy of Phylomers as a delivery technology over the coming months.

Outputs to be generated over the next three months:



Detailed summary of milestones for next three months:

	Outputs	Next Steps
1. Selection of iMYC candidates	Prioritisation of iMyc candidates based on functional activity	Selection of 2-3 Phylomer iMycs for in vivo evaluation alongside OmoMyc
2. Develop proof of concept (POC) data pack	Confirmation of success against 5 key drug-like properties: • Potency: Demonstration of low micro-molar potencies • Selectivity and Toxicity: Confirm specific mechanism of action and that there is no off-target activity • Serum stability: Demonstration large peptide fragments can avoid degradation in serum • Pharmacokinetic profile: Confirmed delivery to target tissue and absence of rapid renal clearance • Efficacy in animal models: Confirmed activity in animal models of disease (with drug both delivered as a gene and as a protein)	Initiate commercial discussions around POC data pack
3. Deliver definitive data pack for pre-clinical studies	Optimise lead candidates (ideally with the following properties) for preclinical studies • Potency: Demonstration of nanomolar potencies • Selectivity and Toxicity: Detailed binding kinetics for iMyc/Myc, solve target/ligand structure and deliver industry standard toxicity pack	Formally progress lead candidates to preclinical phase of development

	Outputs	Next Steps
	• Serum stability: >80% serum stability after 12 hours in static serum • Pharmacokinetic profile: >4 hours serum half-life in mice/rats • Efficacy in animal models: Confirmed activity in multiple animal models of disease	

Building sustained Investor Support for Phylogica

Your Board is committed to delivering a proof of concept data pack to demonstrate our drug development capability and we look forward to updating you on our progress. We are also initiating a Quarterly Operations Report, commencing at the end of the current quarter, and encourage you to follow the company's activities as we inform the market of our technical and commercial achievements.

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Chair
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