Peregrine®

Delivering Innovative and High Quality Biopharmaceutical Products to Improve Patient Lives

ANNUAL MEETING OF STOCKHOLDERS

October 13, 2016

Safe Harbor Statement

During the course of this presentation, we will likely make forward-looking statements regarding our product pipeline, the timing for initiating & completing human clinical trials, & potential therapeutic benefits & successful development of drug candidates, as well as statements regarding our hopes, beliefs, expectations, projections, plans or predictions of the future that are subject to risks, uncertainties & other factors that could cause actual results to differ materially from those referred to in the forward-looking statements. The forward-looking statements made in this presentation are based on information known to us today & we do not undertake any obligation to update them.

We refer you to our periodic filings with the Securities & Exchange Commission, including our most recent Form S-3, Form 10-K, and Form 10-Q. These documents identify important risk factors that could cause actual results to differ materially from those contained in our projections & other forward-looking statements.

www.peregrineinc.com

Peregrine's Forward Thinking Strategy

Build A Sustainable Biotechnology Business That Can Achieve Overall Profitability While Making Focused Investments In R&D

Peregrine

Novel Immunotherapy with Broad Potential

Avid bioservices®
Your Partner From Concept to Commercial

Revenue Generating CDMO

Peregrine Investment Highlights

Revenue Generating Manufacturing Business

Continued Revenue Growth Expected to Lead to Future Profitability in 21 Months

Novel Immuno-Oncology (I-O) Product

Building a Pipeline in Multiple Cancer Indications

PS-Targeting Program

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Ps-Targeting Background and MOA

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Bavituximab Overview

Immune Signaling Target

- Monoclonal antibody targeting phosphatidylserine (PS)

Significant Clinical Experience

- 19 studies, 750+ patients treated with bavituximab

Favorable Safety Profile

- Favorable safety profile alone and in combination with other therapies

I-O Compatibility

- Potential to improve outcomes in combination with immuno-oncology agents in a range of cancers
- Potential to convert non-responding PD-1/L1 patients into responders

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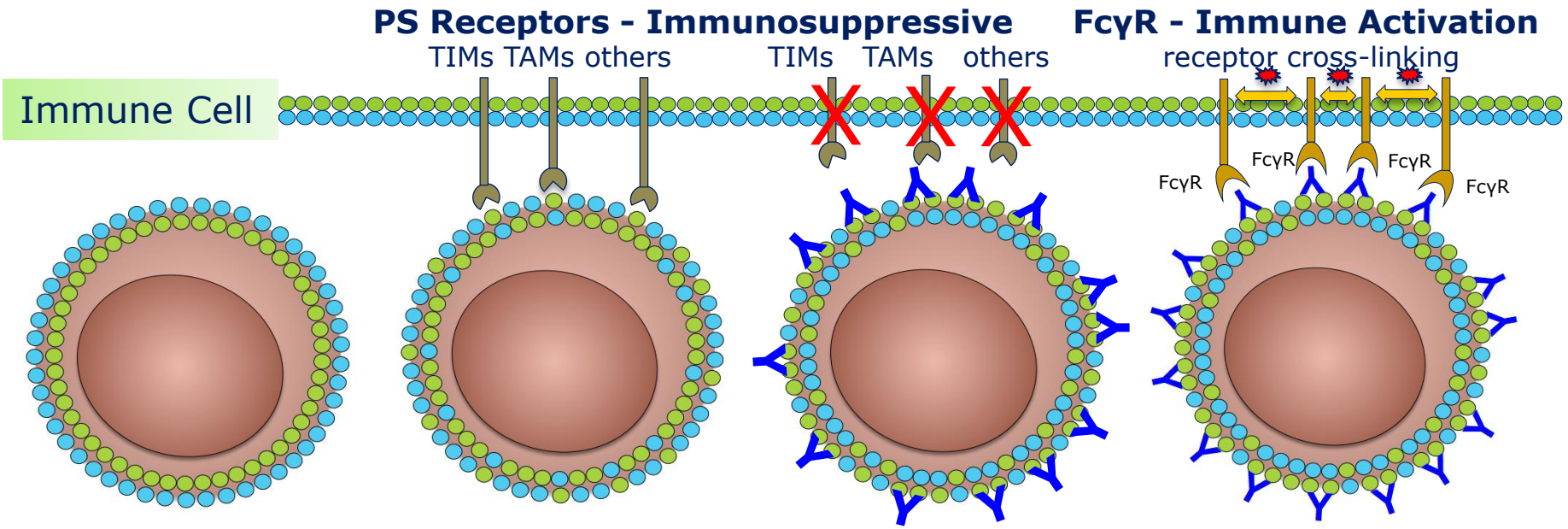
PS-Targeting Blocks PS Immunosuppression & Activates Immune Response



Healthy Cell

● = Phosphatidylserine (PS)

PS is maintained on the inner leaflet of the plasma membrane

Tumor Environment

PS exposed on tumor blood vessels, tumor cells and microvesicles.

Therapy results in additional PS externalization.

PS receptors on immune cells bind to PS, resulting in immunosuppressive signaling: Increased TGF-β, IL-10.

+ PS Targeting

PS targeting agent (**Y**), engages PS via beta-2 glycoprotein-I and inhibits PS receptor engagement.

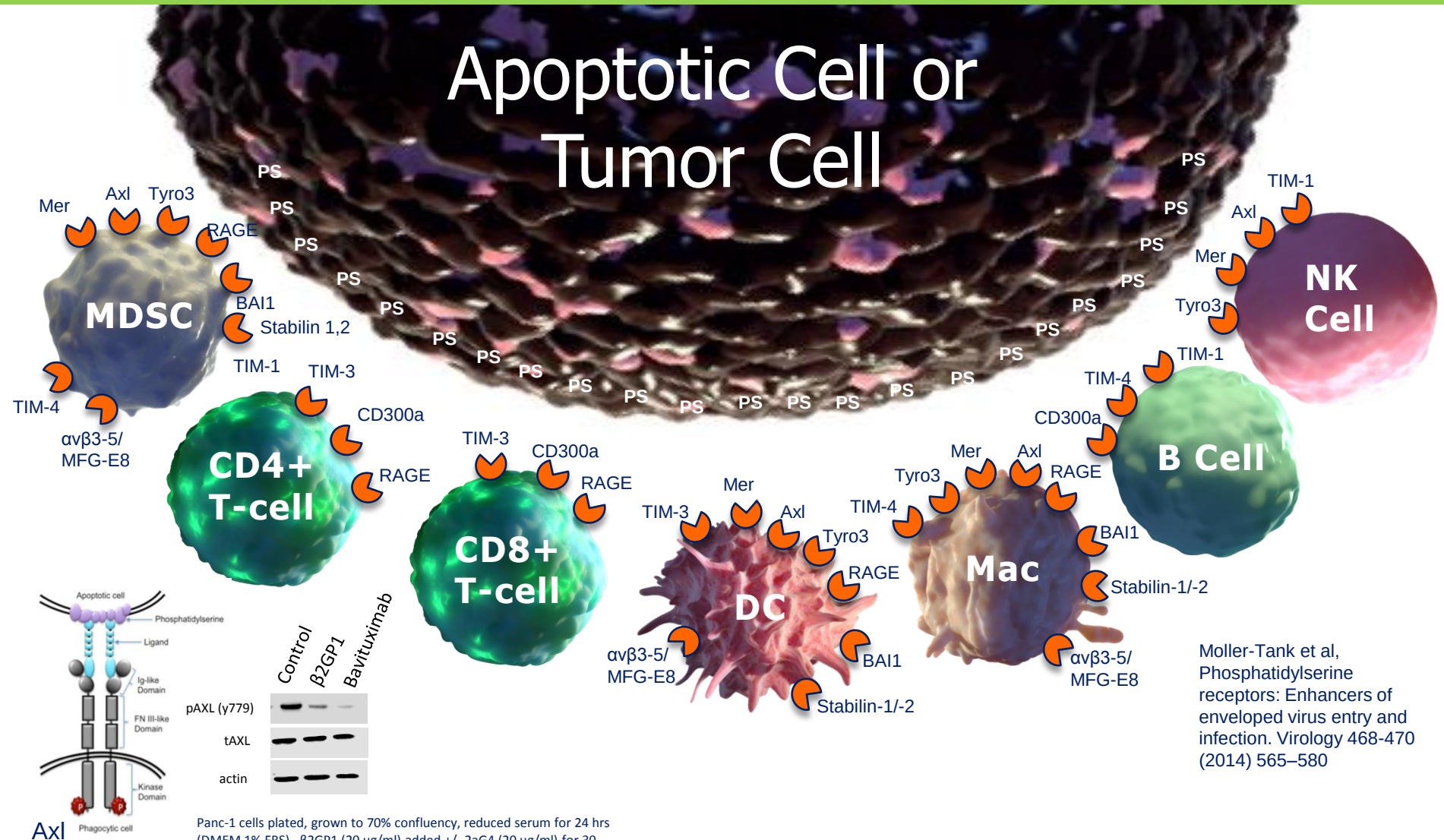
Blocking PS overrides immunosuppressive signaling and engages FcγR on immune cells.

Immune Activation

FcγR-mediated stimulatory effects:

- Increased TNF-α, IL-12
- Reduced MDSC
- M2 to M1 macrophage polarization
- Maturation of dendritic cells
- Antigen-specific CD8+ T-cell response
- Innate immune response (ADCC)

PS is a Redundant Signaling Target with Dominant Immunosuppressive Consequences



Moller-Tank et al, Phosphatidylserine receptors: Enhancers of enveloped virus entry and infection. Virology 468-470 (2014) 565–580

Panc-1 cells plated, grown to 70% confluency, reduced serum for 24 hrs (DMEM 1% FBS), β2GP1 (20 µg/ml) added +/- 2aG4 (20 µg/ml) for 30 min, cells harvested, analyzed by WB. Brekken Lab, June 2014

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SUNRISE Phase III Trial Design

- Stage IIIb/IV non-squamous NSCLC
- One prior platinum-based doublet for advanced disease
- Should have progressed on appropriate targeted therapy if known EGFR or ALK mutation
- ECOG PS 0-1
- Prior immunotherapy allowed

N = 597

1:1

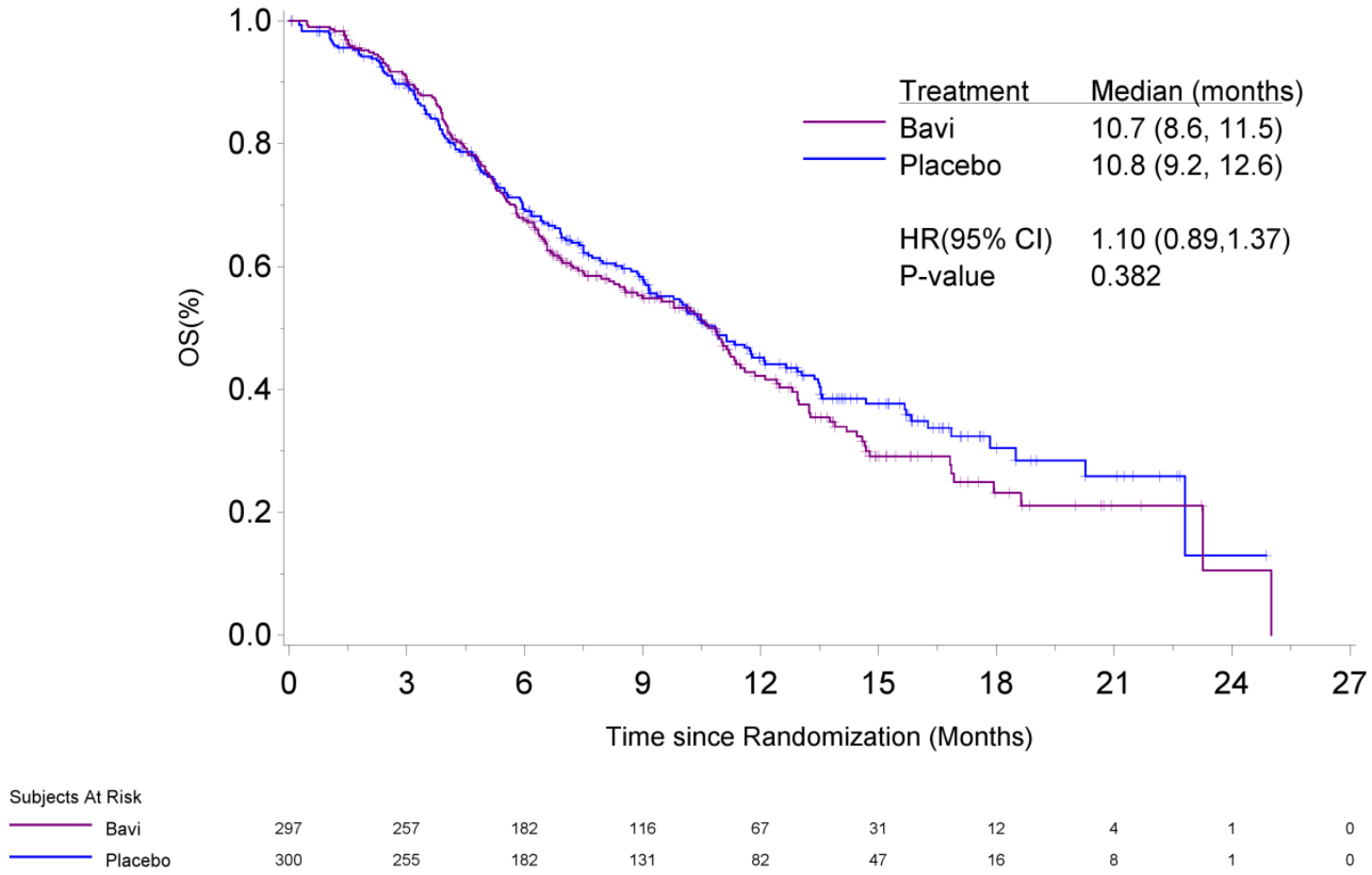
Patients stratified by region, disease stage, and prior maintenance/targeted therapy

Placebo
QW until PD or unacceptable toxicity
+
Docetaxel
75 mg/m^2 IV Q3W up to 6 cycles

Bavituximab
3 mg/kg IV QW until PD or unacceptable toxicity
+
Docetaxel
75 mg/m^2 IV Q3W up to 6 cycles

- Primary endpoint:
  - Overall Survival
- Additional endpoints:
  - Objective response rate (Independent Central Review)
  - Progression free survival
  - Safety
  - PK
  - Quality of Life
  - Exploratory biomarkers including β2-GP1 and immune correlates

Phase III Sunrise Top-Line Trial Results - Overall Survival (ITT)



Subsequent immunotherapy was received by 15% of the patients in the placebo + docetaxel arm and 17% in the bavituximab + docetaxel arm.

Identify Biomarkers to Guide Future Development

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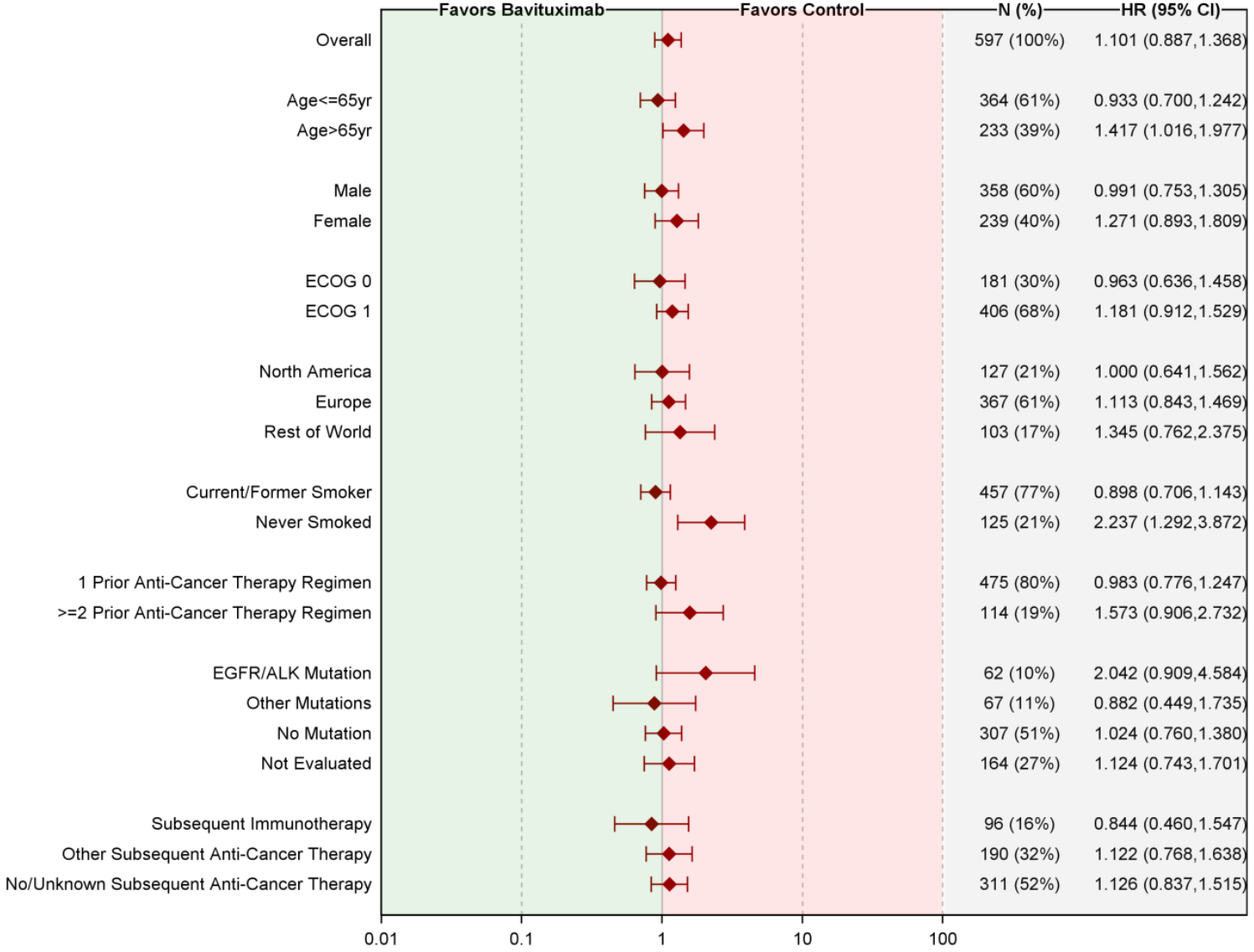
SUNRISE Phase III Biomarker Analysis

Primary goal is to identify patient characteristics that are associated with positive outcome for bavituximab containing treatment regimen. Thousands of patient samples were collected prospectively to allow this analysis.

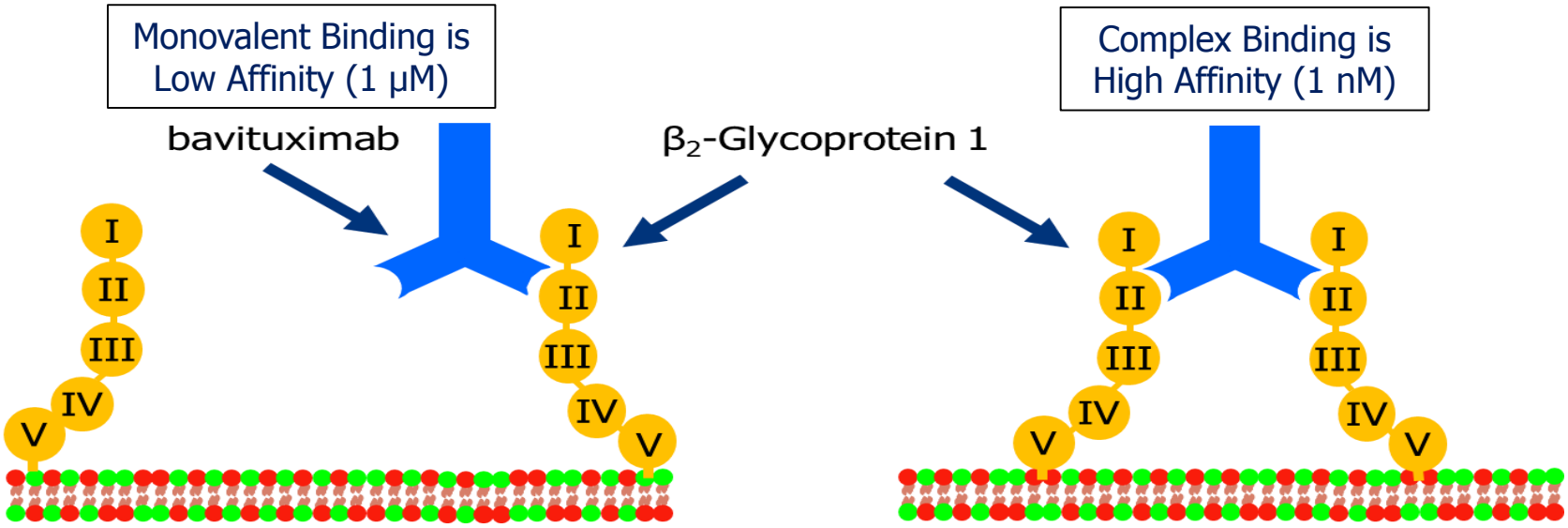
- Patient characteristics including major demographics
- Marker expression associated with PS target
- Markers associated with mechanism of action
  - Immune status prior to treatment
  - Changes in immune status on therapy
- Implementation of patient selection into future trials to improve probability of success
  - Type of sample needed for evaluation
  - Speed at which evaluation can be completed
- Multiple biomarkers currently under evaluation and will be release throughout 2016 and into 2017

Phase III SUNRISE Top-Line Trial Results - OS Forest Plot (ITT)



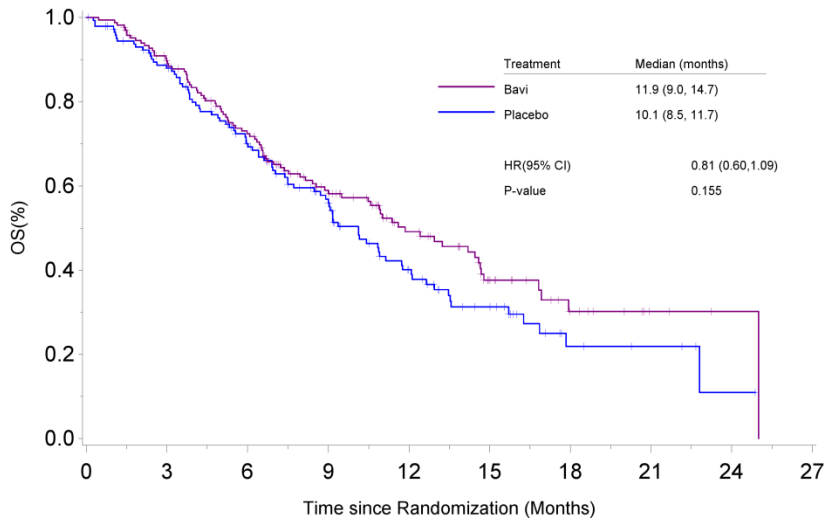
β2-GP1 – A Biomarker Associated with Bavituximab Binding

- Bavituximab, a first-in-class IgG1 antibody, results in inhibition of PS upon binding to beta-2 glycoprotein 1 (β2-GP1)
- Targets exposed PS on tumor cells, tumor vasculature, and exosomes



Overall Survival by Baseline β2-GP1 Levels

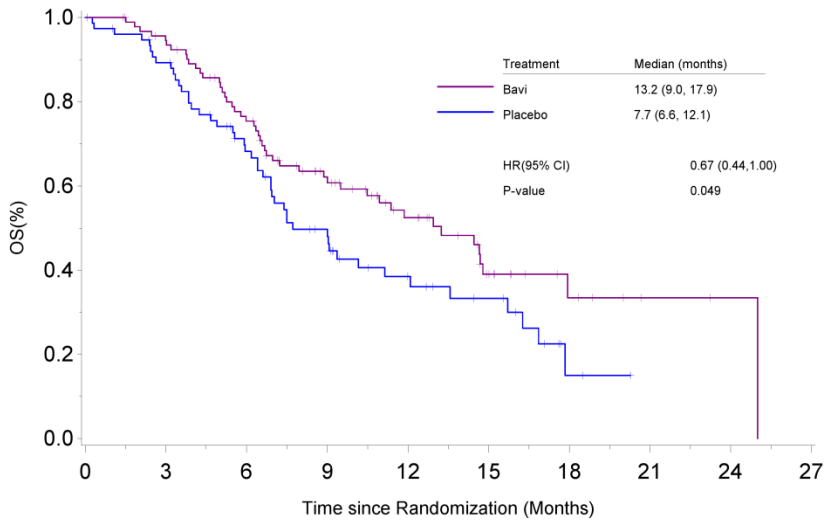
β2-GP1 ≥ 200 µg/mL



Subjects At Risk

Bavi	167	144	111	72	45	24	10	3	1	0
Placebo	146	122	89	63	35	21	7	4	1	0

β2-GP1 200 - 240 µg/mL



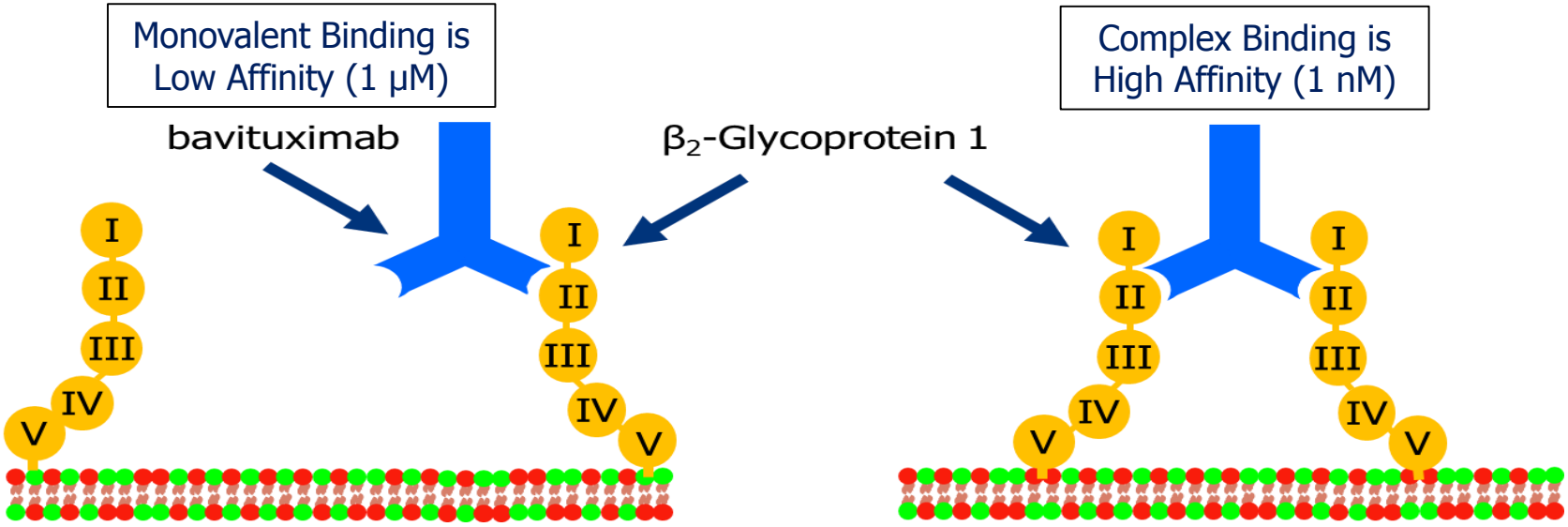
Subjects At Risk

Bavi	94	86	66	45	29	15	6	2	1	0
Placebo	77	66	45	29	16	11	2	0	0	0

Immune System Characteristics – Biomarkers Associated with Bavituximab Mechanism of Action

Bavituximab, a first-in-class IgG1 antibody, results in inhibition of PS upon binding to beta-2 glycoprotein 1 (β2-GP1) and changes the tumor microenvironment

- Breaks immune tolerance in the tumor microenvironment
- Repolarizes myeloid derived suppressor cells and M2 macrophages to M1 macrophages
- Increases pro-inflammatory cytokines such as interferon gamma and interleukin-12
- Promotes dendritic cell maturation and cytotoxic t-cell activation



Immune System Characteristics – Biomarkers Associated with Bavituximab Mechanism of Action

- Thousands of pre and post treatment patient samples were collected prospectively to support immune correlate analysis
- Testing of samples is well underway
- Peregrine expects to present results from this ongoing analysis at scientific and medical conferences throughout the fall

Advance I-O Combinations

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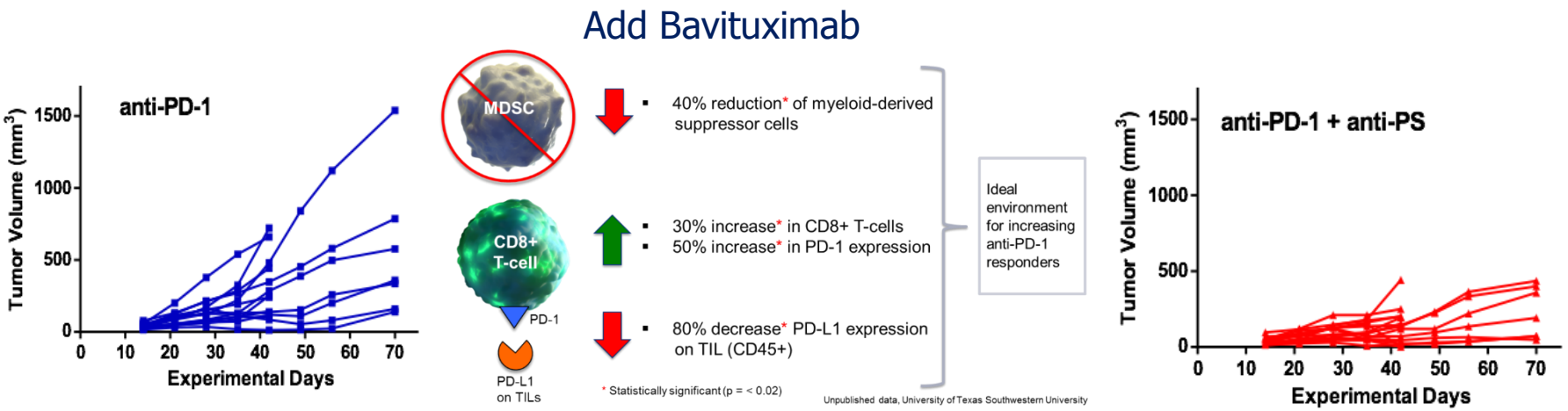
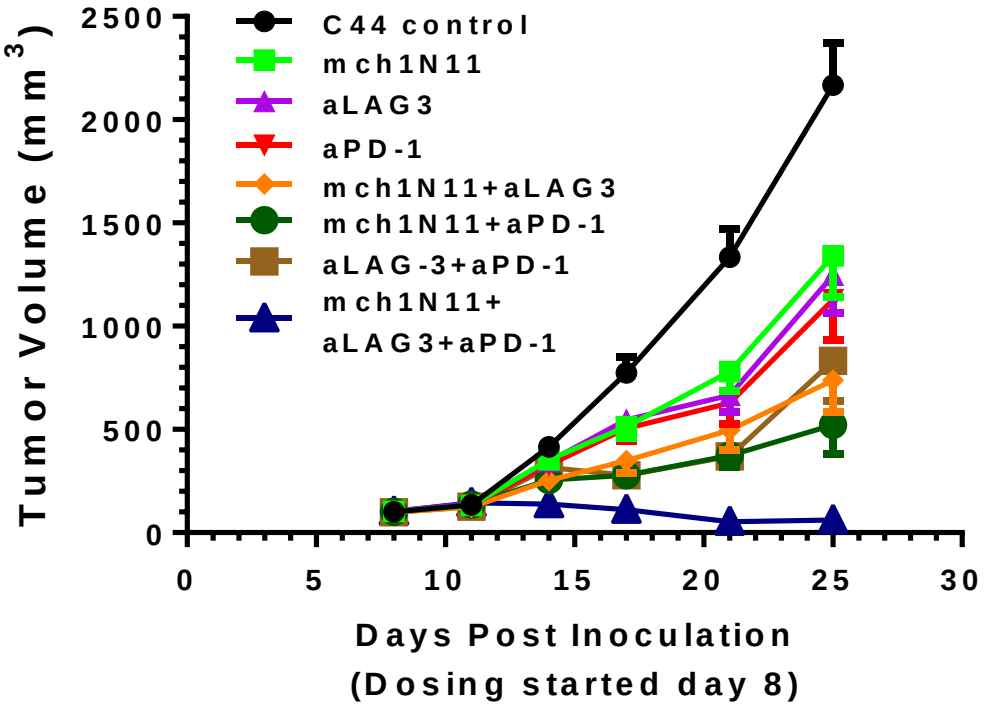
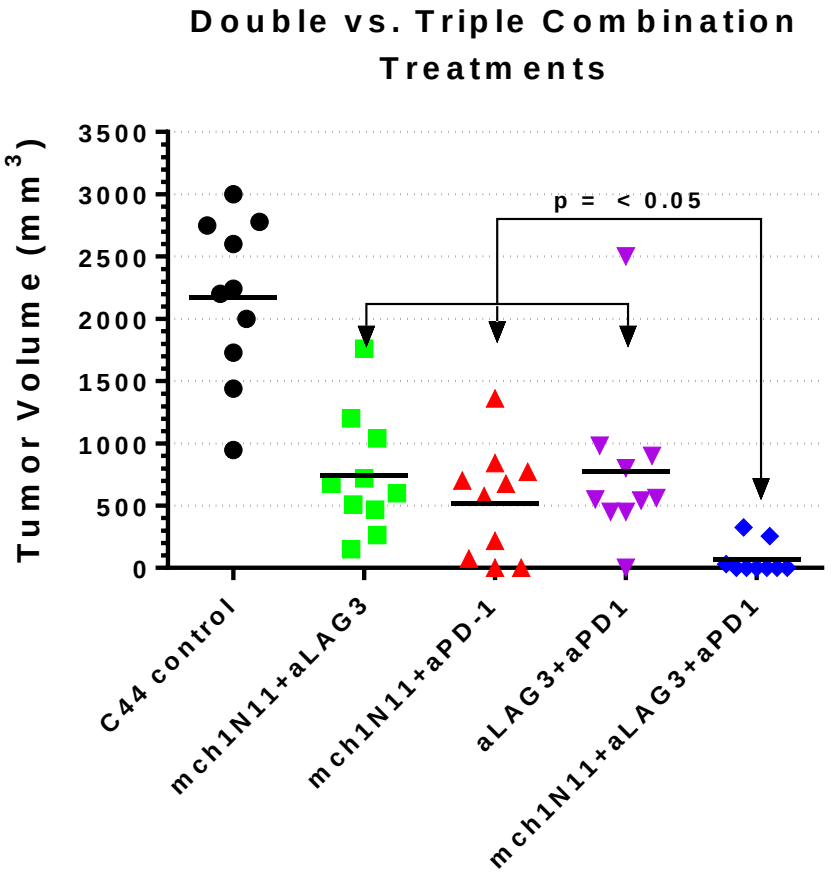
Rationale for Combining Bavituximab + PD-1/L1 Therapies

- Pre-Clinical Mouse Melanoma Model
- Blocking PS along with Fc mediated immune activation results in T-cell immune response
- Blocking PD-1/PD-L1 keeps T-cell immune response going
- Recent data supports potential of bavi to stimulate immune response in PD-L1 negative tumors



PS-Targeting Enhances anti-PD-1 and anti-LAG3 Therapy





mch1N11 – bavituximab equivalent

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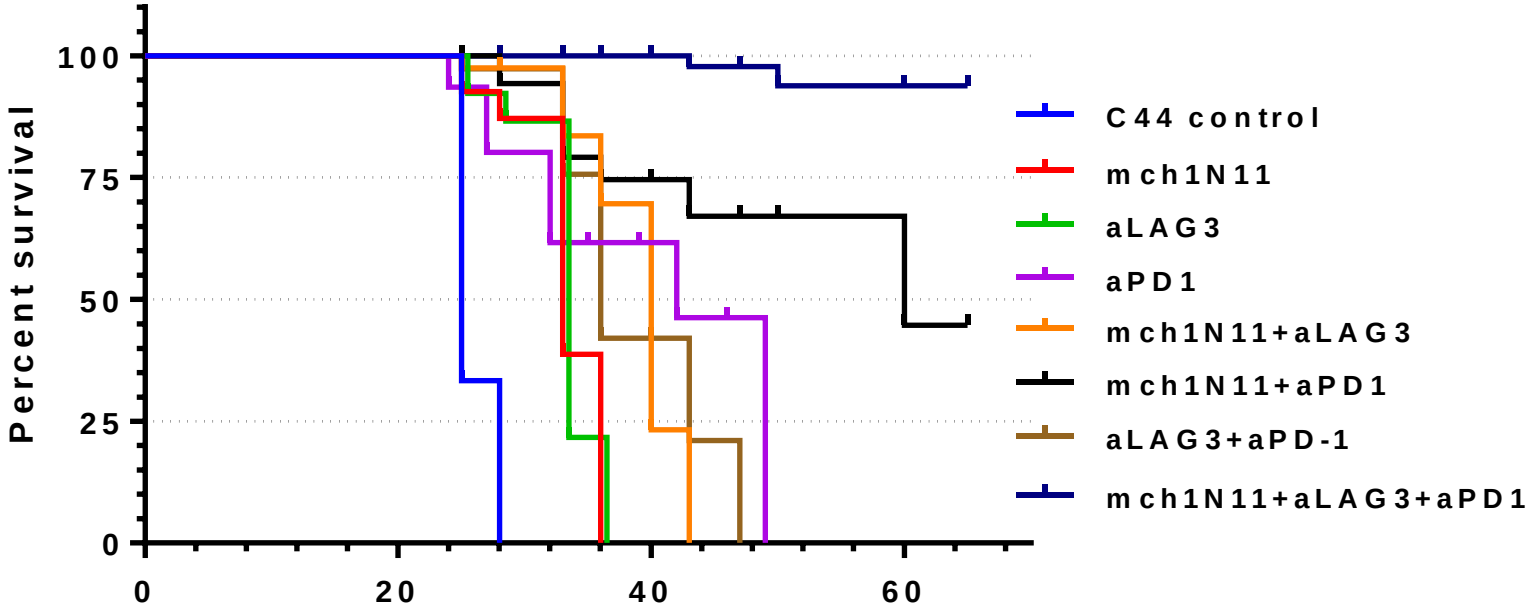
Triple Combination Significantly Increases Survival in TNBC Murine Model



Treatment	TGI	Days Mean Survival	Mice with complete regression at day 60
C44 Con	N/A	25	0
mch1N11	38%	33	0
aLAG3	43%	33	0
aPD-1	48%	43	0
mch1N11+aLAG3	66%	40	0
mch1N11+aPD-1	76%	60	1
aLAG3+aPD-1	62%	36	0
mch1N11+aLAG3+aPD-1	>99%	Undefined	8

Advancing I-O Combinations Through Collaborations with Recognized Leaders

- National Comprehensive Cancer Network (NCCN)
  - Alliance of 27 cancer centers in U.S.
  - $2m grant award to evaluate bavituximab combinations in multiple trials
  - Three clinical investigators were recently awarded grants
- AstraZeneca
  - Goal is to evaluate bavituximab + AZ's investigational anti-PD-L1 immune checkpoint inhibitor, durvalumab (MEDI4736)
  - Clinical trial design ongoing pending review of all biomarker data
- Memorial Sloan Kettering Cancer Center
  - Exploring PS-targeting agents, including bavituximab, in combination with other checkpoint inhibitors or immune stimulating agents
  - Studies being conducted in lab of Dr. Jedd Wolchok, prominent cancer immunotherapy expert
- UT Southwestern Medical Center
  - ISTs across several cancers (rectal, liver, etc.)
  - Long term pre-clinical collaboration evaluating novel development opportunities

Bavituximab Oncology Pipeline

Program	Phase I	Phase II	Phase III
CHEMOTHERAPY COMBINATION			
NSCLC, Previously Treated (Sunrise Trial) Combination with Docetaxel	**Biomarker Data Analysis Ongoing**		
IMMUNO-ONCOLOGY COMBINATION			
Multiple Solid Tumors Combination with durvalumab (anti-PD-L1) + Chemo	**Trial Design Under Eval**	AstraZeneca	
ADDITIONAL CANCER INDICATIONS			
Rectal Adenocarcinoma Combination with Capecitabine and Radiation	**Interim Data 2016**		
Squamous Cell Carcinoma of Head & Neck Combination with Pembrolizumab	**Grant Awarded**		NCCN
Glioblastoma Combination with Temozolomide & Radiation	**Grant Awarded**		NCCN
Hepatocellular Carcinoma Combination with Sorafenib & Radiation	**Grant Awarded**		NCCN
Other Combination Concepts Under Consideration			

Advancing New PS Targeting Opportunities

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Early Cancer Detection with PS-Positive Exosomes

- Novel exosome-based cancer detection and monitoring technology licensed from UTSW in July 2016
- Preliminary studies have provided evidence that:
  - There is a correlation between the level of PS-positive exosomes detected in the blood of cancer patients and the severity of disease burden
- Peregrine is developing an in-vitro diagnostic test and kit for the diagnosis and monitoring of all types of cancers:
  - By potentially quantifying PS positive tumor-derived exosomes in biological samples, may be able to detect early, asymptomatic and/or newly-metastatic stages
  - Peregrine expects to secure a partner to develop the final commercial test kit

A Hybrid Business Model

Avid bioservices®
Your Partner From Concept to Commercial

Revenue Generating CDMO

Peregrine

Novel Immunotherapy with Broad Potential

AVID Bioservices Highlights

Extensive cGMP Manufacturing Expertise

Successful Regulatory Track Record

Broad Capabilities

Significant Organic Revenue Growth

Revenue Generating Manufacturing

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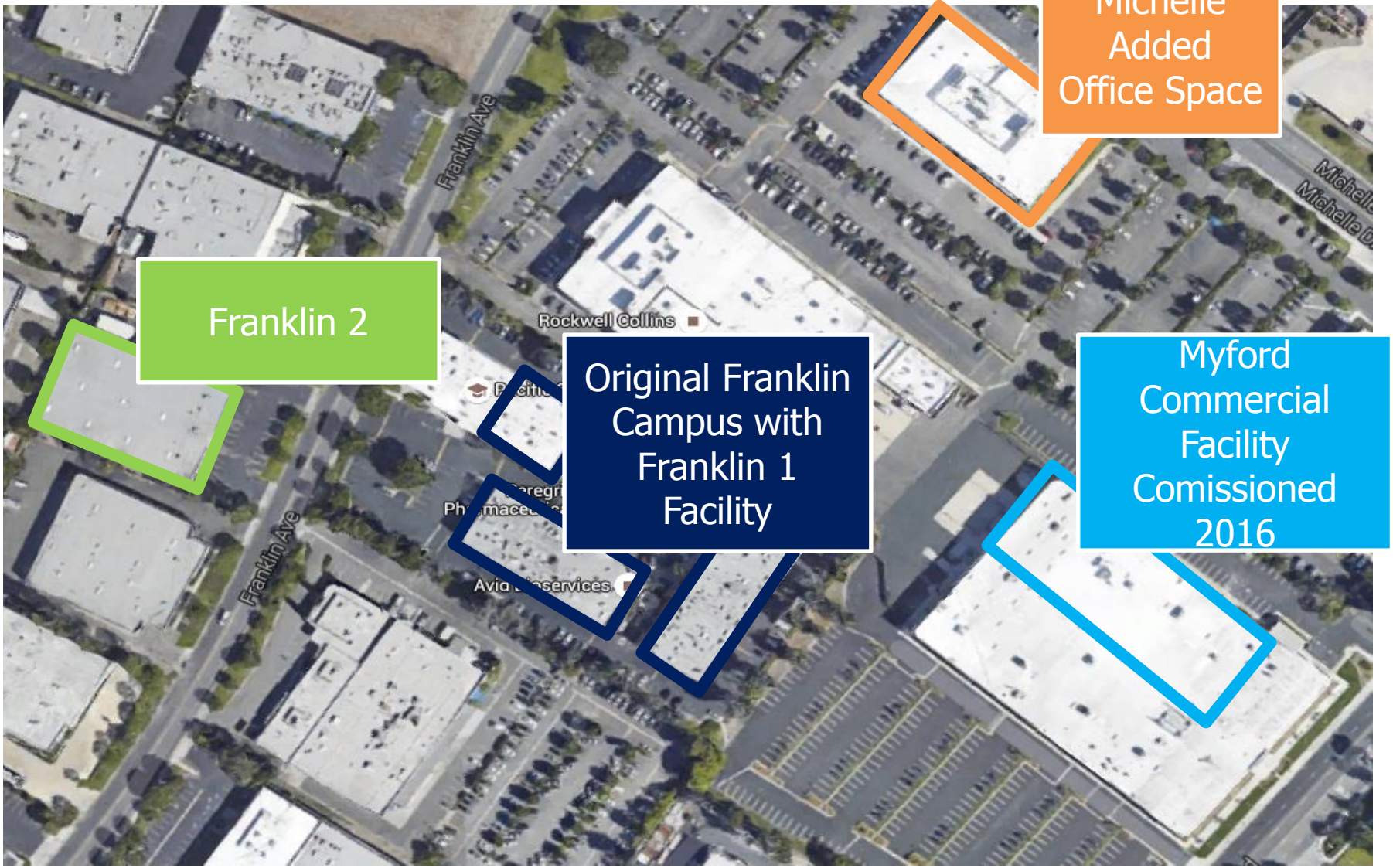
Avid Overview

- Located in So. California (~5 miles from John Wayne airport)
- Developing and manufacturing monoclonal antibodies since 1993
- Commercial manufacturer since 2005
- ~220 operational employees (excludes R&D and G&A)
- 152K SF of leased space in 6 adjacent buildings
  - Two operational commercial manufacturing facilities
  - New clinical facility planned for mid-2017

Campus Overview



cGMP Manufacturing Expertise

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Franklin Commercial Manufacturing Facility

- cGMP manufacturing since 1993
- 12,000 SF facility
- Stainless steel bioreactors (100L to 1,000L)
- WFI water system
- Raw material storage
- Single use bioreactors (200L to 1,000L)

Commercial Manufacturing Facility Since 2005

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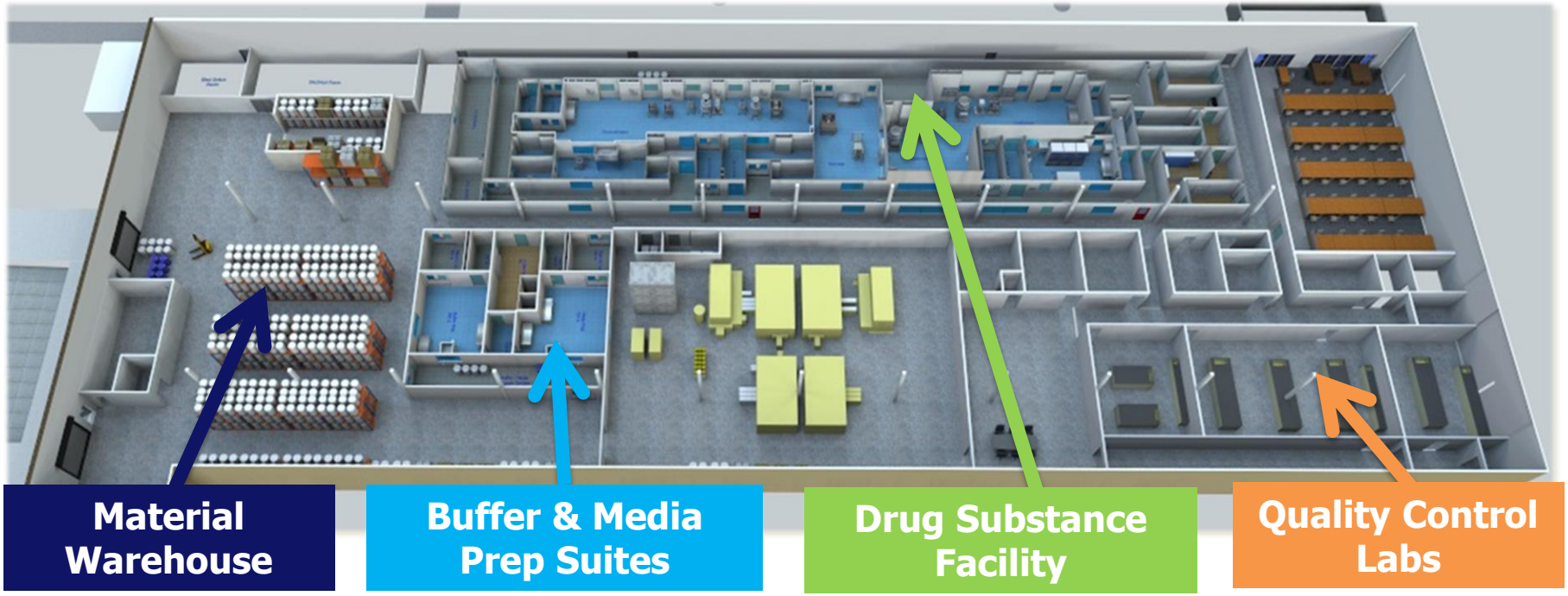
Myford Commercial Manufacturing Facility

Designed for Fully Disposable Manufacturing Process

- Commissioned in 2016
- 40,000 SF facility
- Designed for up to 2,000L bioreactors
- Single use bioreactors (100L to 1,000L)
- Integrated QC Labs for in-process samples, final release, and EM
- Controlled raw material warehouse
- Cold rooms storage
- MCB and WCB storage

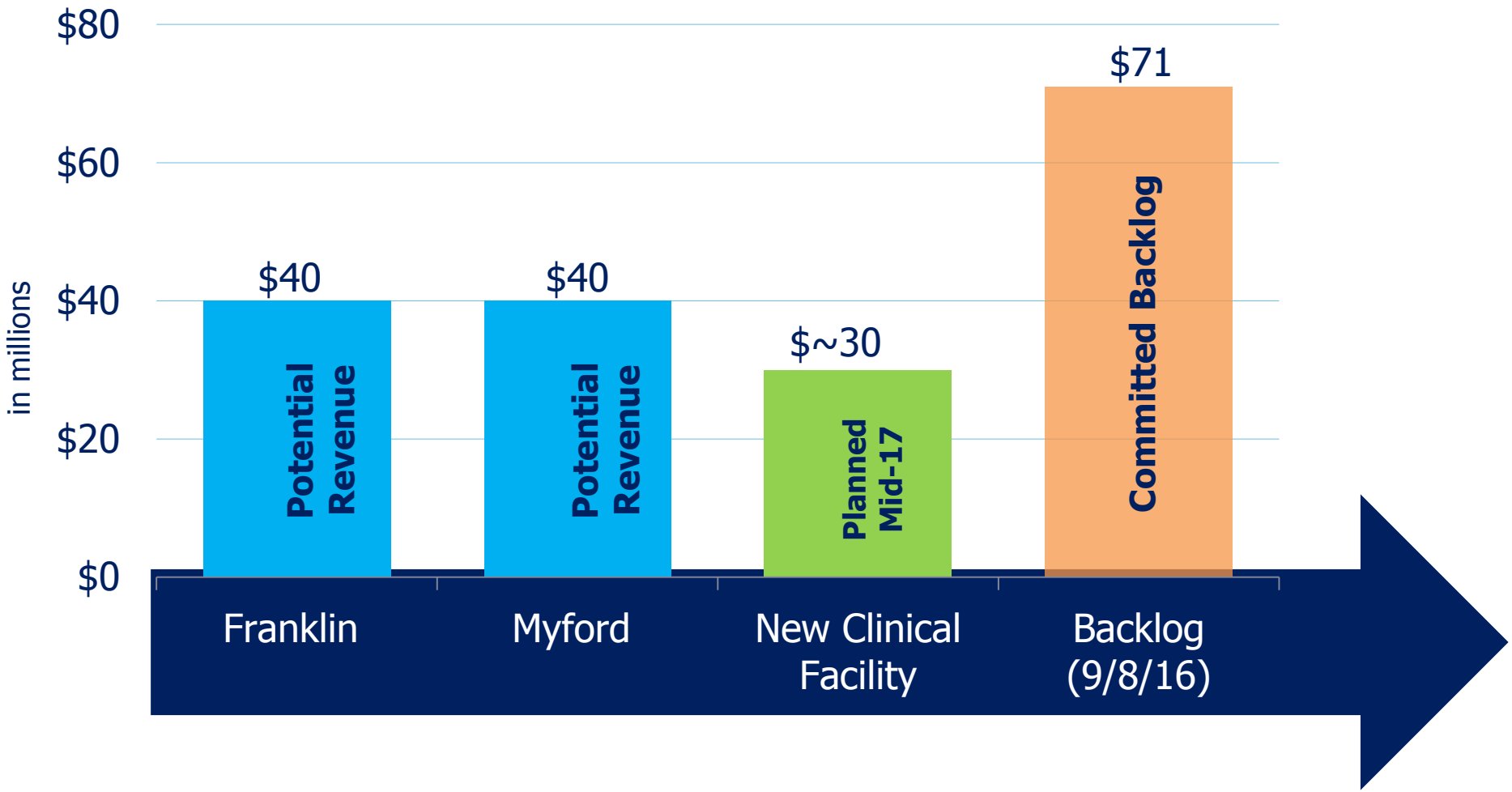
Myford Commercial Manufacturing Facility



Planned Clinical Facility

- Conceptual design in process for 25K SF building
  - 2 x 1000L SUB trains
  - Two purification suites
  - Media and buffer prep rooms
  - QC labs
  - Warehouse
  - Cold room storage
- Expected to be commissioned by mid-2017
- Potential to generate ~$30M in new revenue

Manufacturing Capacity Supports Additional Revenue Growth



Successful Regulatory Track Record

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Regulatory Compliance is a Priority

- Operate in accordance with US FDA , EU, and other Worldwide Regulations.
- Regulatory Inspection Track Record
  - Successful US, EU, ANVISA, and Health Canada PAIs in 2005, 2012, 2014, and 2015, respectively.
  - 2013 and 2015 FDA inspections resulting in zero 483 observations

Broad Capabilities

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Expertise from CLD to Commercial Manufacturing

- Cell line development
- Early development to support material for preclinical studies

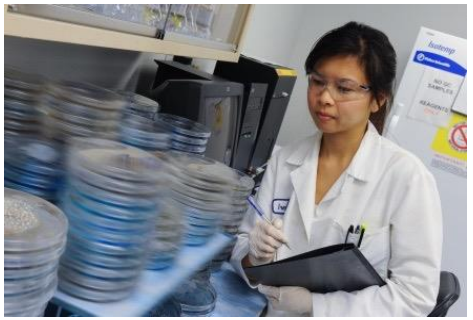
Early Development

Preclinical and Early Clinical

- cGMP clinical manufacturing
- Process development and optimization
- Process scale up and transfer
- Method development and transfer
- Regulatory filings

- Process characterization
- Method validation
- Protein characterization
- Process validation
- Commercial manufacturing

Late Clinical and Commercial



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Strong Revenue Growth

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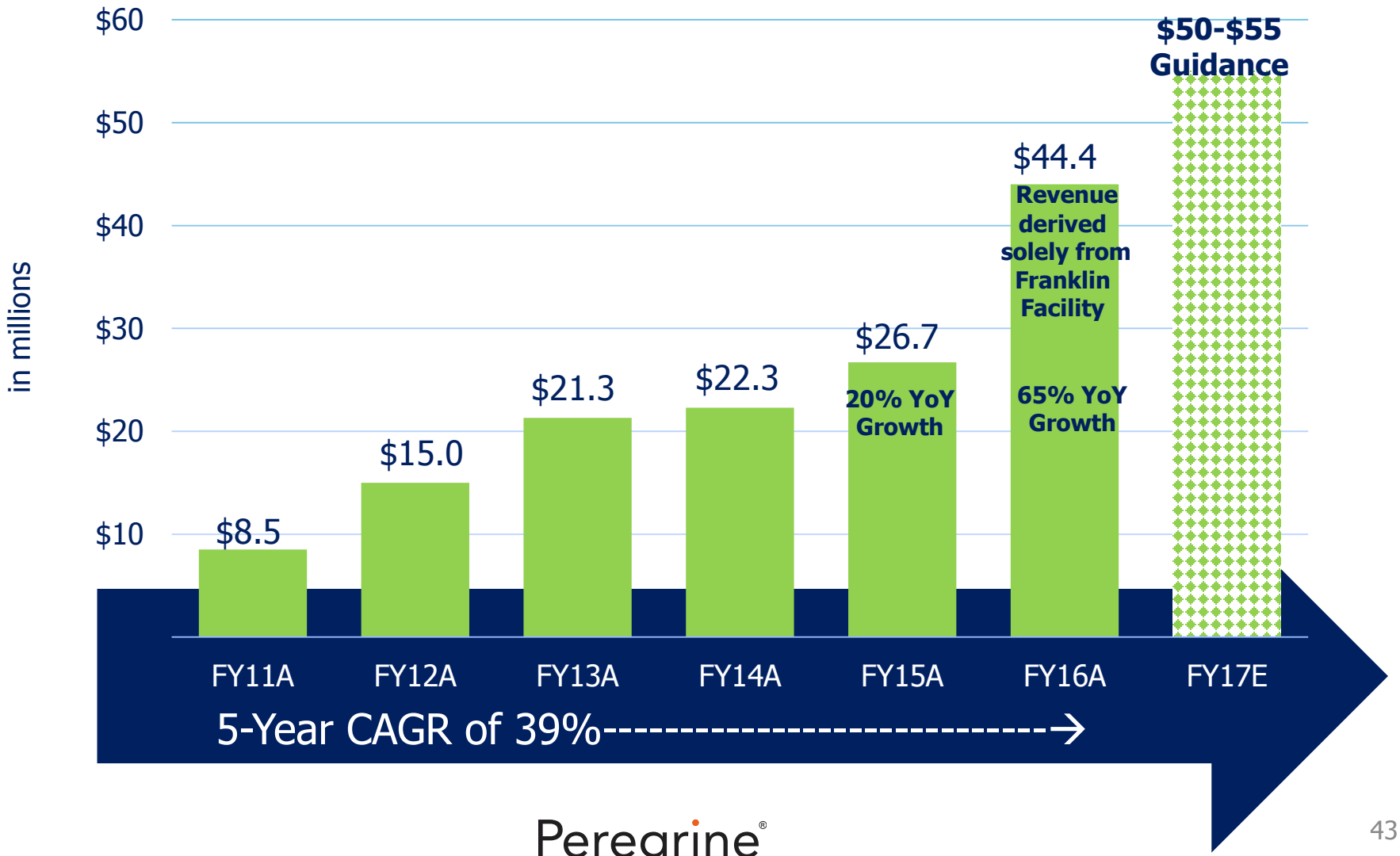
Growing Manufacturing Business



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