HOOKIPA Pharma

Next-generation Immunotherapies for the Treatment of Cancer and Other Serious Diseases

January 2025

NASDAQ: HOOK

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Merger Transaction Overview

Transaction Structure

- Proposed all stock transaction where HOOKIPA Pharma Inc. (“HOOKIPA” or “HOOK”) acquires Poolbeg Pharma plc (“Poolbeg” or “POLB”)
- HOOKIPA remains TopCo with existing Nasdaq listing
- Concurrent Financing: Private placement of approximately $30M+ to be funded into HOOKIPA immediately following transaction close
- Implied ownership split pre-merger without PIPE on a fully-diluted basis: POLB shareholders 55.0% / HOOKIPA shareholders 45.0%
- In addition, CVR's for HB-200, HB-400 & HB-500 Programs (for pre-PIPE HOOKIPA shareholders)
- POLB expected to apply for cancellation of its shares on AIM Market at transaction close and become a private sub of HOOKIPA

Capitalization and Use of Proceeds

- Combined company expected to have sufficient capital to realize meaningful value inflection points
  - HB-700: Phase 1 interim data expected in H1 2026
  - POLB 001: Phase 2a topline data expected in H2 2026
  - HB-500: Phase 1b Primary completion expected in H2 2025
- Expected to provide cash runway through year-end 2026*

Transaction Timeline

- Possible offer announcement in line with Rule 2.4 of the UK City Code on Takeovers and Mergers
- HOOKIPA to either announce a firm intention to make an offer for POLB, or not, under Rule 2.7 of the UK City Code on Takeovers and Mergers
- Concurrent financing contingent on transaction close

Post-Closing

- Combined company anticipates benefiting from a strong international leadership team comprised of individuals with both significant industry experience and a track record of success

*Statement: assumes the receipt of future expected R&D grant proceeds by the Austrian government, which Hera has received in previous years, for qualifying research and development expenses and capital expenditures

Investment Highlights

- Next-generation cancer immunotherapy portfolio driven by lead assets each with $10B+ market opportunities with potential to gain significant market share [1-2]
  - Phase 1-ready multi-KRAS-targeting HB-700 (derisked by clinical POC with platform asset eseba-vec (HB-200))
  - Phase 2-ready small molecule POLB 001
- Strategic partnership with Gilead on HBV and HIV programs in Phase 1b with potential of up to $417.5M potential future opt-in, development and commercial milestones and significant sales royalties
- Multiple near-term clinical data catalysts in multiple programs over next 24 months in large therapeutic areas with unmet medical needs
- Clinically validated antigen-specific T cell activation platform designed to produce durable, robust anti-tumor activity underpins HB-700
- Proven leadership team with extensive experience in successfully developing and commercializing medicines with a track record of delivering shareholder returns

1. Trinity Life Sciences analyses; 2. Independent research by Decisive Consulting Limited. https://teamdecisive.com/meet-the-team

HOOKIPA Has a Diversified Core Immunotherapy Pipeline

Product	Modality	Indication	Preclinical	Phase 1	Phase 2	Phase 3	Key Milestone
Oncology Programs							
HB-700	Next-generation immunotherapy	KRAS Mutated Tumors	**Phase 1-ready**				FPD in Phase 1 trial expected mid-2025
POLB 001	p38 MAPK inhibitor	Immunotherapy-induced CRS	**Phase 2-ready**				FPD in Phase 2 trial expected H2 2025
Partnered Programs in Infectious Disease							
HB-400[1]	Next-generation immunotherapy	HBV	**Gilead-led Phase 1 ongoing** GILEAD				Primary completion expected H1 2025
HB-500[2]	Next-generation immunotherapy	HIV	**HOOKIPA-led Phase 1 ongoing** GILEAD				Primary completion expected H2 2025

CRS: Cytokine release Syndrome; HBV: Hepatitis B Virus Infection; HIV: Human Immunodeficiency Virus Infection;
1. HB-400 (GS-2829): www.clinicaltrials.gov/study/NCT05770895; 2. HB-500 (GS-6779) www.clinicaltrials.gov/study/NCT06430905

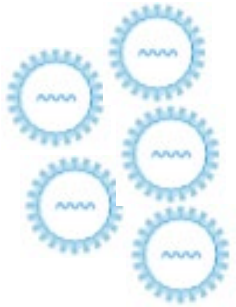
HOOKIPA Pipeline has Additional Partnership Opportunities

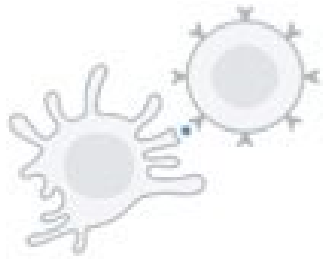
Product	Modality	Indication	Preclinical	Phase 1	Phase 2	Phase 3	Key Milestone
Additional Programs							
Eseba-vec (HB-200)	Next-generation immunotherapy	HPV16+ HNSCC	**Mature Phase 2 data with POC in combo with CPI**				Final Phase 2 data expected H2 2025
GLP-1 Program	GLP-1R agonist	Obesity and diabetes					Topline POC data expected H1 2026
AI Programs	Novel target discovery	Influenza		CytoReason			Potential partnership
		RSV		ONETHREE BIOTECH			Potential partnership

CPI: Checkpoint inhibitors; GLP-1: Glucagon-like peptide -1; GLP-1R: GLPR-1 receptor; POC: Proof-of-Concept

HOOKIPA's Next-Gen Vaccine Platform Designed to Supercharge Immunity

T cell activation platform based on work of Nobel laureate and HOOKIPA co-founder Rolf Zinkernagel[5]





Drug Design	Infection of APCs	Activation of T cells	Tumor Cell Killing
Heterologous and alternating 'prime-boost' arenavirus vectors with target antigens	Dendritic cells or macrophages	Tumor-specific T cell expansion and activation	Robust anti-tumor activity

Unprecedented levels of cancer-specific T cells with polyfunctionality & durability with continued treatment[1-4]

1. Lauterbach H, et al. Front Oncol. 2021;11:732166; 2. Fu S, et al. ASCO 2022. Abstract 2517; 3. Bonilla WV, et al. Cell Rep Med. 2021;2(3):100209; 4. Kallert SM, et al. Nat Commun. 2017;8:15327;
5. www.nobelprize.org/prizes/medicine/1996/zinkernagel/facts/

HB-700

Next-generation multi-KRAS targeting cancer immunotherapy with strong commercial potential

KRAS is the Most Prevalent Oncogenic Driver

~1.5M people worldwide

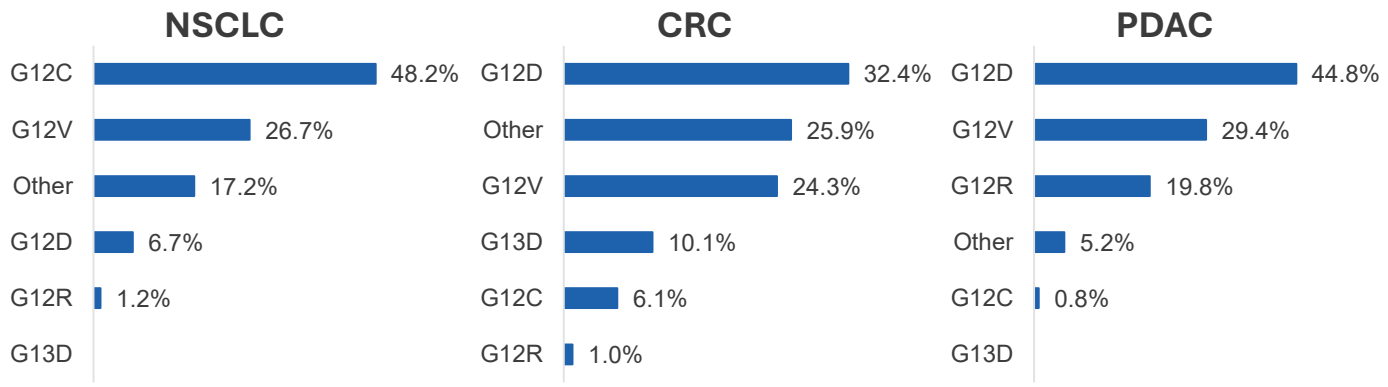
are diagnosed annually with KRAS-mutated NSCLC, CRC, or PDAC

~20% All NSCLC

~30-40% All CRC

≥88% All PDACs

Prevalence of the top 5 KRAS mutations by tumor type



KRAS Market Opportunity

Targeting KRAS has been challenging due to lack of activity, poor selectivity or treatment resistance

Approved standards of care are small molecules targeting a single mutation

~$5-6B

2038 global KRAS market size estimate

Unmet needs remain for a therapy that can

- Address multiple mutation subtypes
- Drive deep and durable responses
- Achieve immunogenic tumor cell death

NSCLC: Non-small cell lung cancer; CRC: colorectal cancer; PDAC: pancreatic ductal adenocarcinoma;
Source: Trinity Life Sciences, Kantar, World Cancer Research Fund

A Novel Multi-KRAS Mutant Targeting Cancer Immunotherapy

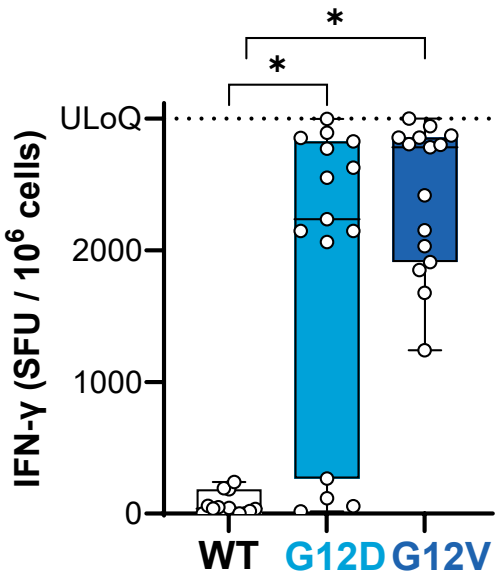
Designed for uniquely strong anti-tumor T cell activation

Targets 5 of the most prevalent KRAS mutations[1]	G13D, G12V, G12C, G12D & G12R
Strong preclinical proof-of-concept package[2]	KRAS mutation specific T cell activation in humanized mice; preclinical profile supports diverse combinations
Derisked by clinical POC with platform asset eseba-vec	Dose selection and treatment schedule based on alternating 2-vector therapy in eseba-vec program - demonstrated clinically durable and robust anti-tumor activity
Phase 1-ready	Nonclinical development and clinical trial material manufacturing completed
Strong commercial potential	Large addressable populations in NSCLC, CRC and PDAC

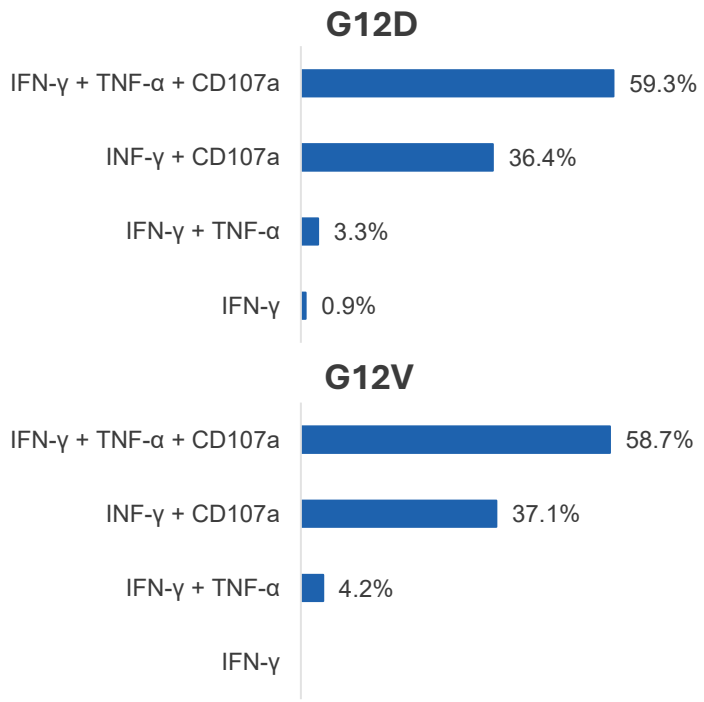
1. artLCMV-KRAS = HB-703, artPICV-KRAS = HB-704, HB-703 and HB-704 encode 5×18 amino acid stretches of KRAS containing single amino acid mutations at position 12 or 13; 2. Lauterbach et al 2024, 6th RAS Summit Boston

Preclinical Proof of Concept: Highly Immunogenic with Potent Target Cell Killing in Humanized Mice

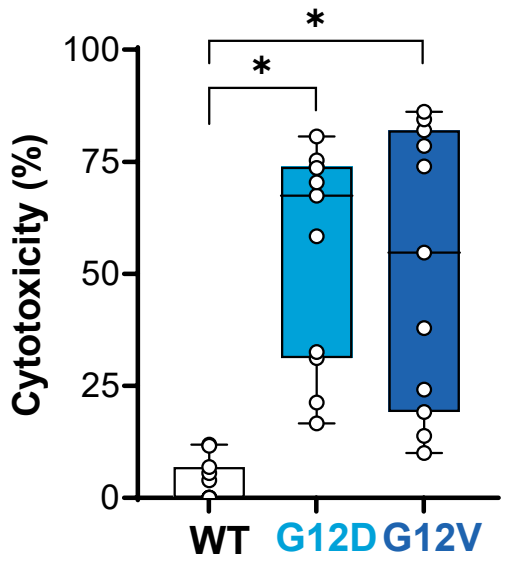
High frequencies of circulating KRAS mutation specific CD8+ T cells



KRASmut specific T cells exhibit a polyfunctional profile



KRASmut specific T cells are functional and specifically kill target cells



Source: Lauterbach et al 2024, 6th RAS Summit Boston; Immunization of HLA-B*07:02 mice shows induction of cytotoxic KRAS G12R/C restricted CD8+ T cell responses (data not shown)
SFU: spot-forming units measured by IFN-γ ELISpot; WT: wild type, * = p<0.05
Polyfunctionality was determined by intracellular cytokine staining; Cytotoxicity was measured in an *in vivo* CTL assay

Proposed Open-Label Phase 1/2 in Metastatic KRAS-Mutated NSCLC

Clinical POC in NSCLC followed by expansion in related indications

Eligibility
Metastatic/advanced NSCLC & CRC
KRAS mutated and HLA selected
≥1 prior line SoC

Eligibility
Metastatic/ advanced NSCLC
PD-L1 scores of TPS ≥50%
KRAS-mutated and HLA selected
No prior line of therapy

Phase 1 Dose De-Escalation

2L+ NSCLC & CRC

HB-700
Intended dose; n = 3 + 3

→

Phase 1 Dose Expansion

2L+ NSCLC

NSCLC
n = 6

Primary Endpoint:
RP2D
Secondary Endpoint:
Safety, T cell response, initial antitumor activity

→

Phase 2 Combination

1L NSCLC

HB-700 + Pembrolizumab
n = 30

Primary Endpoint:
ORR by RECIST v1.1
Secondary Endpoint:
Safety, DCR, DoR, PFS, OS, T cell response and tumor infiltration

Expect FPD in Phase 1 trial mid-2025 with interim Phase 1 data in KRAS mutant tumors in H1 2026

DCR: Disease control rate; DoR: Duration of Response; HLA: human leukocyte antigens; ORR: Overall response rate; OS: Overall survival; PFS: Progression free survival; RP2D: Recommended Phase 2 dose.

HB-700 KRAS Immunotherapy has Potential for $1.5B Peak Worldwide Net Sales* Across 1L NSCLC, CRC and PDAC, if approved

Additional expansion opportunities in 2L and neoadjuvant/adjuvant for locally advanced disease

	NSCLC	CRC	PDAC
1L Addressable Patient Population (US+EU5)	18.5K patients†	27.8K patients †	39K patients†
Unmet Need			
Tumor immune microenvironment			

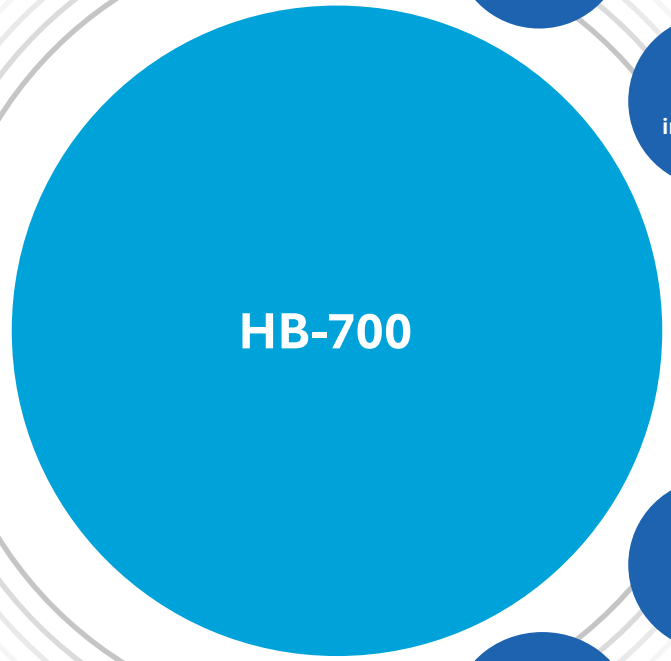
Relative Opportunity for HB-700

Highest Opportunity

*Assumptions: HLA restriction is included (54% NSCLC, 61% PDAC, 48% CRC). US launch: 2032, 3YTP; EU5 launch: 2033, 5YTP. Settings 1L NSCLC, CRC and PDAC with 10-18% market share

† : Source: Trinity Life Sciences

HB-700 Potential to Combine with Diverse Approved and Emerging Therapies



Checkpoint Inhibitor Combination
clinical POC on combination with anti-PD1 and eseba-vec[1]

KRAS Inhibitor Combination
potential to work synergistically with immunotherapy likely by remodelling the TME making it more susceptible to immune attack (e.g. AMG510+aPD1)[2]

KRAS Degrader Combination
enhanced antigen presentation may lead to augmented CD8+ T cell activation

multi KRAS Combination
Potential to potentiate/boost the immune response and reach a vast majority of patients with KRAS mutated solid tumors

Adoptive T Cell Transfer Combination
artARENA Technology potential to effectively activate and augment adoptively transferred T cells[3]

TME: Tumor microenvironment. 1. Presented at ASCO 2024; 2. Oya et al., Lung Cancer, 2024; 3. Purde MT et al 2024

POLB 001

Potentially breakthrough orally delivered p38 MAPK inhibitor to prevent cancer immunotherapy-induced CRS

CRS Associated with Immunotherapies is a High Unmet Need

Effective prophylaxis represents a >$10B market opportunity[4]

Cytokine Release Syndrome (CRS)
A severe, potentially life-threatening side effect of cancer immunotherapies

No approved therapies for prevention
Approved options for CRS management (tocilizumab) **have not adequately* prevented** Grade 2+ CRS in clinical trials

>70%[1] of patients experience CRS
on certain CAR T / bispecific antibody therapies and are restricted to specialist cancer centers

Estimated $5B annually[2-3]
in direct costs to US health systems by 2030
CRS of all grades can require hospitalization

1. Average rate from Summary of Product Characteristics (SmPCs) for Yescarta, Tecartus, Abecma, Kymriah, Carvykti, Breyanzi, Elrexfio, Columvi, Epkinly, Tecvayli and Talvey; **2.** Datamonitor Healthcare. Forecast: Diffuse Large B-Cell Lymphoma and Multiple Myeloma, 2023**; 3.** Abramson JS et al. Blood Adv. 2021 Mar 23;5(6):1695-1705. *In this context, *adequately* is defined as both not completely preventing grade 2+ CRS and potentially sufficient to support active clinical development towards a regulatory approval of a medicine. Grade 2 CRS is defined as described by Lee et al, Biol Blood Marrow Transplant . 2019 Apr;25(4):625-638. janssenscience.com & doi.org/10.1182/blood-2022-159381; **4.** Independent research by Decisive Consulting Limited. https://teamdecisive.com/meet-the-team

CRS Preventative Therapy: >$10B US Market Opportunity

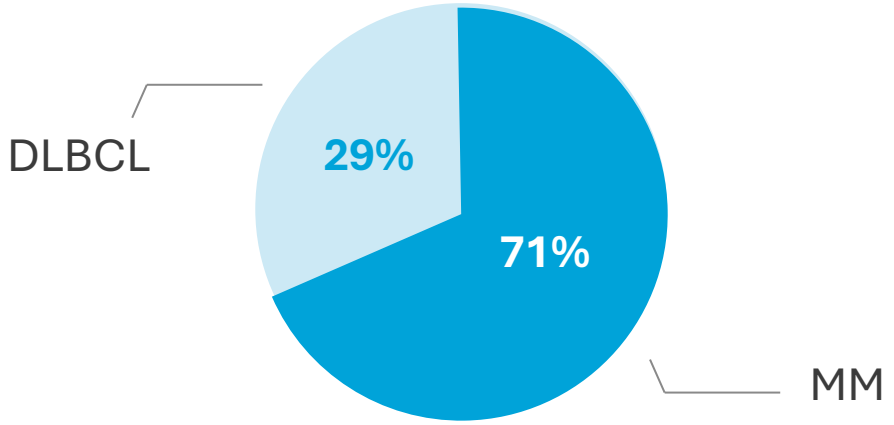
A significant opportunity exists for POLB 001 as an adjunct therapy to bispecific and CAR T treatment[3]

1st, 2nd and 3rd line+ MM and DLBCL patients in the US and EU5, receive CAR T cell and bispecific antibody therapy[1]

An effective primary prophylactic for CRS could **enable outpatient administration and broader uptake** of immunotherapies[2]

Potential across additional hematological malignancies, solid tumors and new areas like severe influenza

Addressable MM and DLBCL population by 2030 in the US and EU5



n = ~500,000 patients[1]

Estimate encompasses solely MM & DLBCL due to rapid advancements in bispecific & CAR T treatment for these indications. Conservative price estimate versus market peers

CAR T: Chimeric Antigen Receptor T cell therapy; MM: Multiple Myeloma; DLBCL: Diffuse Large B-Cell Lymphoma;
1. Datamonitor Healthcare. Forecast: Diffuse Large B-Cell Lymphoma and Multiple Myeloma, 2023. 2. Hansen DK et al., Cancers (Basel). 2023. 7;15(24):5746. 3. Independent research by Decisive Consulting Limited. https://teamdecisive.com/meet-the-team

Potential to Make Immunotherapies Safer & More Accessible

Selective p38 MAPK Inhibitor

- Selectively prevent excessive inflammation without immunosuppression
- Oral agent
- Strong patent portfolio

Strong Preclinical & Clinical Data

- Phase 2-ready
- Favorable safety and tolerability profile
- Potent TNF-α inhibition shown in two Phase 1 trials
- Potent inhibition of IL-6 and other key inflammatory markers in clinical & preclinical models

Significant Market Opportunity

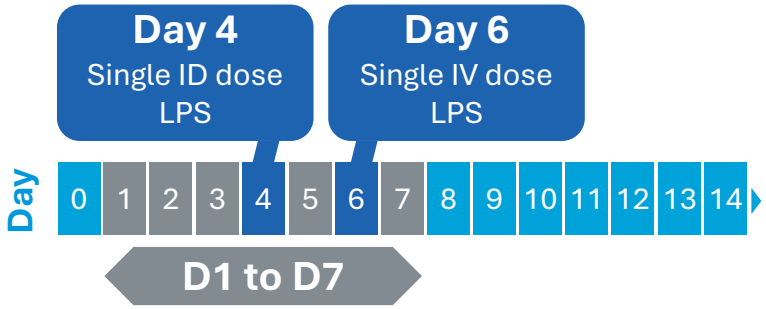
- >$10B market opportunity
- Potential for Orphan Drug Designation
- No approved therapy for CRS prevention

MAPK: Mitogen Activated Protein Kinase; TNF: Tumor necrosis factor; IL-6: Interleukin-6

LPS Human Challenge: Potent Inhibition of Excessive Inflammation

Supportive of potential of POLB 001 as a prophylactic for cancer immunotherapy-induced CRS

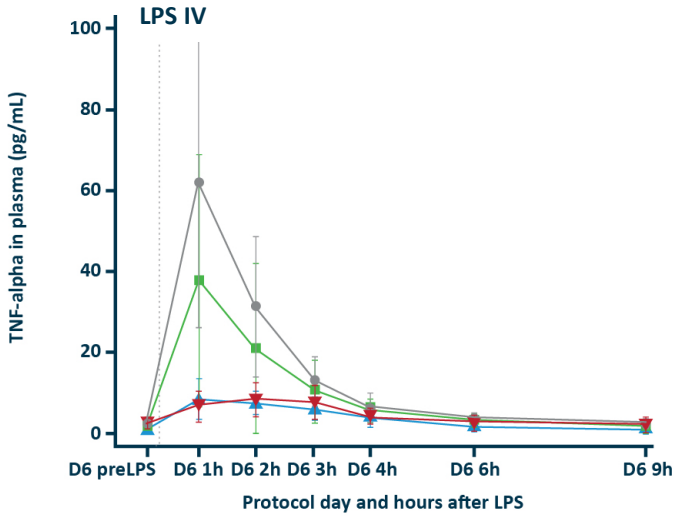
Trial design



POLB 001 Oral BID Dosing
(n=9 per group)

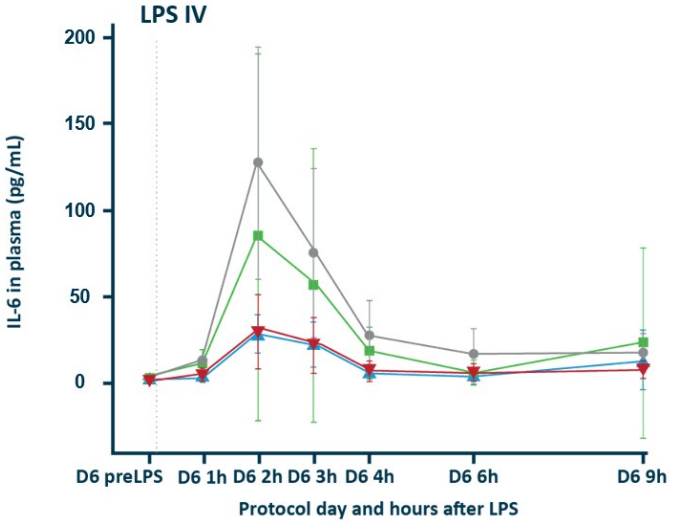
Potential to effectively prevent CRS while preserving key immune system functionality

TNF-α



73.5% and 56.2% maximal reduction compared to placebo for 70 mg and 150 mg doses respectively (p = 0.0003)

IL-6



57.4% and 63.5% maximal reduction for 70 mg and 150 mg doses respectively (p = 0.0002)

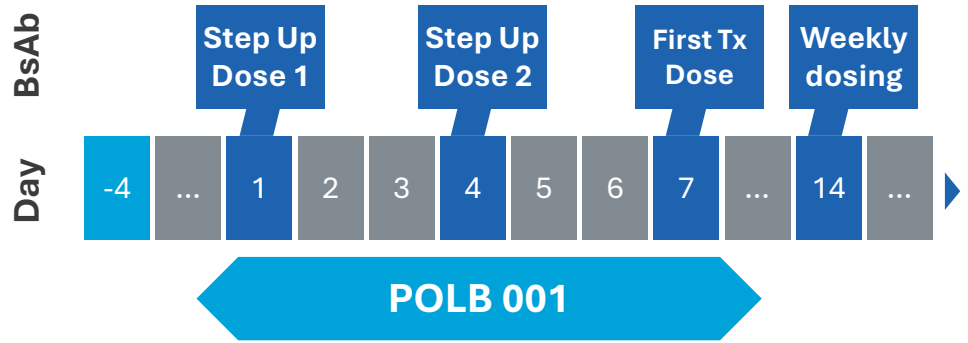
Placebo | 30 mg POLB 001 | 70 mg POLB 001 | 150 mg POLB 001

Trial design: Single site, randomized placebo controlled LPS challenge trial. Healthy males administered BID oral POLB 001 or vehicle only control & challenged with local dermal LPS on day 4 and systemic IV LPS on day 6 to evaluate effect of POLB 001 on local and systemic inflammatory responses respectively. n=9 per group, all endpoints were exploratory. Clinically meaningful parameters such as temperature, heart rate, C-reactive protein and blood pressure were monitored, along with target inhibition and a range of exploratory biomarkers.

Planned POLB 001 Phase 2a Investigator Initiated Trial

Prevention of CRS in R/R Multiple Myeloma Patients Receiving Bispecific Ab

Trial design



Phase 2a IIT	Single Arm	N = 30 - 40
BID Oral POLB 001	Single dose level	SoC BsAb*

Key Objectives/Endpoints

- Incidence of Grade 2+ CRS
- Incidence of CRS all grades
- Confirm safety and pharmacokinetics
- Exploratory biomarker analysis

Expect FPD in Phase 2 trial H2 2025 with topline data expected in H2 2026

*Clinical trial collaboration and supply agreements with a large pharma company expected for approved BsAb

BID: Twice Daily; BsAb: Bispecific antibody; IIT: Investigator Initiated Trial; R/R: Relapsed/ Refractory; SoC: Standard of Care; Tx = Treatment

Gilead Strategic Partnerships

HB-400 and HB-500

Aim to Develop Functional Cures for HBV and HIV

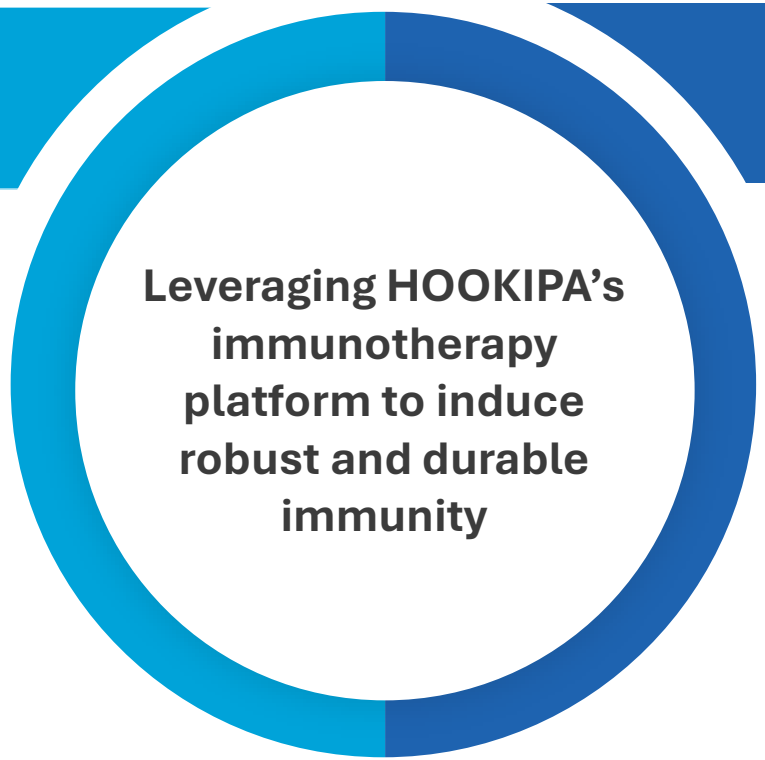
HB-400
For the treatment of HBV

Alternating, two-vector non-replicating arenaviral HBV immunotherapy

High Potential candidate in Gilead's efforts to develop a curative regimen of treatments

Phase 1 enrollment completed

Primary completion expected H1 2025



HB-500
For the treatment of HIV

Alternating, two-vector replicating arenaviral HIV immunotherapy

Ongoing Phase 1b study

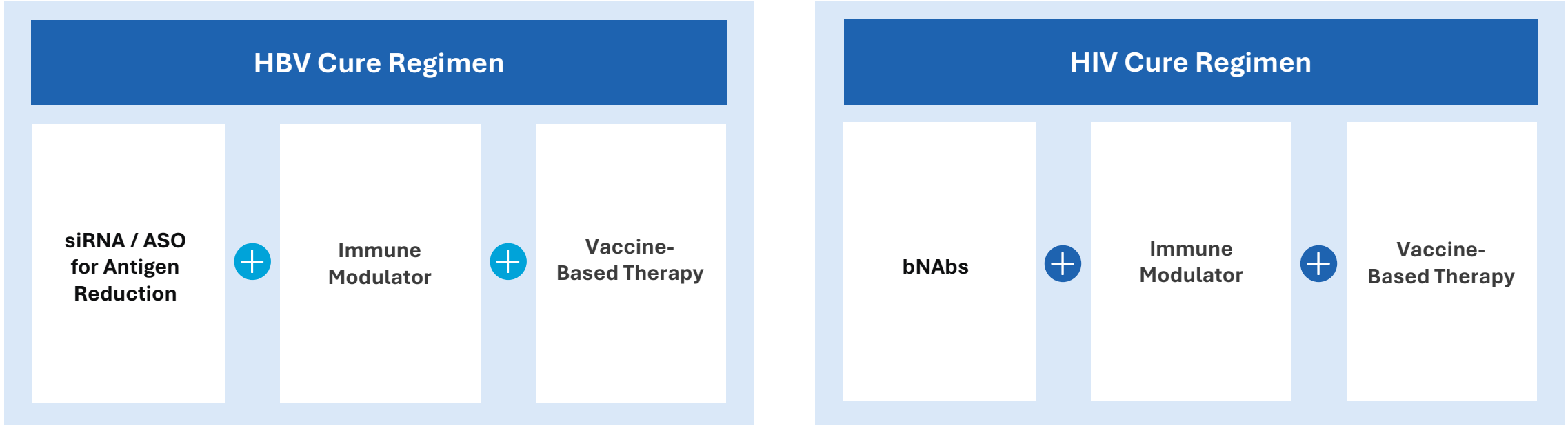
FPD July 1, 2024, with enrollment expected to complete by Jan 2025

Primary completion expected H2 2025

Entered into a strategic collaboration with Gilead in June 2018

HOOKIPA's Immunotherapies Are Prominently Featured in Gilead's Pipeline

Using combination strategies and novel mechanisms with the goal to drive viral suppression and durable immunity[1-4]



HOOKIPA's immunotherapies have potential to build long-term immune responses

ASO: Antisense oligonucleotides: bNAbs: broadly neutralizing antibodies; siRNA: small interfering ribonucleic acid; 1: Amin et al. Hepatology . 2021 Jul;74(1):55-71. 2. Gilead Sciences Virology Deep Dive Feb 17, 2022. 3. Cable et al. Ann N Y Acad Sci . 2023 Jun;1524(1):65-86. 4. Gilead Q324 Financial Results presentation November 6, 2024.

Partnership Offers Significant Revenue Potential

HB-400 for HBV

Gilead responsible for clinical development

Next potential milestone payment: start of Phase 2

HOOKIPA Responsibilities

- Vector design
- Manufacturing and supply of clinical material

Terms

- $185M potential future development + commercialization milestones
- High-single digit to mid-teen % royalties
- All costs borne by Gilead, including HOOKIPA spend

HB-500 for HIV

Gilead retains exclusive option post Phase 1

HOOKIPA Responsibilities

- Vector design
- Conducting Phase 1b clinical trial

Terms

- $232.5M potential future opt-in, development + commercial milestones
- Mid-single digit to low double-digit % royalties

Additional Programs

Eseba-vec (HB-200), Oral GLP-1, AI Programs

Eseba-vec (HB-200) in Recurrent/Metastatic HPV16+ HNSCC

Strong scientific thesis with mature Phase 2 data and POC in combination with checkpoint inhibitors

Leading Phase 2 Data in HPV16+ R/M OPC CPS ≥ 20

- 52% response rate in CPS ≥ 20, best among vaccine approaches[2]
- 16% complete response in CPS ≥ 20 HNSCC patients[2]
- Durable responses leading to progression free survival of 16.3 months[2]
- Favorable safety profile and well tolerated

Clearly Defined Registrational Path

- FDA-endorsed strategy for potential **accelerated approval**
- **EMA PRIME designation received**
- Robust clinical and preclinical data package

Large Addressable Market with Expansion Opportunities

- Initial opportunity: ~1,500-3,000 patients with 1L HPV16+ R/M OPC (CPS ≥ 20)[1]
- Potential expansion across HPV16+ OPC continuum
- Other HPV16+ cancers (non-OPC HNSCC, anal, cervical, penile, vulvar, vaginal)
- Additional ~17,500-20,000 patient opportunity[1]

SOC: Standard of care (pembrolizumab monotherapy); HNSCC: Head and Neck Squamous Cell Carcinoma;
1. Trinity Life Sciences analyses; 2. Phase 1/2 data as of 30-Sep-2024 cut-off, presented at 2024 SITC conference

Additional Pipeline Programs in Large Market Opportunities

GLP-1 Program – *Oral GLP-1R agonist*

Obesity and Diabetes Treatment
Phase 1 ready asset

Proprietary Delivery Technology

Potential to overcome oral delivery challenges of peptide-based biologicals[1]

Proof-of-concept trial initiation expected H1 2025

AI Programs – *Drug Discovery*

RSV and Influenza
Preclinical assets

AI Platform Programs, Drug Discovery & Repurposing Opportunities[2]

Integrated proprietary multi-parametric clinical data to identify novel host response targets

A number of potential targets and clinical-stage repurposing candidates have been identified

Discussions ongoing in respect to collaborations

1. poolbegpharma.com/pipeline/glp-1r-agonist-2/. 2. poolbegpharma.com/pipeline/artificial-intelligence/

Combined Company and Financial Overview

Global Company with Strong Patents and Cash Runway

HOOK (NASDAQ)

Combined company expected to have operations in EU, UK & US

Robust patent portfolio covering:

- Platform patents
- Product-specific patents
- Oncology platform patents

Expected to be Debt Free with Cash Runway Through YE 2026*

Offering Size

Approximately $30M+

Expected to Fund Key Catalysts

HB-700
Phase 1 interim data expected H1 2026

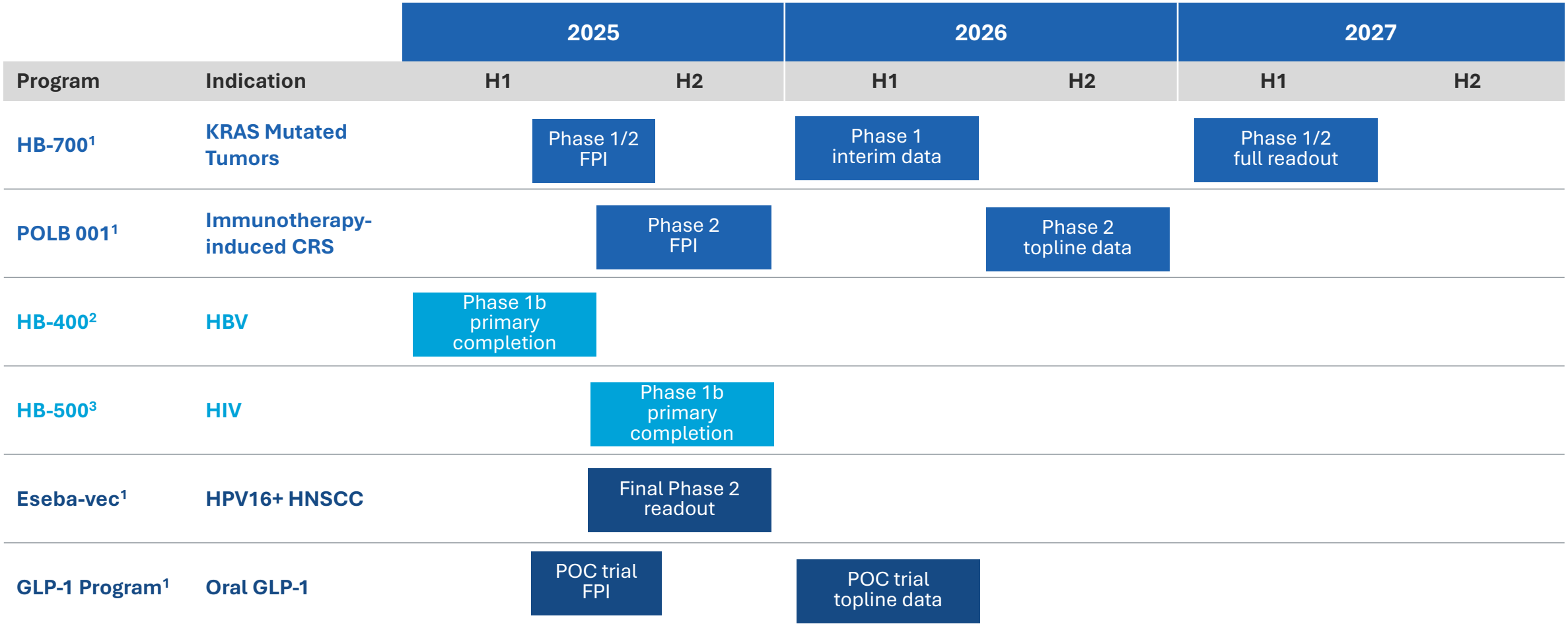
POLB 001
Phase 2a topline data expected H2 2026

HB-500
Phase 1b primary completion expected H2 2025

*Statement: assumes the receipt of future expected R&D grant proceeds by the Austrian government, which Hera has received in previous years, for qualifying research and development expenses and capital expenditures

Clinical Milestones in High Interest Areas Over the Next 24 Months

Cash runway expected to be extended through YE2026* including HB-700, POLB 001 & HB-500 milestones



FPI: First Patient In; 1. Management estimate based on currently available data; 2. www.clinicaltrials.gov/study/NCT05770895; 3. HB-500 (GS-6779) www.clinicaltrials.gov/study/NCT06430905;
*Statement: assumes the receipt of future expected R&D grant proceeds by the Austrian government, which Hera has received in previous years, for qualifying research and development expenses and capital expenditures

Proposed Team with Proven Execution and Operational Leadership

Malte Peters, MD, PhD
Chief Executive Officer

HOOKIPA PHARMA · morphosys · NOVARTIS

Mark Winderlich, PhD
Chief Development Officer

HOOKIPA PHARMA · morphosys · evotec

Cathal Friel
Executive Chairman, Poolbeg Co-Founder

POOLBEG PHARMA · AMRYT PHARMA · hVIVO formerly Open Orphan plc

Ian O'Connell
Chief Financial Officer, Poolbeg Co-Founder

POOLBEG PHARMA · AMRYT PHARMA · hVIVO formerly Open Orphan plc

David Allmond
Chief Business Officer

POOLBEG PHARMA · AMRYT PHARMA · Celgene

John McEvoy
Chief Legal Officer

POOLBEG PHARMA · AMRYT PHARMA · HERBERT SMITH FREEHILLS

Investment Highlights

- Next-generation cancer immunotherapy portfolio driven by lead assets each with $10B+ market opportunities with potential to gain significant market share [1-2]
  - Phase 1-ready multi-KRAS-targeting HB-700 (derisked by clinical POC with platform asset eseba-vec (HB-200))
  - Phase 2-ready small molecule POLB 001
- Strategic partnership with Gilead on HBV and HIV programs in Phase 1b with potential of up to $417.5M potential future opt-in, development and commercial milestones and significant sales royalties
- Multiple near-term clinical data catalysts in multiple programs over next 24 months in large therapeutic areas with unmet medical needs
- Clinically validated antigen-specific T cell activation platform designed to produce durable, robust anti-tumor activity underpins HB-700
- Proven leadership team with extensive experience in successfully developing and commercializing medicines with a track record of delivering shareholder returns

1. Trinity Life Sciences analyses; 2. Independent research by Decisive Consulting Limited. https://teamdecisive.com/meet-the-team

Appendix

HOOKIPA-Poolbeg Merger Brings a New Management Team with a Track Record of Delivering Shareholder Returns

AMRYT PHARMA

- World class rare and orphan focused biopharma co-founded and comprising of Poolbeg senior management team
- Listed 2016 c.$50M and acquired in 2023 for $1.48B
- Restructured and fixed underperforming assets, driving development & commercial success across multiple markets
- Made strategic choices to rapidly generate substantial value for shareholders, including:
  1. Approval of Filsuvez for EB and market launch
  2. In-licensing of Lomitapide
  3. Acquisition of Aegerion Pharmaceuticals
  4. Acquisition of Chiasma Inc

hVIVO

- Poolbeg's co-founders Cathal Friel and Ian O'Connell took control of distressed hVIVO via a vehicle they co-founded called Open Orphan (later renamed hVIVO).
- Grew sales revenue from c.$30M in 2019 to an expected c.$77M for 2024, and market cap from c.$15M to c.$175M
- Restructured to refocus operations on core strengths and implement efficiencies to drive revenue growth
- Poolbeg Pharma spun-out of Open Orphan, bringing virology expertise

POOLBEG PHARMA

morphosys

- Mark Winderlich and Malte Peters co-led development and approval strategy of tafasitamab in combination with lenalidomide in 2L+ DLBCL in US, EU, and other countries using real-world data
- Assembled an experienced development team, that successfully led 3 large Phase 3 studies in 1L DLBCL, 2L FL, 1L MF, leading to the acquisition of Morphosys by Incyte and Novartis
- Led felzartamab clinical development in oncology & AI, which was acquired by hBIO, later Biogen.

NOVARTIS

- Malte Peters was responsible for the development and approvals of a PI3K inhibitor, BRAF/MEK inhibitor, CDK4 inhibitor, c-MET inhibitor, and other molecules
- Introduced the concept of patient selection based on molecular profiles, leading to proof of concept and accelerated approvals from Phase 1 and 2 trials
- Led the clinical team at Sandoz, Novartis' generic division, to achieve approval of rituximab and Enbrel biosimilars

DLBCL: diffuse large B cell lymphoma; EB: epidermolysis bullosa; FL: Follicular lymphoma; MF: myelofibrosis; PI3K: Phosphoinositide 3-kinases; 1L: first line; 2L: second line.

POLB 001: An Oral p38 MAPK Inhibitor That Selectively Targets Key Inflammatory Pathways Without Broad Immunosuppression

Phase 2 ready asset with a comprehensive pre-clinical and clinical data package

Favorable Safety and Tolerability Profile

- 97 subjects dosed during Phase I FIH and LPS Challenge studies
- No SAEs or discontinuations due to AEs, all were of mild intensity
- No clinically meaningful findings in clinical laboratory test results, vital signs or ECG
- Favorable safety & tolerability profile

Designed to Prevent Immunotherapy-Induced CRS

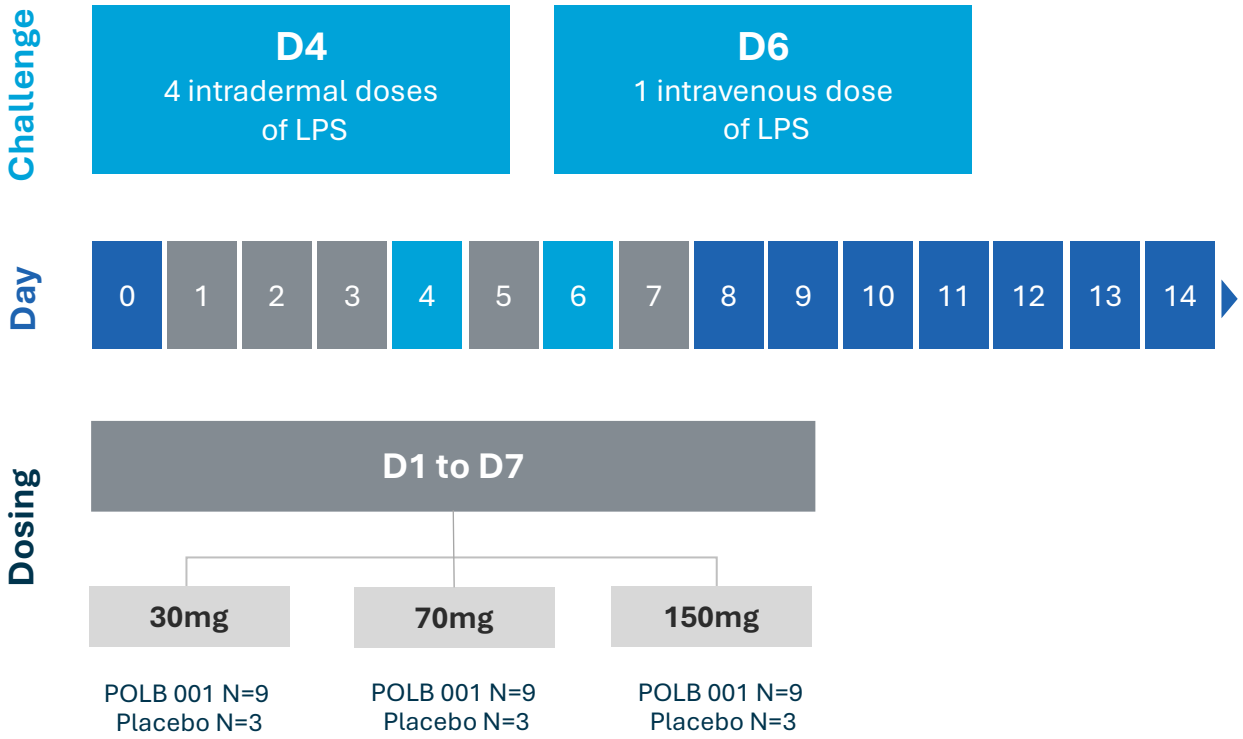
- Suitable for at-home dosing (used in LPS Challenge Study)
- Hepatic metabolism and biliary excretion profile favorable for multiple myeloma and renally impaired populations
- BID oral regimen designed to provide targeted protection during CRS risk period
- Half-life of 7-14 hours provides adequate exposure and avoids excessive exposure beyond periods of CRS risk

AE: adverse event; FIH: First in human; SAE: Serious adverse events; ECG: Electrocardiogram

POLB 001: Benefit in Treatment of LPS-Induced Inflammation

Randomized, double-blind, placebo-controlled, inflammatory challenge trial in healthy volunteers

Trial design



Endpoints

Intravenous LPS challenge

- Bloods (cytokines, vascular markers, CRP)
- *Ex-vivo* LPS response
- Safety & tolerability (inc. vital signs, AE's, ECG, Hematology)

Local inflammatory responses were also measured via intradermal LPS challenge on day 4

CRP: C-reactive Protein

POLB 001 is Designed to Address a High Unmet Medical Need

Effective prevention of CRS by POLB 001 may enable broader access to cancer immunotherapies

~500,000 Patients

Eligible CAR T / bispecific patients in US & EU for DLBCL and MM alone far exceeds treatment capacity[1]

"Bottleneck"

cancer immunotherapy delivery in **specialist centers** limits access

CAR T

BsAb

An effective CRS prevention could remove the bottleneck

Estimated US$5B by 2030

In direct costs of managing CRS[2]

> **Bispecific antibodies will only be delivered in specialist cancer centers until there is a way to make them safer. POLB 001 could make treatment safe enough to extend them to a much wider patient population.**
>
> *Professor Gareth Morgan, US*

> **The development of an oral CRS preventive therapy will mean no or shorter hospital stays.**
>
> *French KOL*

KOL: Key opinion leader; 1. Datamonitor Healthcare. Forecast: Diffuse Large B-Cell Lymphoma and Multiple Myeloma, 2023. 2. Abramson JS et al. Blood Adv. 2021 Mar 23;5(6):1695-1705.

Eseba-vec: Synergistic Activity in Combination with Pembrolizumab

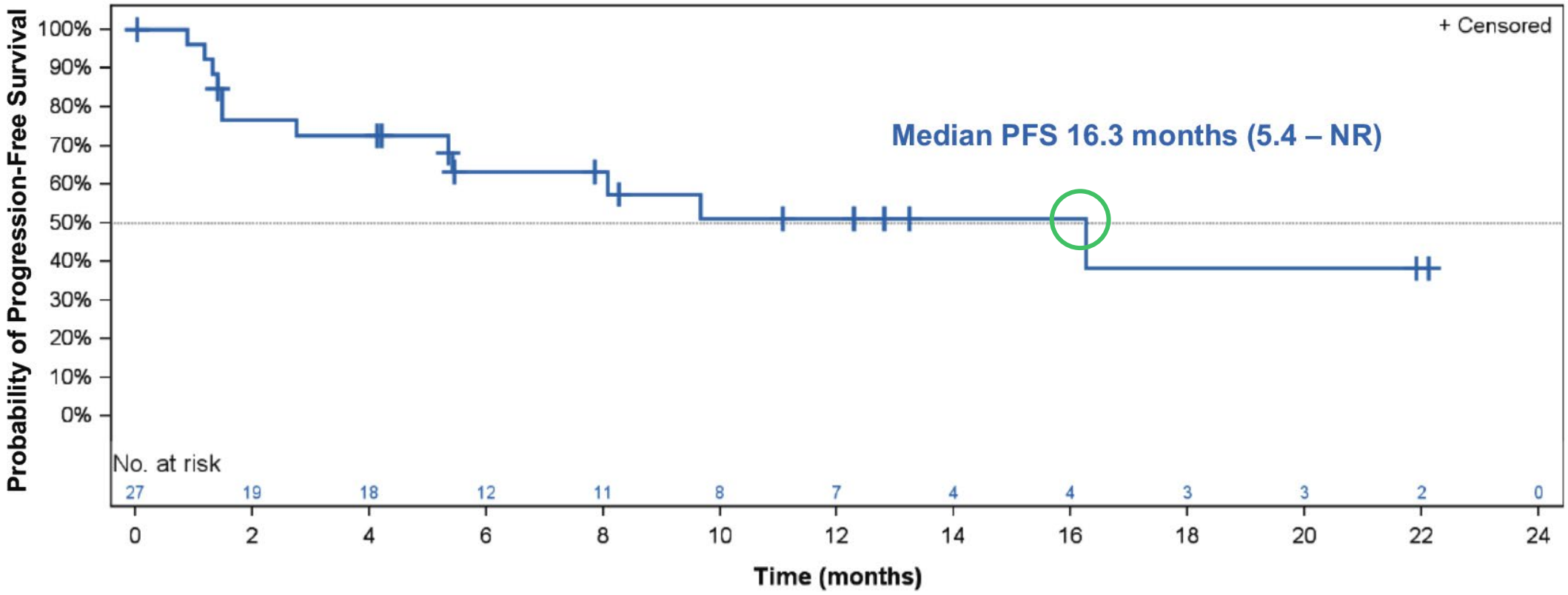
Eseba-vec (HB-200) is a next-generation immunotherapy targeting HPV+ cancers

	Eseba-vec monotherapy in 2L+ CPS ≥ 1 N = 27	Pembro monotherapy in 1L CPS ≥ 20 N = 133)	Eseba-vec+ Pembro in 1L CPS ≥ 20 N = 25[1]
Overall Response Rate	4%	23%	52%
Complete Response Rate	No CR	8%	16%
% Tumor Shrinkage	33%	Not reported	84%
Disease Control Rate	44%	53%	80%
Median Progression Free Survival	~3.0 mos	3.4 mos	16.3 mos

Source: Harrington updated data KEYNOTE-048 JCO 2023 (median follow-up was 45.0 months, n = 882); Phase 1/2 data as of 30-Sep-2024 cut-off, presented at 2024 SITC conference for the 1L treatment of HPV16+, R/M HNSCC patients

Eseba-vec Exhibits Promising Preliminary PFS

In 1L CPS ≥ 20 HPV+ R/M H&NSCC



Source: Phase 1/2 data as of 30-Sep-2024 cut-off, presented at 2024 SITC conference; Efficacy dataset includes 27 patients with minimum 4.5 months of follow-up time after first dose as of data cutoff or discontinued early during this period.

Eseba-vec Has Broad Potential Across Multiple HPV16+ Cancers

Up to ~20,000 US patients and ~39,000 patients globally

OPC Opportunities

A **Immediate OPC Opportunity**
1L HPV16+, CPS ≥20 R/M OPC

B **Expand to CPS 1-19**
1L HPV16+, CPS >1 R/M OPC

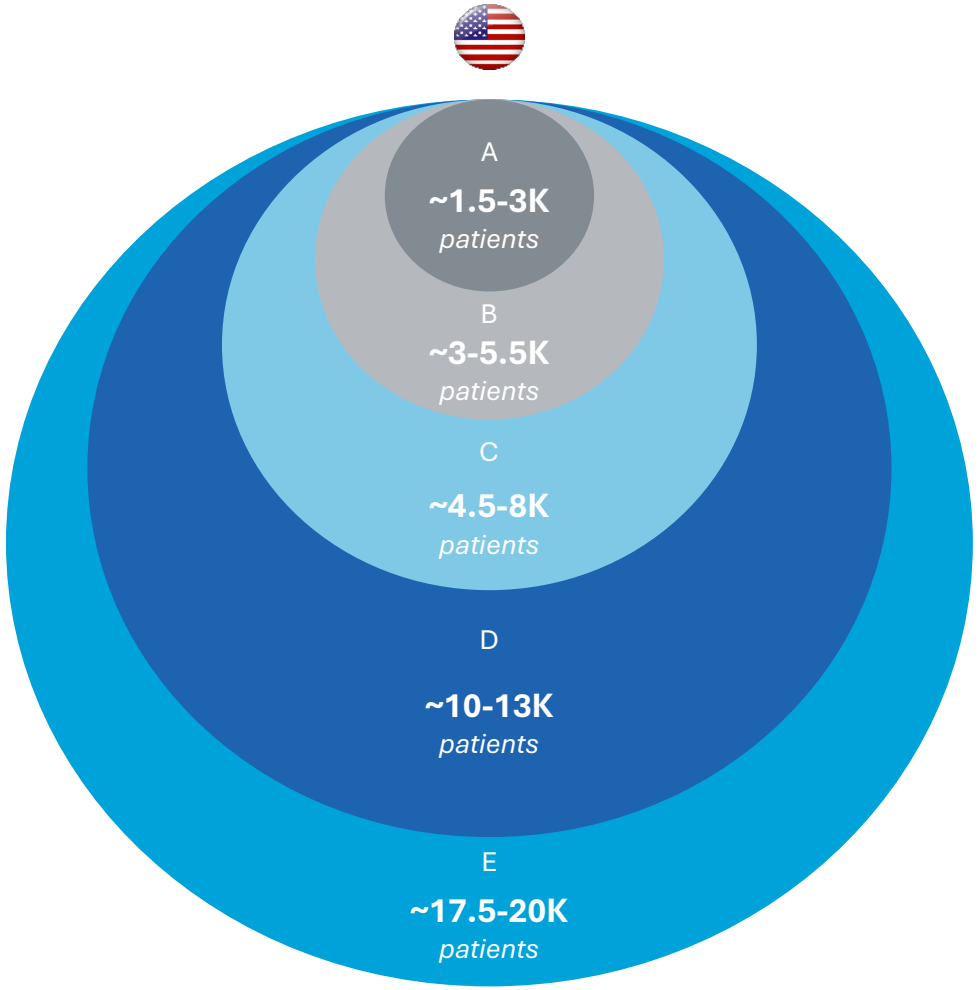
C **Expand to Neoadjuvant/Adjuvant & 2L+**
HPV16+ OPC

Beyond OPC

D **Expand to Recurrent/Metastatic Non-OPC**
HPV16+ HNSCC

E **Additional 2L+ Anogenital Opportunity**
HPV16+ Solid Tumors

*Assuming full expansion beyond initial label (HPV16+ HNSCC and anogenital tumors)



Cumulative Patient Numbers

Source: Trinity Life Sciences

Special Note Regarding Forward-Looking Statements

This presentation contains “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995, as amended, including statements regarding HOOKIPA's expectations regarding the terms, benefits, impacts and timing of the proposed combination (the "Proposed Combination") between HOOKIPA and Poolbeg Pharma plc ("Poolbeg") and the proposed private placement, as well as statements regarding any or all of the following (assuming completion of the Proposed Combination and proposed private placement, as applicable): the success, cost and timing of HOOKIPA's product development activities and clinical trials; the timing, scope or likelihood of regulatory filings and approvals, including accelerated approval of HB-200 by the U.S. Food and Drug Administration (“FDA”), and final FDA, European Medicines Agency or other foreign regulatory authority approval of HOOKIPA's current and future product candidates; key milestones for HOOKIPA's product candidates; HOOKIPA's ability to develop and advance its current and future product candidates and programs into, and successfully complete, clinical trials, including for HB-700, POLB-001, HB-500 and HB-200; the potential of HOOKIPA's arenavirus platform to treat additional HPV16+ tumors and its applicability to additional antigens; the expected timing of patient enrollment and dosing in clinical trials, completing clinical trials, and the availability of data from clinical trials; expected revenue from clinical, regulatory and commercial milestones for HOOKIPA's partnered programs, including HB-500 and HB-400; the market opportunity for HOOKIPA's product candidates, if approved, in the indications they seek to treat, including the blockbuster potential of HB-700 and the market opportunity for POLB 001; the potential of POLB 001 to receive orphan drug designation; the potential of POLB 001 as an adjunct therapy for to bispecific and CAR T treatment; HOOKIPA's expected capital needs, sufficiency of resources to achieve anticipated milestones, and cash runway; the potential to develop product candidates in partnerships with third parties; and other statements that are not historical fact. Forward-looking statements can be identified by terms such as “anticipates,” “believes,” “expects,” “may,” “plans,” “possible,” “potential,” “will,” “would,” or similar expressions and the negative of those terms. HOOKIPA has based these forward-looking statements on its current expectations and projections about future events and financial trends that it believes may affect its business, financial condition and results of operations. Although HOOKIPA believes that such statements are based on reasonable assumptions, forward-looking statements are neither promises nor guarantees and they are necessarily subject to a high degree of uncertainty and risk. Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified and some of which are beyond HOOKIPA's control, you should not rely on these forward-looking statements as predictions of future events. 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