



# Phylogica: Pivot to Platform

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AGM Presentation

By CEO Stephanie Unwin

November 2017

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# We must pivot from developing drugs to commercialising the platform

**Value proposition:** Enhance existing drugs to address a large and growing \$250Bn USD market

1

Bring drugs to the right place  
(i.e., to intracellular targets)

2

Enhance properties of drugs (e.g., improve therapeutic window)

3

Reduce discovery cycle time (strongly improving profile)

# Our advantage is in using our assets as a platform to solve Pharma problems

## Phylogica has unique, valuable assets ...

- **Complex, rich Phylomer library** –target identification or drug discovery
- **Well validated platform** technology – in vivo work demonstrates delivery and we have landed multiple Pharma deals
- **Strong patent position** - international patents in place, latest endothelial cell structures granted in October

## ... for a huge potential market

- **Unmet need** – undruggable \$250Bn growth market, intracellular hurdles
- **Blue sky potential** – enhancing Phylomer library to screen for new cargoes and carriers
- **De-risked investment opportunity** – platform intracellular delivery, and screen for new targets

# Value to Pharma shown by validating diverse sets of cargoes and cell types

FPP01 validation matrix

	Peptides	Scaffolds	Enzymes	Antibodies	Oligo-nucleotide	Expand to new cargoes →
Breast tumour	In vitro validation	In vivo validation	Conceptual	Conceptual	Conceptual	
Blood cancer	In vitro validation	In vitro validation	Conceptual	Conceptual	Conceptual	
Bone cancer	In vitro validation	Conceptual	Conceptual	Conceptual	Conceptual	
Heart	In vitro validation	Conceptual	Conceptual	Conceptual	In vivo validation	
Muscle	Conceptual	Conceptual	Conceptual	Conceptual	In vivo validation	
Diaphragm	Conceptual	Conceptual	Conceptual	Conceptual	In vivo validation	
Liver	Conceptual	Conceptual	In vitro validation	Conceptual	In vivo validation	
Expand to new targets ↓						

Legend:

- Conceptual
- In vitro validation
- In vivo validation

Phylogica is **validating FPP's across a matrix** of possible cargoes and targets:

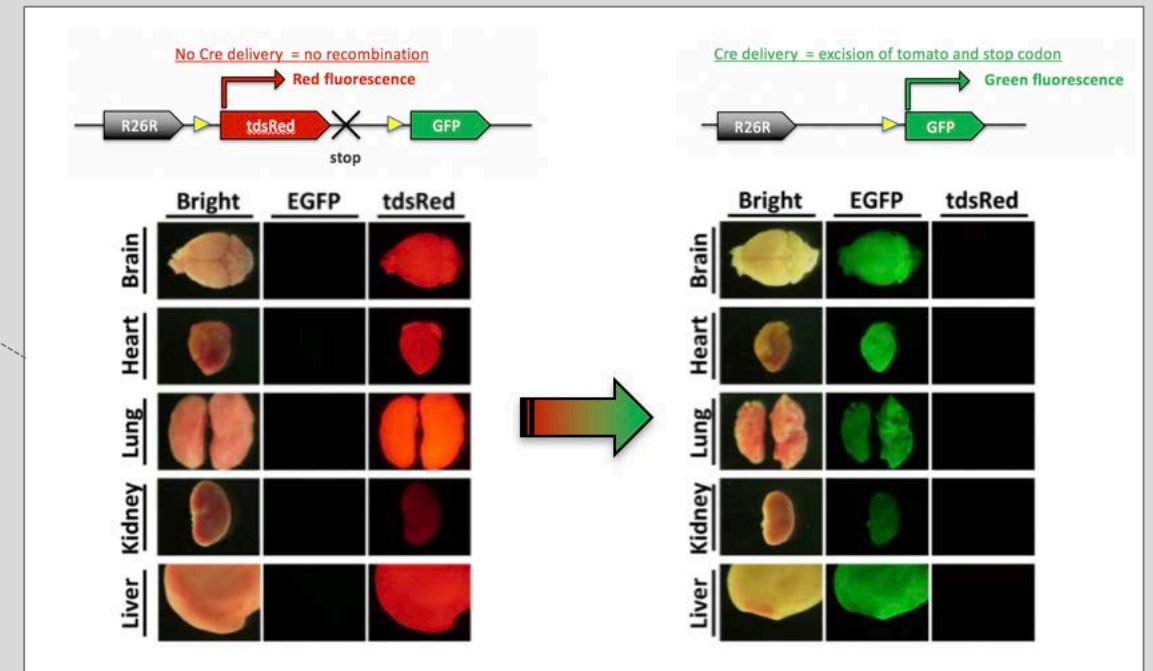
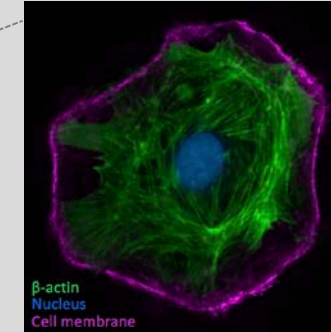
- each matrix 'cell' **opens up another potential market**
- Multiple offerings allows Phylogica to **operate at scale** serving many Pharma

# 2018: PYC funded to validate cargoes/ targets increasing Pharma interest in partnering for drug discovery

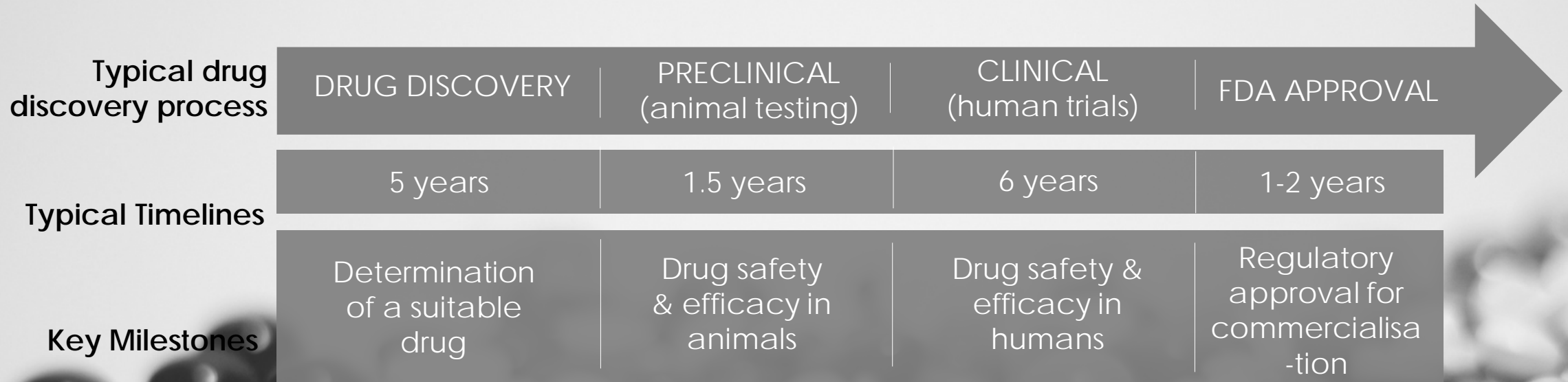
## FPP01 validation matrix

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Breast tumour				b-actin		→
Blood cancer						
Bone cancer			Cre			
Heart						
Muscle						
Diaphragm						
Liver						
Expand to new targets	↓					

Conceptual  
 In vitro validation  
 In vivo validation



# Phylogica shortens Pharma discovery phase



Value of PYC platform

## Highly attractive for Pharma customers

- Significantly improve the profile of customer drugs
- Massively shorten the discovery phase
- Customers reach their value inflection points faster

# In the platform landscape, PYC uses its technology for the undruggable



# BIO: Customer feedback

Lots of interest from target customers...

... who clearly see the need for our platform technology

**PHOREMOST**  
DRUGGING THE UNDRUGGABLE



**AsahiKASEI**



**Johnson & Johnson**

"You've come a long way since we last saw you"

" primary therapeutic isn't working ...need a back up plan"

"we need delivery to the cytosol"

"We are facing intracellular hurdles..."

"Interested in your platform, very exciting"

# To achieve PYC – the Platform: Phylogica is laser focused on 3 goals

Further  
prove the  
value of our  
platform

1

- More ***in vivo*** functional validation
- **Improve** our FPPs
- **Enrich and validate** our library

Transform  
operations  
to achieve  
scale

2

- **Reduce** discovery and validation **cycle times** with **automation**
- Engage **CROs** to drive scale

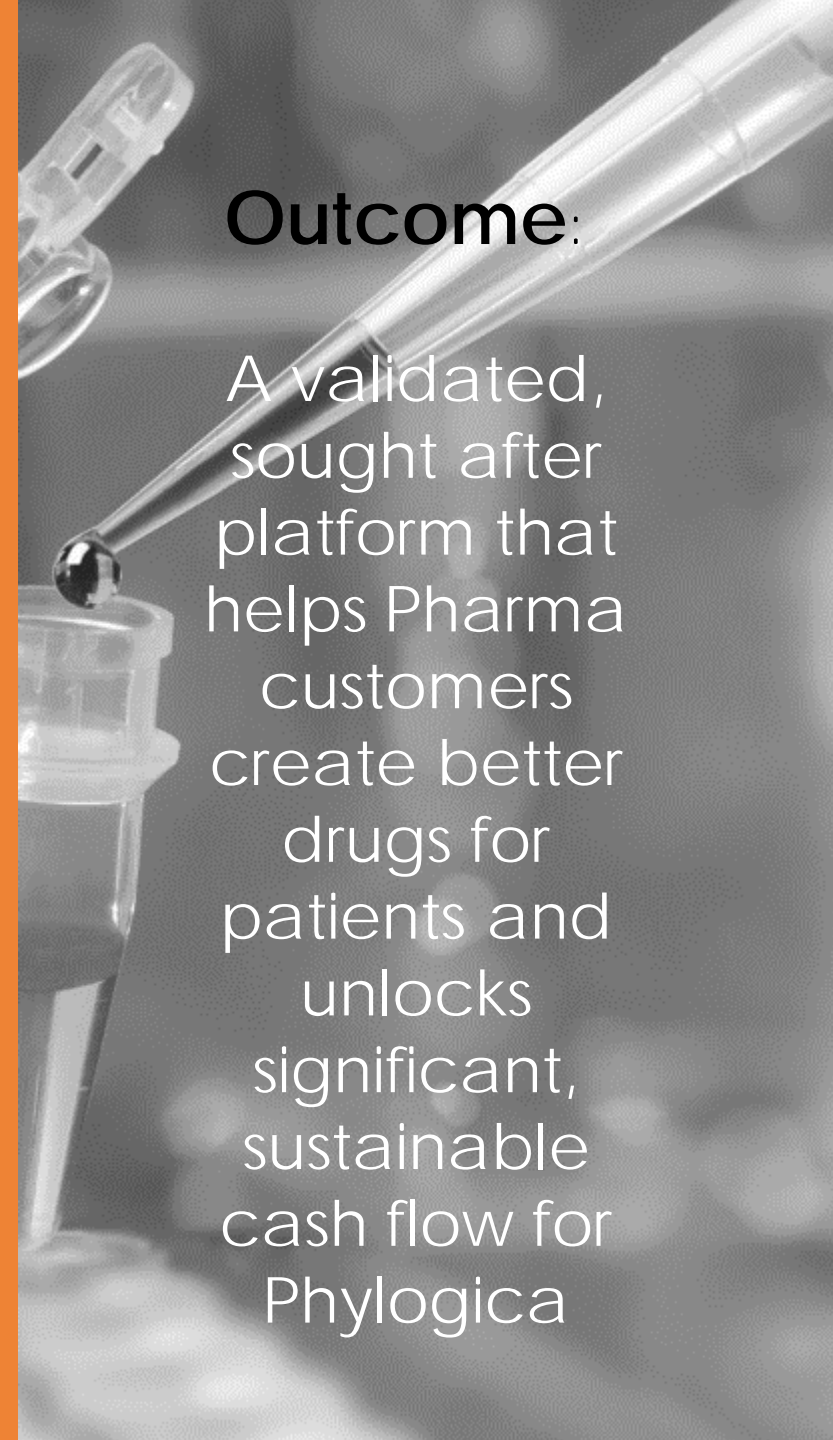
Step up our  
commercial  
engine

3

- **Close multiple deals** across therapeutic areas
- Grow **existing collaborations**

## Outcome:

A validated, sought after platform that helps Pharma customers create better drugs for patients and unlocks significant, sustainable cash flow for Phylogica





# Thank you

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For more information contact  
Stephanie Unwin at  
[stephanieu@phylogica.com](mailto:stephanieu@phylogica.com)

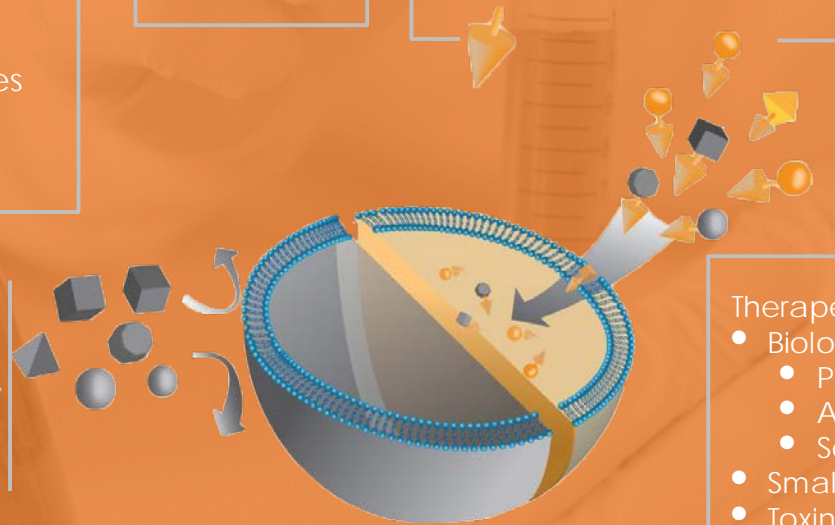
# Significant constraints in existing drug discovery approaches

## The problem?

Drug discovery growth stagnating as biologics currently limited to extracellular targets (unable to enter cells)

Biologics  
- Antibodies  
- Scaffolds  
- rProteins

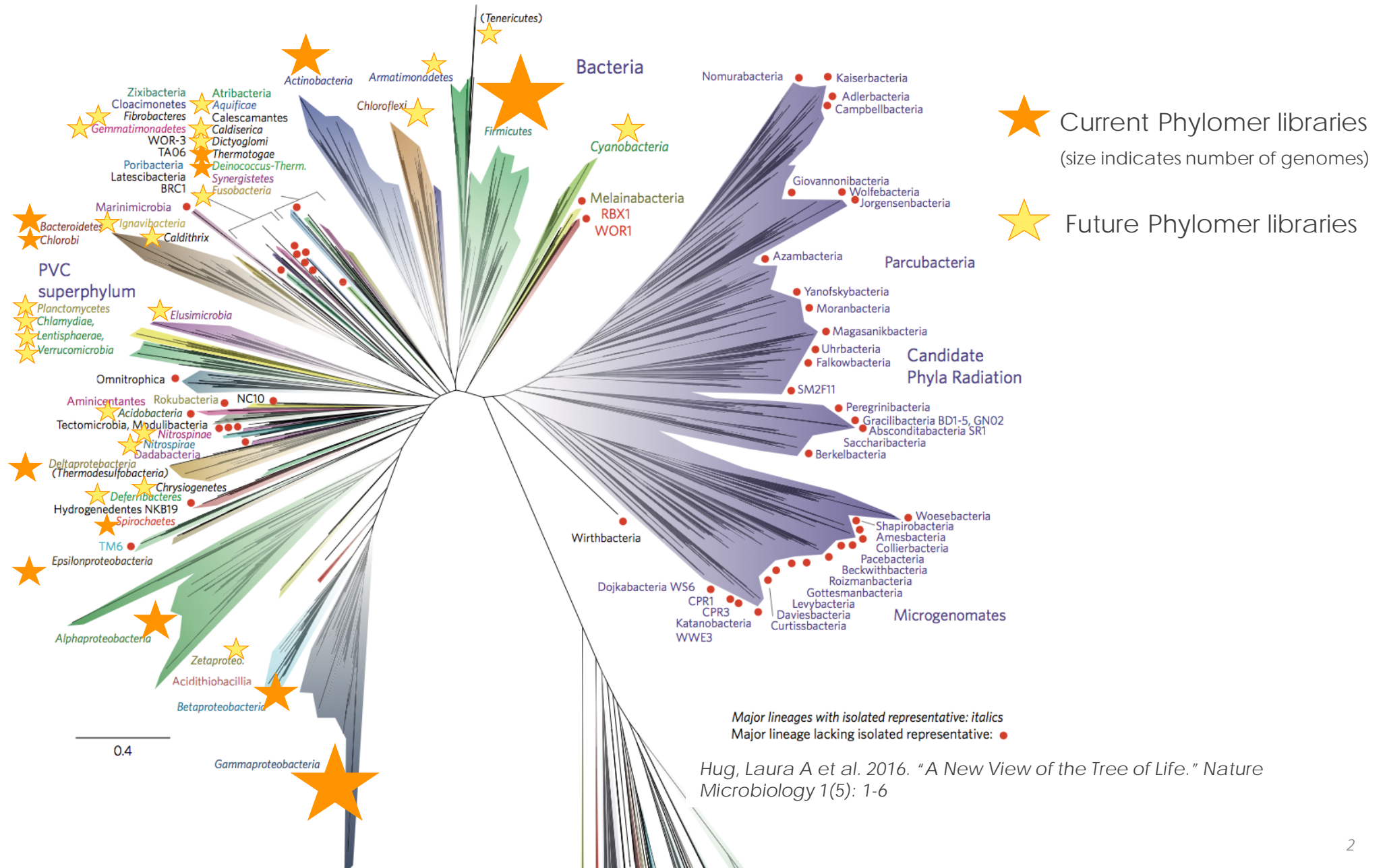
Phylomer  
CPP



## Our solution?

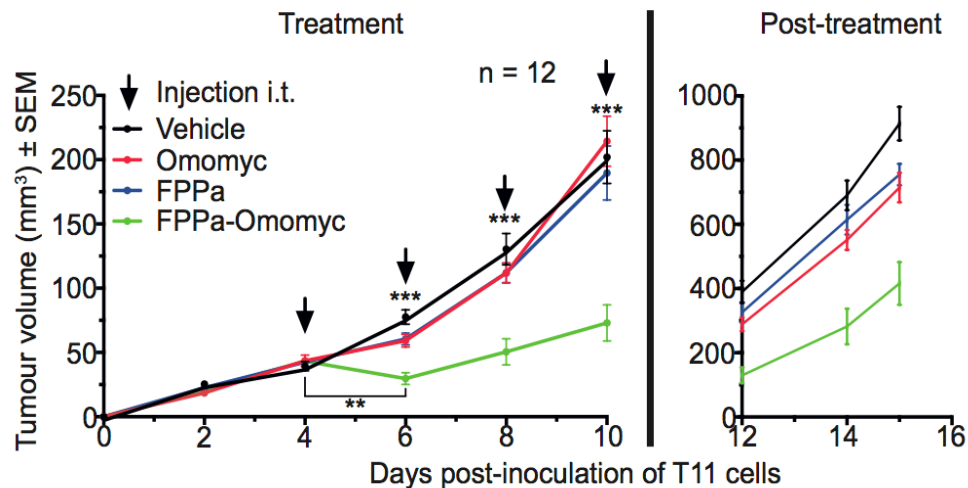
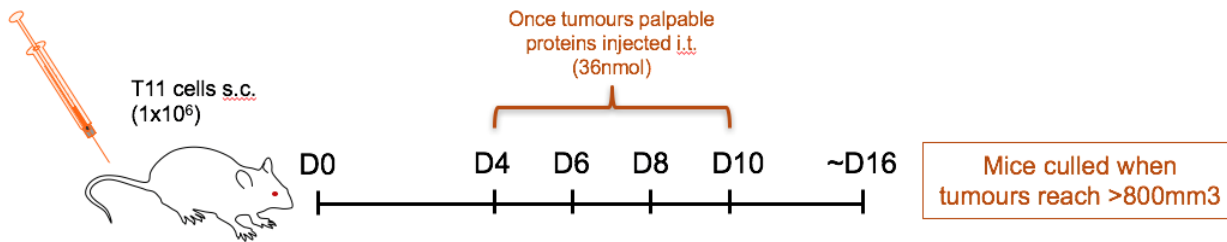
We can bring biologics into the cell, unlocking the potential of these powerful drugs by allowing them to reach intracellular targets

# Harnessing the Microbiome for new Phylomer libraries



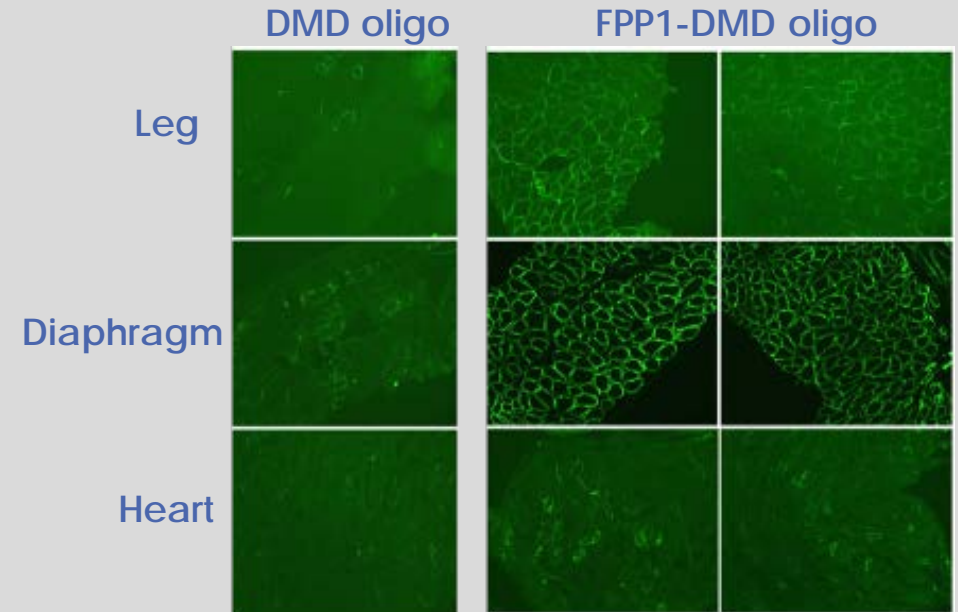
# PYC has shown conclusively that FPPs work in animal models

Inhibition of tumor growth in mouse cancer model



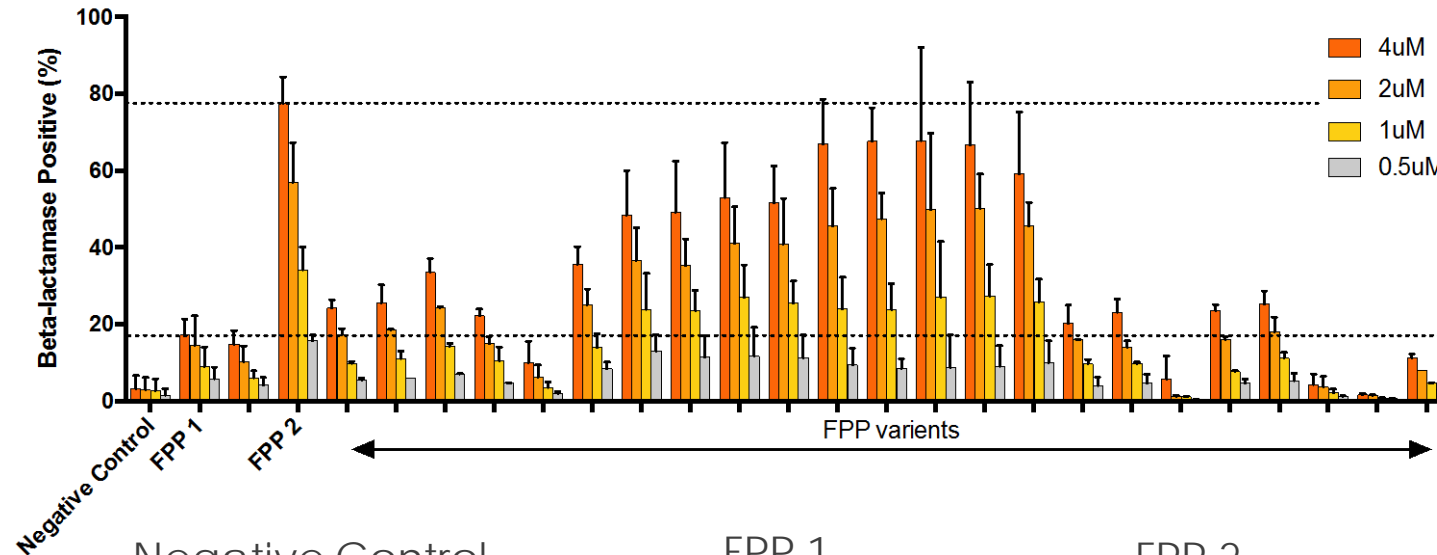
Restoring dystrophin levels by FPP mediated delivery of DMD PMO

Treated mice



FPP1 has been significantly improved upon,  
and new variants are being validated *in vitro*

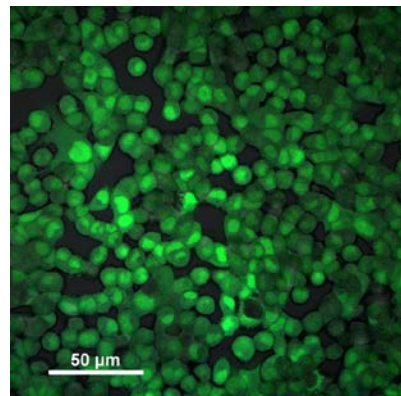
Flow  
cytometry



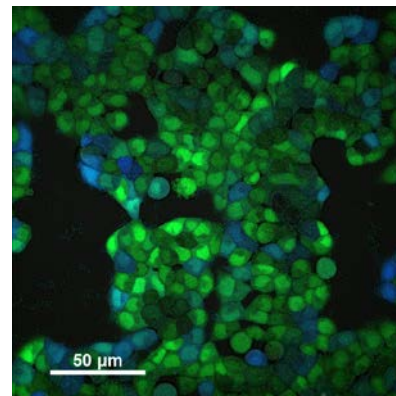
N=2

Confocal  
microscopy

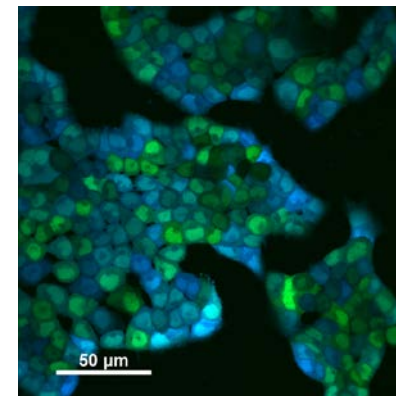
Negative Control



FPP 1



FPP 2



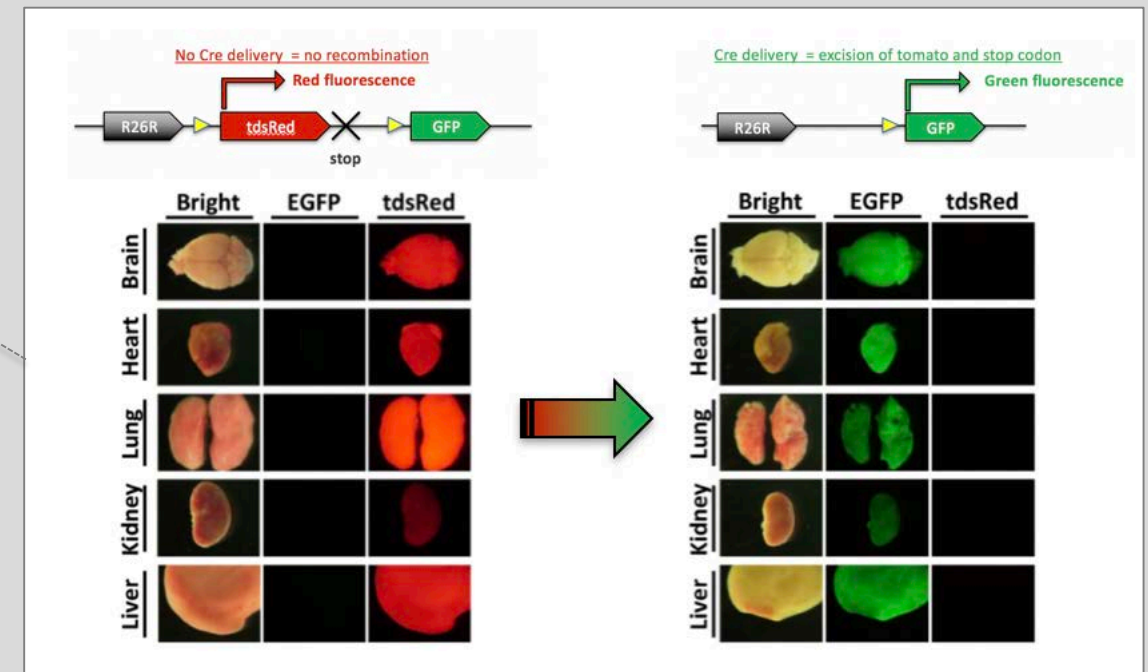
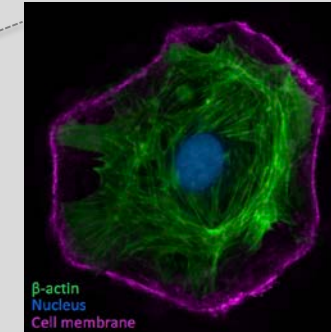
Phylogica's FPP improvement program through rational design has demonstrated the ability to enhance potency with no increase in toxicity

# Into 2018, PYC is validating a comprehensive matrix of FPPs - delivery of cargoes into different cell types

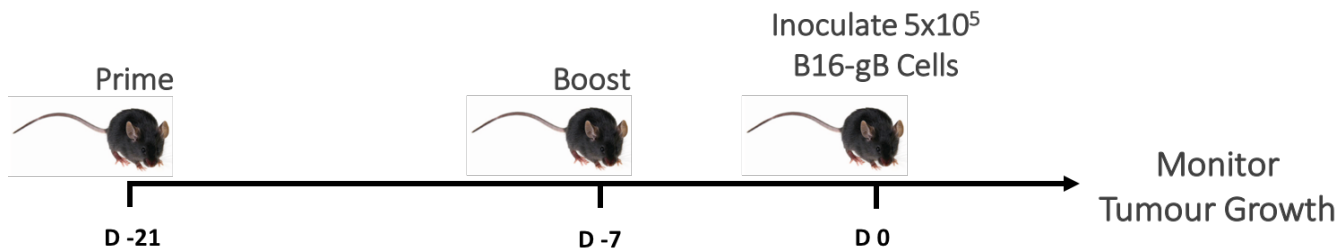
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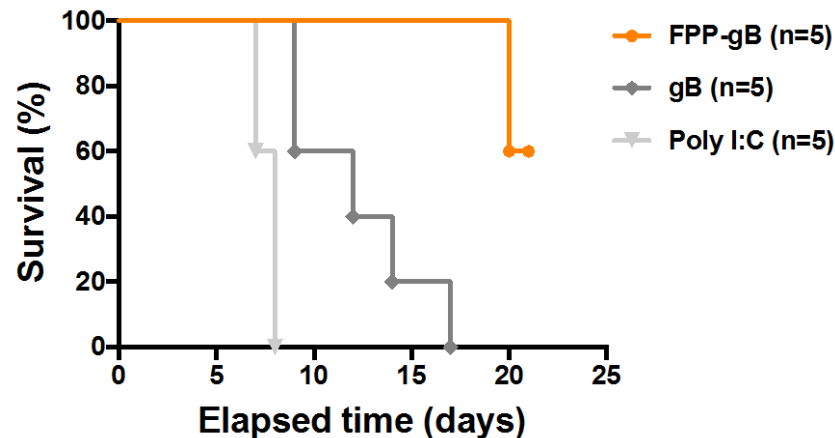
Conceptual  
 In vitro validation  
 In vivo validation



# In progress validation - FPP peptide vaccine retards tumor growth



- Subcutaneous B16 melanoma model engineered to express glycoprotein B (gB) from Herpes Simplex Virus
- Peptide vaccine contains a well characterized CD8+ T cell gB peptide epitope with and without FPP

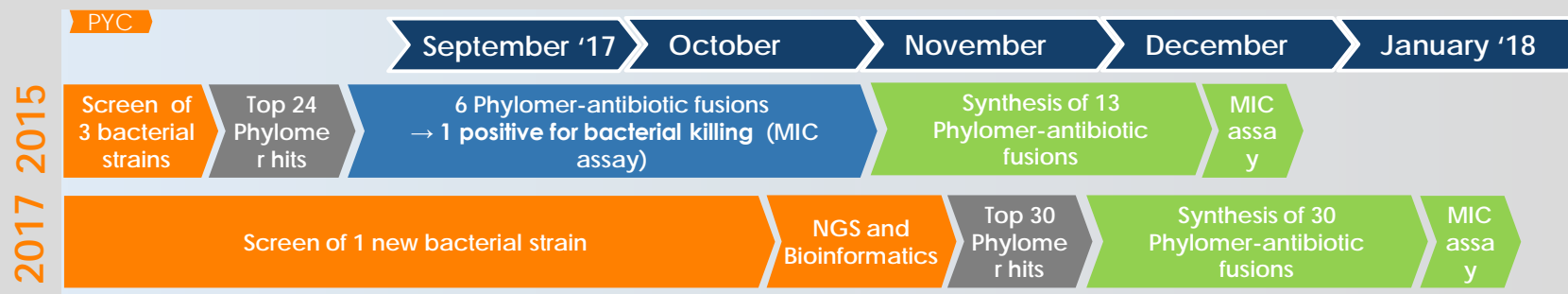
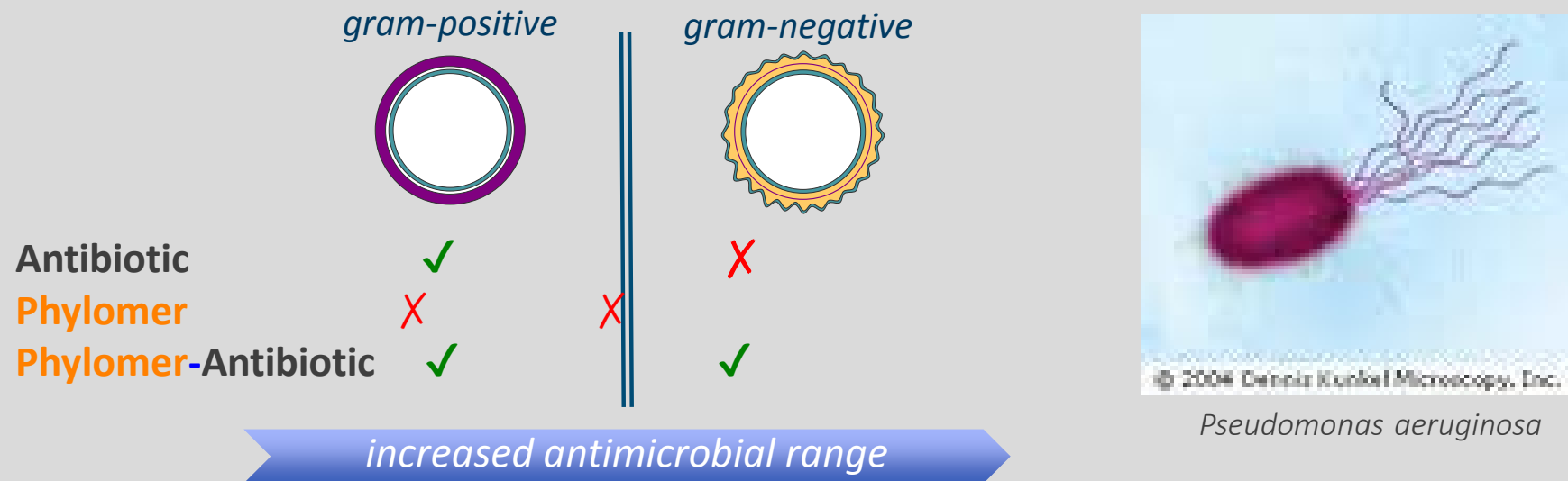


## Our FPP peptide vaccine approach:

- Primes tumor specific CD8+ T-cells
- FPP containing peptide vaccine retards tumour growth greater than non-FPP control
- FPP-peptide vaccines have the potential to synergize with existing immunotherapies

# Partnering strategy - Genentech work continues to be successful

- Isolating Phylomers that can help kill gram-negative bacteria (multi-drug resistant “super bugs”)
- Evaluation period end of CY 2019



# Building on the success of the past, turning towards the future of FPPs

## Building Therapeutics Logically

- ✓ Identify FPPs that work well in different cell types and tissues
- ✓ Select best FPPs for each cargo
- ✓ Provide the tools that will allow us to optimize our customer's drugs

## New technologies

HTP automation to rapidly discover the best molecules in our new libraries

**Working with some of the best chemists in USA and Asia to use FPPs for siRNA delivery**

*"Cell specific delivery of siRNA by FPPs would open a universe of therapeutic opportunities"*

Pharma Exec

**Collaboration with alternative scaffold company under discussion**

- Small, super stable, antibody-like proteins, that bind to therapeutic targets with excellent affinity
- Easy to rapidly identify those that inactivate proteins involved in disease

