

April 2024 NASDAQ: BYSI



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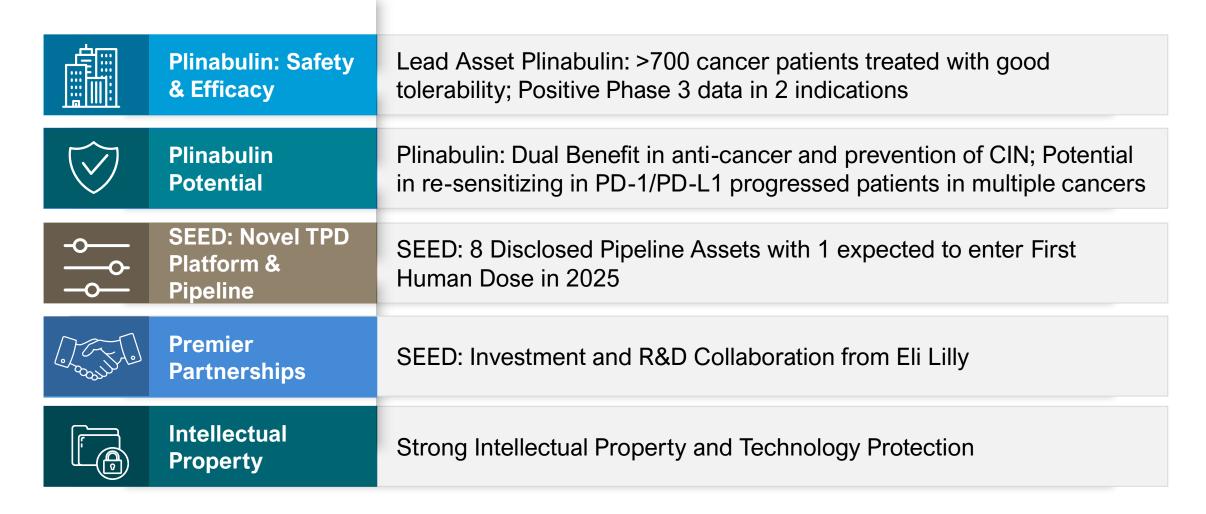
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The market data and certain other statistical information used throughout this presentation are based on independent industry publications, governmental publications, reports by market research firms or other independent sources. Some data are also based on our good faith estimates. Although we believe these third-party sources are reliable, we have not independently verified the information attributed to these third-party sources and cannot guarantee its accuracy and completeness. Similarly, our estimates have not been verified by any independent source.

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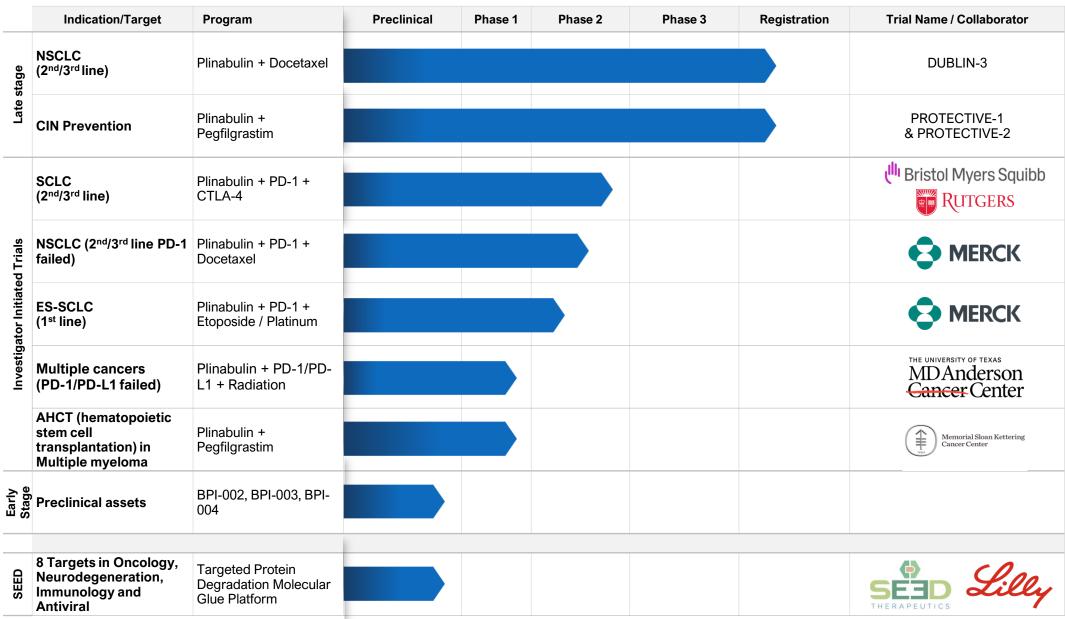


## Investment Highlights





## **Pipeline**







# SEED Therapeutics: Target Protein Degradation (TPD 2.0) Company

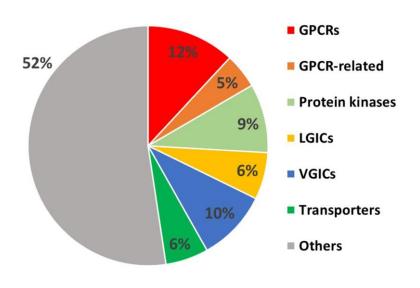
TPD Targets 80% of Disease-Causing Proteins That are Currently Undruggable

## Targeted Protein Degradation (TPD) Addresses 80% of Disease-Causing Proteins That are were Undruggable

**TPD for Undruggable Proteins** 



#### **Druggable Proteins**

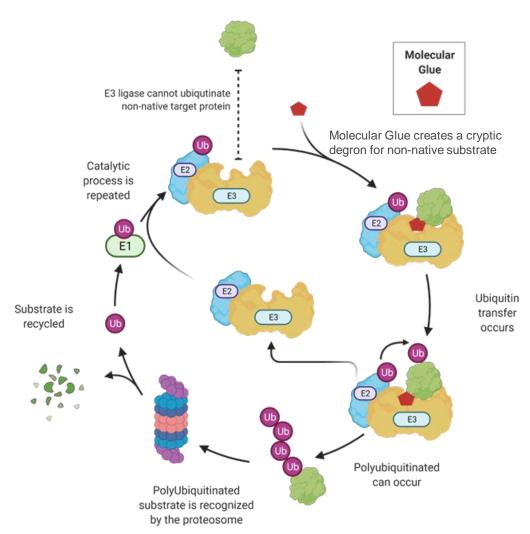


Sriram et al., Molecular Pharmacology, 2018



## TPD Development History and Recent Renaissance

#### **TPD Process**



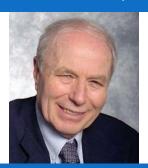
## SEED Co-founders played pivotal roles in the advancement of TPD field

- 1996: Dr. Michele Pagano (SEED co-founder) discovered cell cycle regulation by TPD, including E3 ligases; published in Science
- 1999: Dr. Lan Huang (SEED co-founder and CEO) solved the 1st of the two E3 structures (HECT domain E3); published in Science
- 2002: **Dr. Ning Zheng (SEED co-founder)** solved the 2nd of the two E3 structure (Ring-finger E3); published in *Nature*
- 2003: US FDA approved Velcade, the first proteasome inhibitor for multiple myeloma. Dr. Avram Hershko (SEED co-founder) advised on Velcade development. Other companies started to develop new E3 inhibitors with no success
- 2004: Dr. Avram Hershko won Nobel Prize for his pioneering work in discovering all essential enzymes for TPD, including E1, E2, E3, and proteasome
- 2007: Dr. Ning Zheng coined the term "Molecular Glue (MG)" after solving TIR1
  E3 structure and discovering the true function of Auxin, a plant hormone and the
  first natural MG to be identified; published in Nature
- 2010-2014: Revolutionary discovery of the mechanism of action of Revlimid (for treating multiple myeloma, had peak global annual sale of \$12.8b), a derivative of thalidomide, is in fact a MG, that binds to Cereblon (a E3) to degrade lkaros (a mutated POI). This discovery, published in Nature, ushered in the renaissance of TPD drug discovery.



## World Class Leadership Team and Exceptional Insights in TPD Drug Development

Avram Hershko MD, PhD<sup>+</sup>



"Godfather" of TPD: 2004 Nobel Laureate: Advisor to Millennium on developing Velcade

James Tonra, PhD\* (President & CSO)



20+ years of drug discovery experience that led to 5 NDAs; ex leadership role in Regeneron, Millennium, ImClone, Kadmon, and BYSI

Ning Zheng, PhD+



Howard Hughes Professor, University of Washington; World's foremost thought leader on E3 and MG

**Ko-Yung Tung, JD\*** 



Former Eisai director, World Bank general counsel, and lecturer at Harvard and Yale Law School; Expert in law and international business

Michele Pagano, MD+



Howard Hughes Professor, NYU **Medical School:** Global thought leader on TPD biology and application

Linus Lin, PhD\*



Global head of Lilly Chorus. Ex GM of Lilly China R&D Center, Head of Chemistry at WuXi AppTec, and led multiple drug discovery teams at Merck

Lan Huang, PhD +\* (Chairman & CEO)



E3 structural expert; Serial biotech entrepreneur with 20+ years of drug development experience, including assets that are NDA-ready

**Jackson Tai\*** 



Wuxi Biologics Audit Committee Chair; retired board members for Eli Lilly, HSBC, Mastercard; former DBS Bank CEO, former J.P. Morgan & Co, investment banker



## **Exceeding Seed Financing Expectations**

#### **SEED Internal Program Milestones**

# **Development of SEED's unique TPD platforms and filed patents**

- Multi-dimensional platforms to select the right E3 for any target;
- HTS screening and medicinal chemistry platforms which incorporate Al-predicted blood brain barrier penetration properties for CNS drug development,
- Proprietary statistical learning algorithms and neural networks (AI)

# Infrastructure and Organization Building

- Renovated and occupied 10,000 sq ft SEED Headquarter, with 7,000 sq ft lab space;
- Hired full time drug R&D personnel, with significant focus on expertise in early-stage drug discovery and development

Translation of SEED Platforms into Drug Pipeline of 8 disclosed programs in various disease areas

RBM39 Degrader: POC in cell and animal models; lead candidate in oncology advancing to FHD around 1H 2025

2020

2021

2022

2023 and beyond

Nov. 2020: SEED received \$10 M investment and entered into a research collaboration and license agreement with Eli Lilly on multiple targets in TPD (upfront \$10 M, up to \$780 M milestone payments and tiered sales royalties)

**Jun. 2022:** Received additional investment upon achieving 1<sup>st</sup> milestone

**2024-2025:** Target meaningful milestone payments

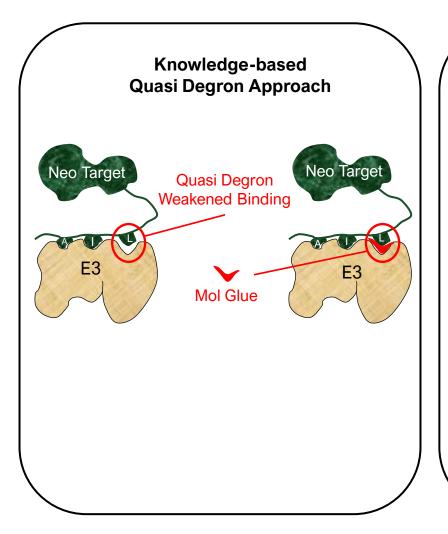
Mar. 2024: Received 3rd milestone payment

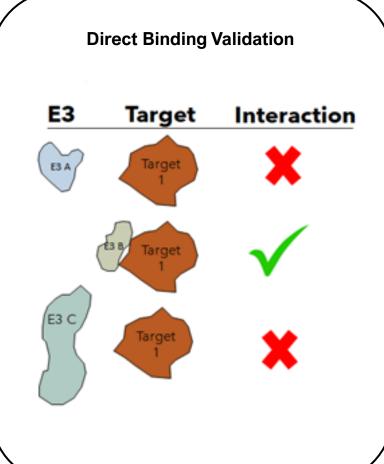
**Feb. 2023:** Received 2<sup>nd</sup> milestone payment

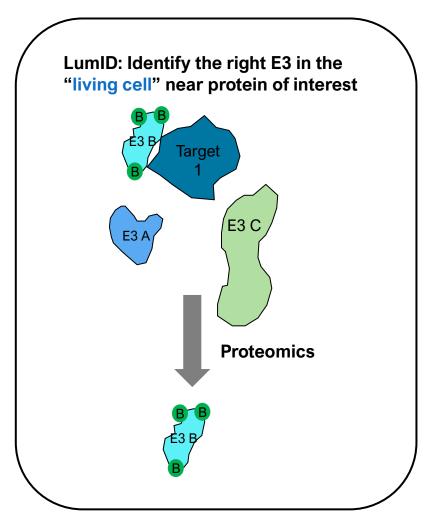
**Eli Lilly Partner Program Milestones** 



### SEED's Differentiation: Multi-dimensional Platforms for E3 Selection









## 8 Drug R&D Pipeline in Multiple Disease Areas



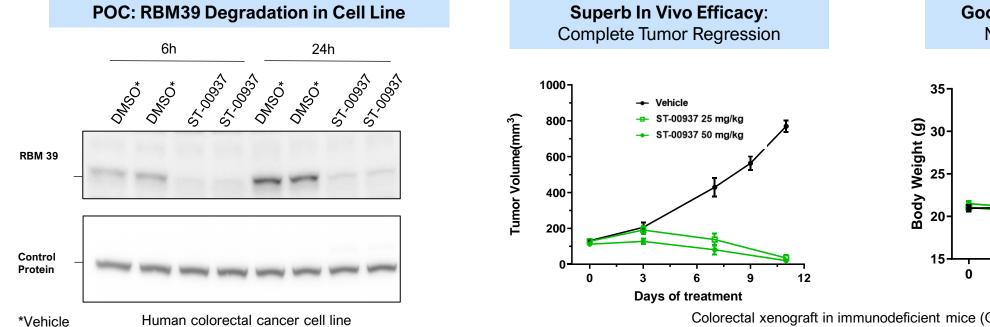
<sup>\*</sup> SEED owns global IP on all programs except for two joint programs with Eli Lilly



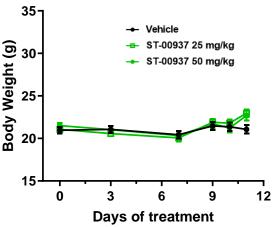
## Our RBM39 Degrader Class: Potentially Best-in-Class and First-to-Market

#### **Program Summary**

- POI: RNA splicing factor RMB39; E3: DCAF15; MOA: RMB39 degrader MG
- **Target indications**: Biomarker selected colon cancer, prostate cancer, neuroblastoma, and others
- Development stage: IND candidate; YE2024 IND filing
- **Differentiation**: Our novel degrader demonstrates superior anticancer potency in cell line, improved pharmacokinetics and brain permeability, improved metabolic stability and absent hERG activity vs. comparators
- **Preclinical POC**: Animal data demonstrates its potential to have powerful anticancer effects with excellent safety profile
- SEED owns global rights



**Good In Vivo Safety:** No Weight Loss



Colorectal xenograft in immunodeficient mice (Oral dose, twice daily)

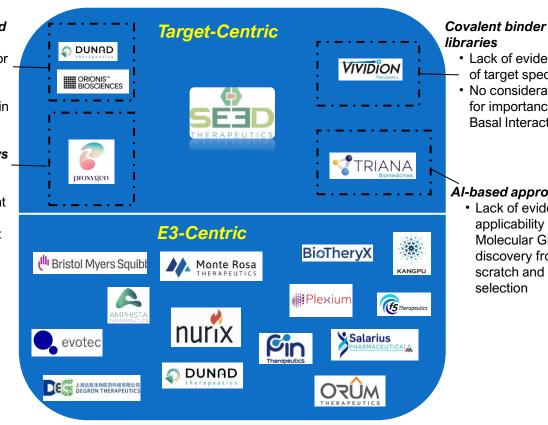
## TPD: a High Value and Novel Therapeutic Modality

#### Allosteric effect based

- Not MG selective
- Lack of evidence for TPD through small molecule-induced allosteric changes in protein structure

#### Cell-based HTS assays

- May not be MG selective
- Difficult to screen at higher compound concentrations that may be required



#### All top 20 global pharma have TPD programs internally and / or through collaboration

- Discovery stage TPD assets has been commanding \$35 \$60 million upfront and \$500 million - \$5 billion milestone payment. Notable transactions include licensing and R&D collaboration deals between
  - ✓ Genentech and Orionis: Genentech and Monte Rosa
  - ✓ Astellas and Cullgen
  - ✓ BMS and Evotec

Lack of evidence

No consideration

for importance of

**Basal Interaction** 

Al-based approach

applicability to

Molecular Glue

discovery from

scratch and E3

selection

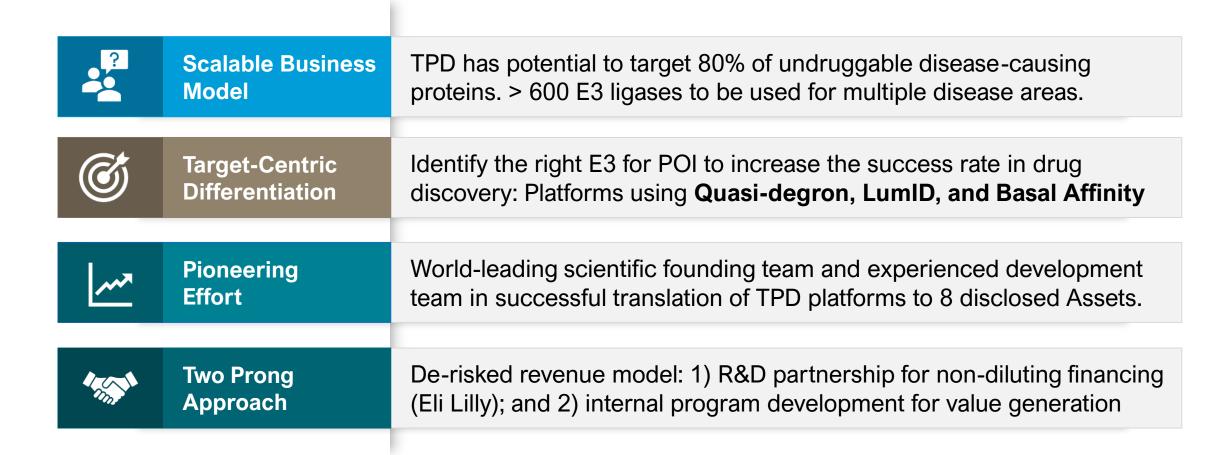
· Lack of evidence for

of target specificity

- √ Genentech and Jemincare
- ✓ Bayer's acquisition of Vividion for \$1.5 billion in 2021
- ✓ Merck's acquisition of Peloton for \$1.05 billion in 2019
- Pre-IND/ IND stage TPD assets has been commanding \$100 -\$300 million upfront and up to \$2 billion milestone payment. Notable transactions include licensing deals of
  - ✓ Eli Lilly from Foghorn
  - √Sanofi from Kymera
  - √GSK from IDEAYA
  - ✓ BMS and Orum
- Clinical stage TPD asset (early Phase II) has commanded \$650 million upfront and \$350 million equity investment in
  - ✓ Pfizer/ Arvinas' collaboration



## Summary: First to Market and Best in Class

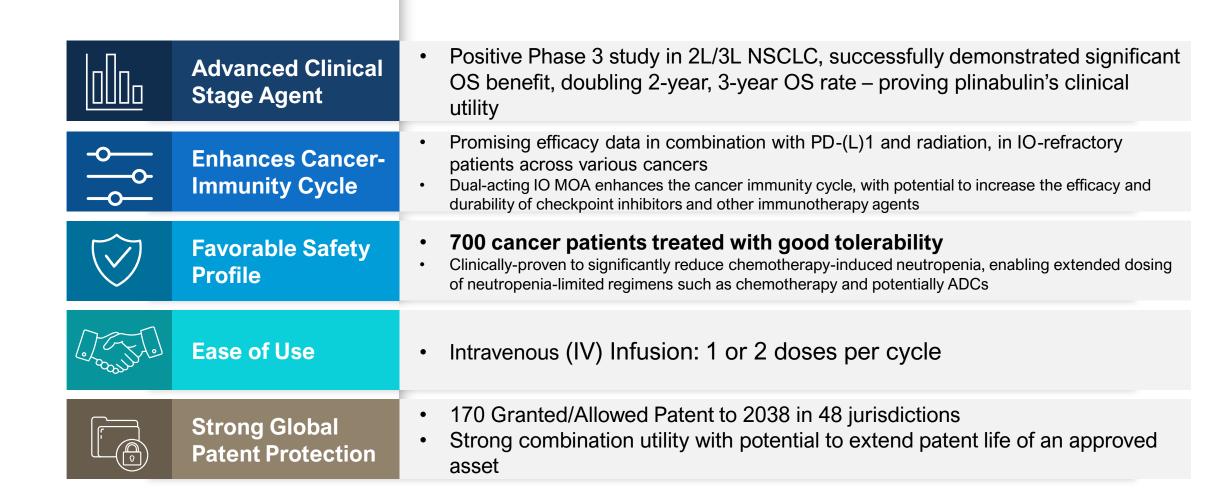






Plinabulin: First-in-class Late Stage Clinical Asset for Cancer Treatment

#### First-in-class Asset: Plinabulin





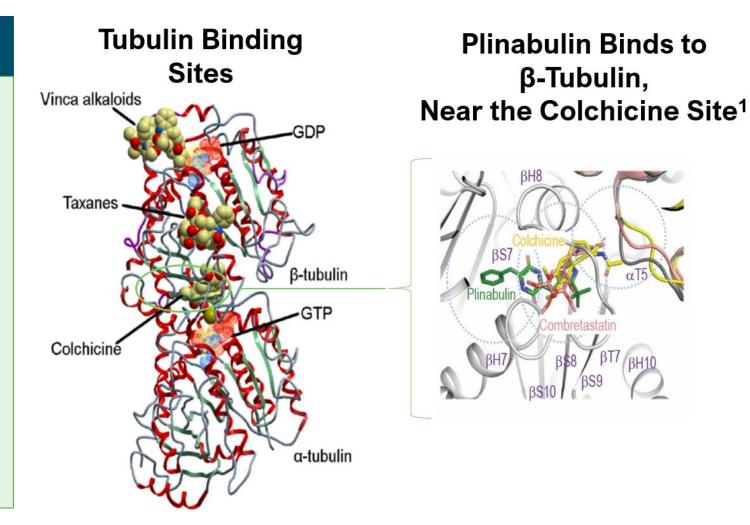
# Plinabulin is a Differentiated First-in-Class Tubulin Binder with a Uniquely Favorable Safety Profile

# Plinabulin is a reversible tubulin binder and does not change tubulin dynamics

Conventional tubulin binding agents (such as taxanes, vinca alkaloids, and colchicine) alter tubulin dynamics upon binding, resulting in neutropenia and cardiac side effects.

Plinabulin's tubulin binding site is distinct from that of these other agents (first in class). Because binding is reversible, plinabulin does not change tubulin dynamics.

Consequently, plinabulin exhibits a favorable safety profile, differentiating it clinically from other tubulin binding agents with concerning side effects that restrict their clinical utility.

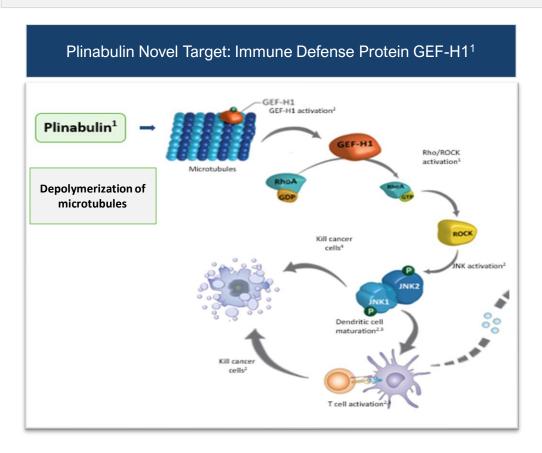




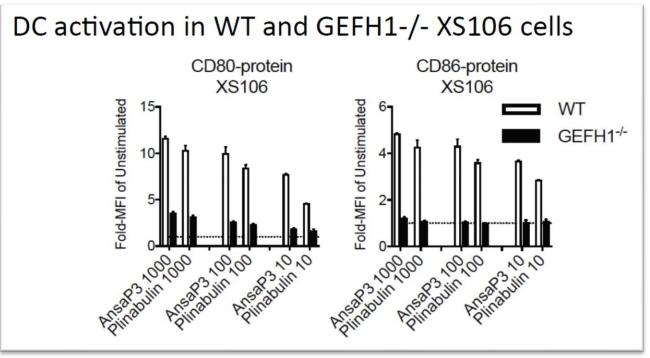
## Plinabulin: Induce Innate and Adaptive Immunity

By depolymerizing microtubules, plinabulin releases, or activates, immune-defense protein GEF-H1.

This leads to dendritic cell maturation (the most potent APC).



In WT DC cells, plinabulin can induce DC maturation, but not in GEF-H1 deleted DC cells<sup>2</sup> CD80 and CD86 up-regulation are biomarkers for DC maturation



AnsaP3, Maytansinoid cytotoxic (positive control compound), too toxic for human study

<sup>&</sup>lt;sup>2</sup> Kashyap et al., Cell Reports 28(13): 3367-3380 (2019)



<sup>&</sup>lt;sup>1</sup> La Sala et al., Chem 5(11): 2969-2986 (2019)

# Plinabulin's Immunomodulation and Neutropenia-Mitigating Activities Position it as a Valuable Partner for Immuno-Chemotherapy Combination Regimens

These aspects result in an optimal scenario of added efficacy with potentially reduced toxicity.



**Dendritic Cells** 

Plinabulin induces

dendritic cell maturation





M1-like Macrophages

Plinabulin stimulates

M1-like macrophage polarization and proliferation



Increased tumor cell killing and cytotoxic T cell recruitment

Collaborates with PD1/PD-L1 targeting agents to enhance T cell function and kill tumor cells



Improves Safety\*

Plinabulin <u>reduces</u> chemotherapy-induced neutropenia



Improved therapeutic index of chemotherapy-based regimens

**Extends therapeutic duration** of CPI + chemo combinations





Plinabulin improves overall survival and enhances safety in 2L/3L NSCLC (Dublin-3 Study)

# The EGFR-wild Type 2L/3L NSCLC Have Been a Historically Difficult Space in Which to Develop

# Treatment options in 2L/3L NSCLC are limited

Docetaxel-based therapies are the mainstay therapy in 2L/3L NSCLC (EGFR wt).

However, docetaxel-based therapies (SOC) demonstrate limited efficacy and are associated with >40% severe (grade 3/4) neutropenia.

#### Other approved agents:

- Ramuciramab + Docetaxel vs. Docetaxel: OS HR=0.86, severe neutropenia 49% vs. 40%;
- Pemtrexed vs. Docetaxel: OS HR=0.99, severe neutropenia 5% vs. 40%.

Additionally, with immunotherapies moving to first line NSCLC, there is a growing population of 2L/3L patients that are refractory to immunotherapy.

# Attempts to address treatment needs have been challenging

Since Nivolumab's approval 8 years ago, no new agent with a novel mechanism has been approved in this indication.

Multiple Phase 3 studies (PD-1/PD-L1 failed patients, 2L/3L NSCLC), did not meet OS endpoint vs. docetaxel:

- 1. BMS' Nivolumab (PD-1 antibody) + Mirati's Sitravatinib (TKI) combination
- 2. Roche's Atezolizumab (PD-L1 antibody) + Exelixis's Cabozantinib (TKI)
- 3. Merck's Pembrolizumab (PD-L1 antibody) + Eisai's Lenvima (TKI)
- 4. Novartis' Canakinumab (IL-1b antibody) + docetaxel
- 5. Gilead's sacituzumab govitecan-hziy (ADC antibody drug conjugate)

#### Recent successful phase 3 studies with mixed results:

- Lunar (TTfields vs. docetaxel): OS benefit (HR=0.74), but no PFS and ORR benefit;
- TROPION-Lung01 (Datopotamab deruxtecan vs. docetaxel): OS benefit (HR=0.90) in ITT population, with better OS (HR=0.75) in non-squamous NSCLC.



# Plinabulin Has Been Evaluated in Combination with Docetaxel in a Phase 3 Study with advanced, Pre-treated NSCLC Patients

#### **Docetaxel + Plinabulin** vs. Docetaxel + Placebo in Patients with EGFR Wild-Type NSCLC

#### **Study Plan**

- Global, randomized, single-blinded (patients only)
- Stratified by region (Asia/non-Asia), prior line (2L or 3L), ECOG (0-1/2), Prior PD-1/PD-L1 (yes/no)

#### **Primary endpoint**

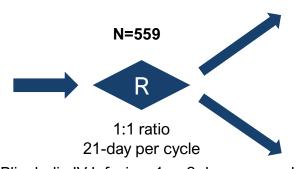
Overall survival (OS)

#### **Secondary endpoints**

- ORR, PFS
- Percent of patients without severe neutropenia (Day 8, cycle 1)
- Month 24 and 36 OS rate
- DoR
- Q-TWiST; QoL
- Proportion of patients who received docetaxel >8 cycles, >10 cycles and >12 cycles

#### **Inclusion Criteria:**

- Non-squamous or squamous NSCLC
- Stage IIIb/IV
- ECOG ≤ 2
- Progression during or after treatment with one or two treatment regimens containing a platinum
- Must have at least one measurable lung lesion
- Prior checkpoint inhibitor therapy allowed<sup>1</sup>



Plinabulin IV Infusion: 1 or 2 dose per cycle

#### DP:

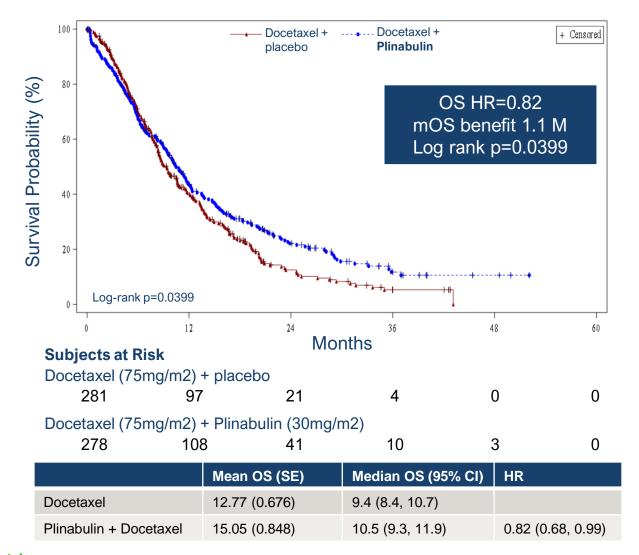
Docetaxel (75 mg/m2, day 1) + **Plinabulin** (30 mg/m2, day 1, 8)

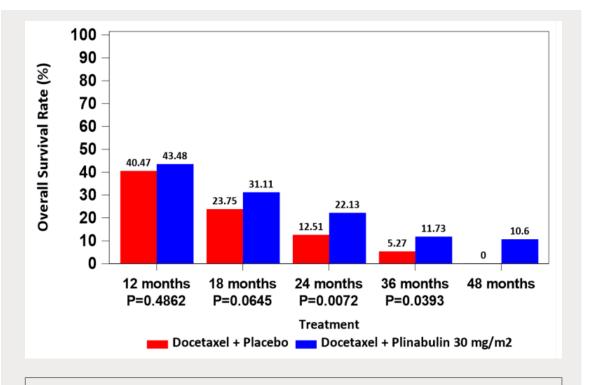
#### D:

Docetaxel (75 mg/m2, day 1) + Placebo (day 1, 8)



# Plinabulin + Docetaxel Met its Primary Endpoint (OS) and Showed Significant Improvement in Long-term OS Rate





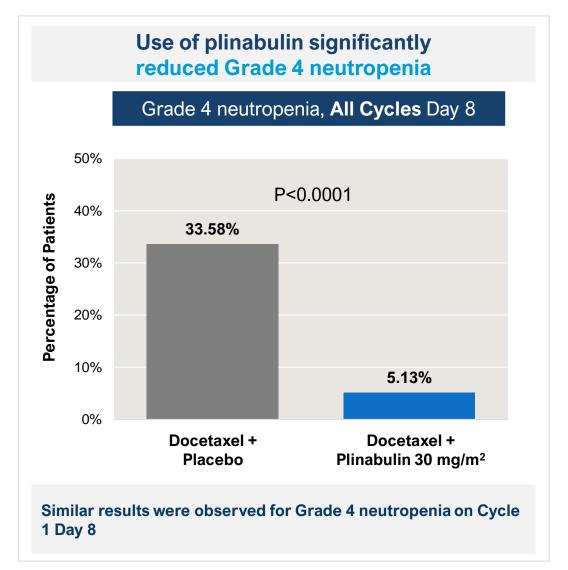
#### **OS Rate Increase Results**

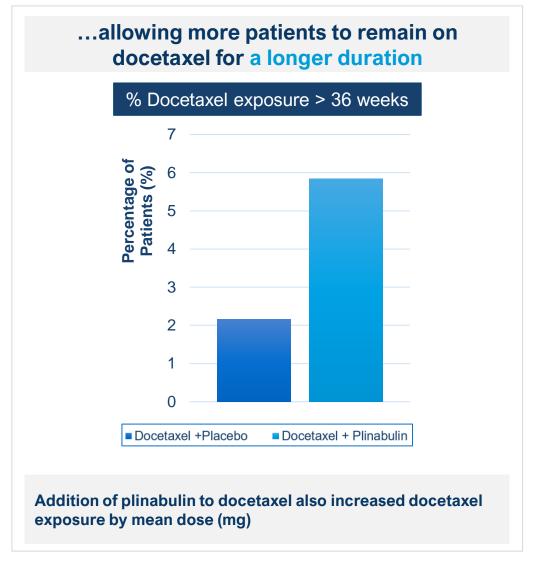
- Significantly increased OS rate in 24 months, and 36 months (doubling benefit)
- 48m OS rate: D + Product X (10.6%) vs D (0%)



2L/3L EGFRwt NSCLC SOC at time of trial: Docetaxel

# Plinabulin Not Only Slows Progressive disease, but Also Increased the Tolerability of Docetaxel and Increased Duration of Treatment







2L/3L EGFRwt NSCLC SOC at time of trial: Docetaxel

# Plinabulin Successfully Improved Efficacy of SOC in 2L/3L NSCLC, Proving its Clinical Utility, Despite Historical Failures in this Space

The addition of plinabulin as a single agent added to 2L/3L NSCLC standard-of-care led to improved overall survival and <u>enhanced</u> safety

#### **Efficacy**

- Significant survival benefit in ITT (OS HR=0.82)
- Even more pronounced survival benefit in 2L (HR=0.78), or nonsquamous NSCLC (HR=0.76)

### Safety and tolerability

- The regimen is <u>well tolerated</u>. Side effects include transient hypertension which resolves in 4-6 hours, nausea, vomiting and GI side effects.
- Significant QoL benefit
- Docetaxel-induced <u>neutropenia was reduced</u>, allowing increased treatment exposure



2L/3L EGFRwt NSCLC SOC: Docetaxel



Encouraging RT+PD-1+Plinabulin clinical data demonstrates Plinabulin's partnering potential with IO agents

# Plinabulin Enhances the Cancer Immunity Cycle When Used with Radiation and Anti-PD1

Trafficking of T cells to tumors (CTLs) Priming and activation (APCs & T cells) blood Infiltration of T cells vessel into tumors CTLs, endothelial cells) lymph node 3 Cancer antigen presentation Recognition of (dendritic cells/ APCs) cancer cells by T cells (CTLs, cancer cells) Release of Killing of cancer cells cancer cell antigens (Immune and cancer cells) (cancer cell death)

3 Checkpoint Inhibitors

Anti-tumor T cell activation
Optimize T cell response

Chemotherapy
Radiation Therapy
Oncolytic Viruses
Antibody Drug
Conjugates
Targeted Therapy

1 Radiation/Chemotherapy

Release tumor antigens

For more potent anti-cancer effect



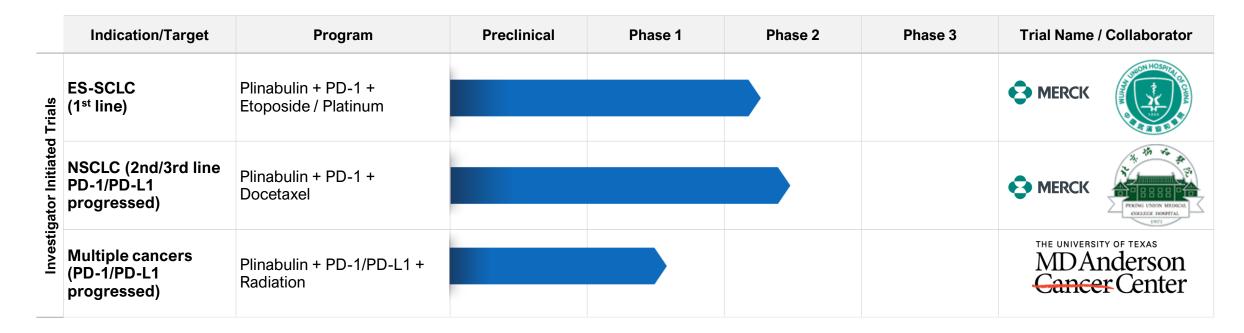
(2) Plinabulin

Improved antigen presentation

increase antigen presentation.

Stimulate maturation of dendritic cells to

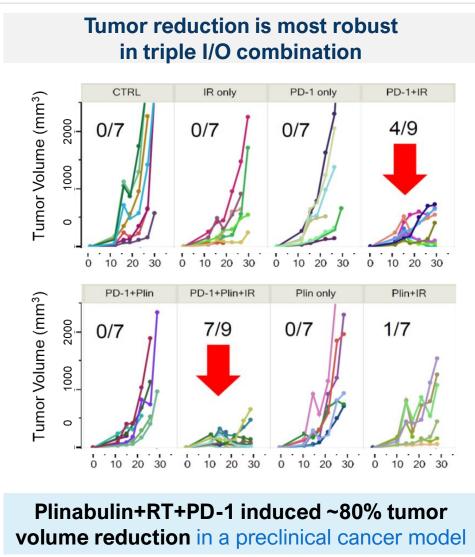
# Plinabulin is Being Evaluated in Multiple Immunotherapy Combination Trials in Collaboration with Major Pharmaceutical Companies

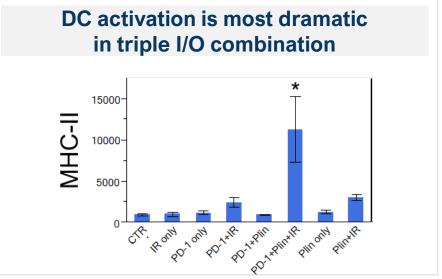


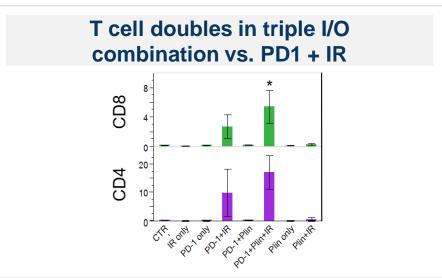
MD Anderson Phase 1 study clinical data and biomarker studies was presented at SITC conference in November 2023.



RT+anti-PD1+Plinabulin Triple Combination POC in Animals Provides Evidence of Plinabulin's Immunomodulatory activity





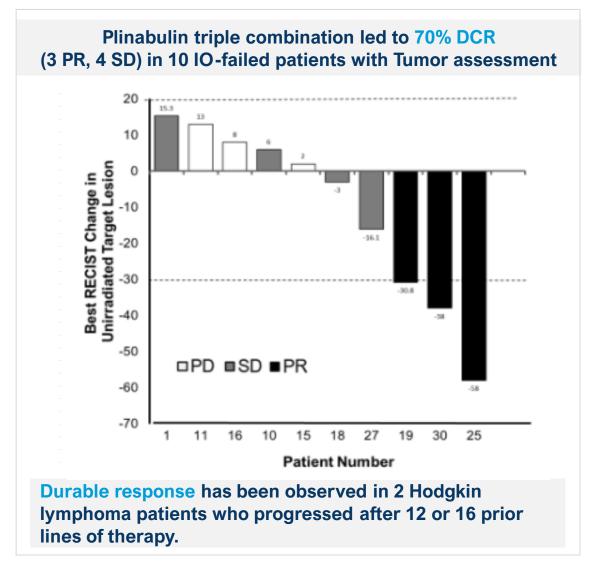


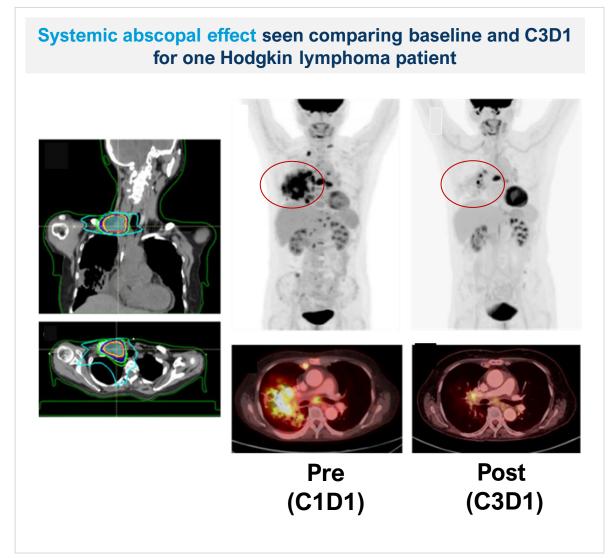
### Plinabulin+ RT+PD-1

increased DC maturation and doubled CD4+ and CD8+ T cells in tumor samples 30 days after treatment

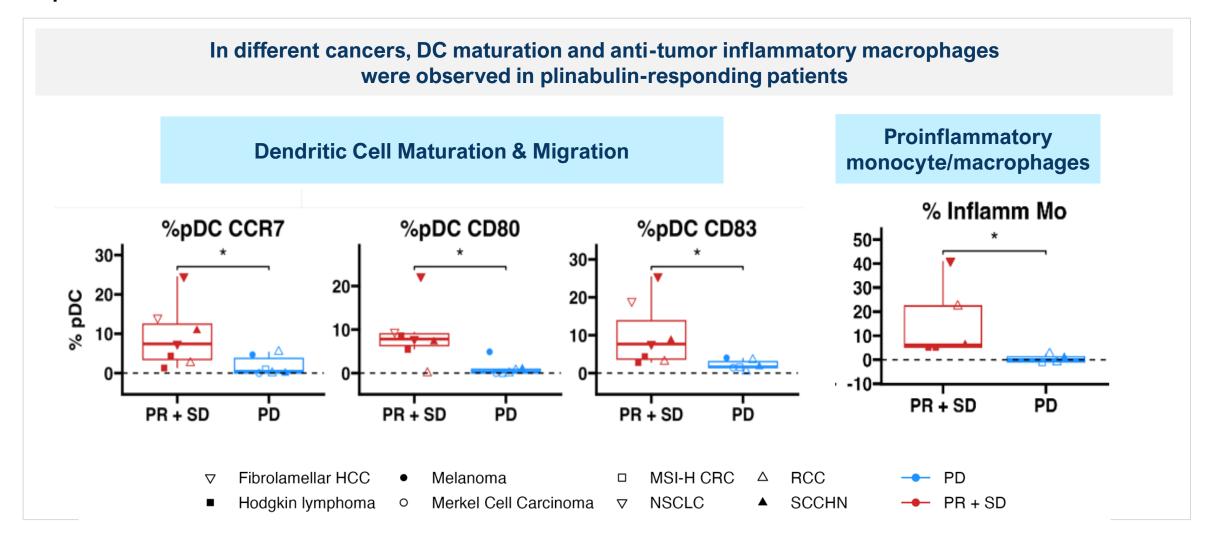


# Clinical PoC in **Efficacy**: Plinabulin Triple Combo Produces Clinically Meaningful Responses in the Non-Irradiated Tumor Across Multiple Cancers after IO-failure





# Clinical PoC in MOA: Plinabulin-Responding Patients Show Early Immune Activation Evidenced by DC Maturation and Proinflammatory Monocytes in the Peripheral Blood





# Plinabulin as Potential Add-on Therapy to Current I/O Regimens to Address Severe Unmet Medical Needs

PD-1/PD-L1 Inhibitors
- >\$30B global annual sales

Potential to greatly expand the addressable market

#### **Current Severe Unmet Medical Needs**

**2L/3L**: PD-1/PD-L1 relapsed/refractory patients

**1L**: PD-1/PD-L1 + chemo doubles anticancer efficacy of PD-1, but with CIN risk

"Cold" Tumor: PD-1/PD-L1 non-responsive tumor

#### Plinabulin:

APC Inducer with easy administration\*

#### Plinabulin Clinical Development

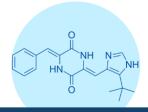
**Re-sensitize:** Plinabulin + PD-1/PD-L1 + chemo/radiation/ADC

Increase Combo Anti-cancer Efficacy: Plinabulin + PD-1/PD-L1 + chemo/ADC

Turn "cold" into "hot" Responding Tumor: Plinabulin+ PD-1/PD-L1 + chemo/ADC; Plinabulin + chemo/ADC



# Plinabulin's Multiple MoAs, Proven Clinical Activity, and Strong Global Patent Protection are Highly Favorable for Partnerships with Immunotherapy Agents...and Beyond



# Lead Asset Plinabulin displays dual IO MOAs

A first-in-class tubulin modulator that activates dendritic cell maturation and M1-like macrophage proliferation which enables the cancer immunity cycle



# Proven clinical efficacy and safety

Successfully demonstrated significant OS benefit in 2L/3L NSCLC, as well as reduction in severe neutropenia, allowing extended regimen duration



# **Enhances the Cancer-Immunity cycle**

Clinically enhanced the antitumor response to checkpoint inhibitors in combination with radiation or chemotherapy, even in immunotherapyrefractory patients



# Strong global patent protection

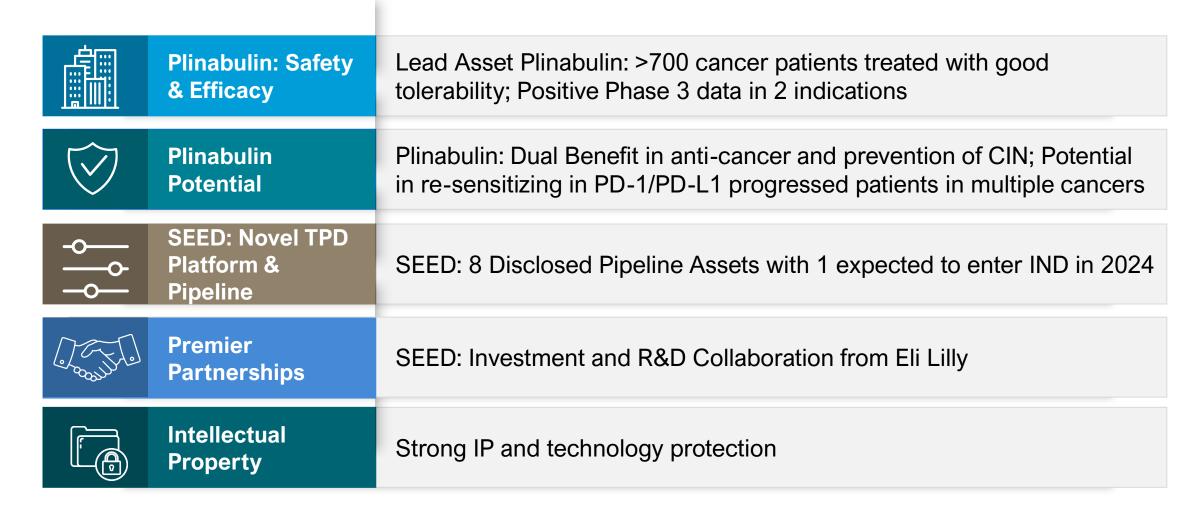
BeyondSpring (est. 2010) is a global company that has 170 Granted/Allowed Patents to 2038 in 48 jurisdictions

Plinabulin enhances the cancer immunity cycle to increase patient survival and reduce adverse events in combination use settings with a minimal patient administration schedule.

Plinabulin's multiple mechanisms of action provide strong rationale for its combination with both immunotherapy agents as well as neutropenia-limited agents such as chemotherapy and ADCs



## Investment Highlights







www.beyondspringpharma.com

