GlycoMimetics

Glycobiology-based therapeutics
Transforming lives.

Rachel K. King
Chief Executive Officer

NASDAQ: GLYC

June 3, 2021 | Jefferies 2021 Virtual Healthcare Conference

Forward-Looking Statements

To the extent that statements contained in this presentation are not descriptions of historical facts regarding GlycoMimetics, Inc. (“GlycoMimetics,” “we,” “us,” or “our”), they are forward-looking statements reflecting management’s current beliefs and expectations. Forward-looking statements are subject to known and unknown risks, uncertainties, and other factors that may cause our or our industry’s actual results, levels of activity, performance, or achievements to be materially different from those anticipated by such statements. You can identify forward-looking statements by terminology such as “may,” “will,” “should,” “expects,” “plans,” “anticipates,” “believes,” “estimates,” “predicts,” “potential,” “intends,” or “continue,” or the negative of these terms or other comparable terminology. Forward-looking statements contained in this presentation include, but are not limited to, statements regarding: (i) the expected timing of completion and data readout of the ongoing Phase 3 clinical trial of rivipansel by Pfizer Inc. (ii) the timing of receipt of clinical data for our drug candidates; (iii) our expectations regarding the potential safety, efficacy, or clinical utility of our drug candidates; (iv) the size of patient populations targeted by drug candidates we or our collaborators develop and market adoption of our potential drugs by physicians and patients; (v) the likelihood and timing of regulatory filings and approvals; and (vi) our cash needs and expected cash runway, as well as potential royalties and milestone payments under license and collaboration agreements.

Various factors may cause differences between our expectations and actual results, including unexpected safety or efficacy data, unexpected side effects observed during preclinical studies or in clinical trials, lower than expected enrollment rates in clinical trials, changes in expected or existing competition, changes in the regulatory environment for our drug candidates, failure of our collaborators to support or advance our collaborations or drug candidates, our need for future capital, the inability to protect our intellectual property, and the risk that we become a party to unexpected litigation or other disputes. For a further description of the risks associated with forward-looking statements, as well as other risks facing GlycoMimetics, please see the risk factors described in the Company’s Annual Report on Form 10-K filed with the U.S. Securities and Exchange Commission on March 2, 2021, as well as other reports we file with the U.S. Securities and Exchange Commission from time to time, including those factors discussed under the caption “Risk Factors” in such filings. Forward-looking statements speak only as of the date of this presentation, and GlycoMimetics undertakes no obligation to update or revise these statements, except as may be required by law.

nature reviews drug disc

JANUARY 2021

"Positive outcomes from selectin inhibition in cancer, as showcased by the trials of uproleselan in AML, **have reinvigorated the field...**"

Benjamin A. H. Smith
Carolyn R. Bertozzi

Stanford

Smith, B.A.H., Bertozzi, C.R. The clinical impact of glycobiology: targeting selectins, Siglecs and mammalian glycans. Nat Rev Drug Discov 20, 217–243 (2021). https://doi.org/10.1038/s41573-020-00093-1

GlycoMimetics

WE ARE THE PIONEERS IN GLYCOBIOLOGY

Disrupting carbohydrate interactions to improve the treatment of cancer and inflammatory disease

Investment Highlights

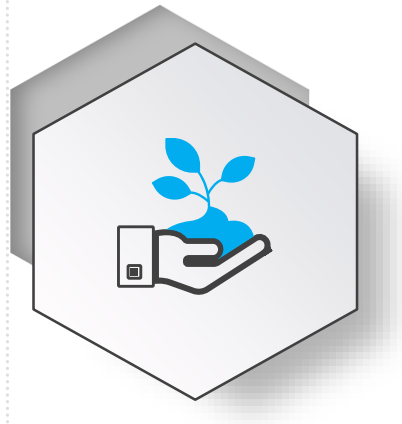
PIONEERS IN GLYCOBIOLOGY AND GLYCOCHEMISTRY

- Carbohydrates play an important role in **cancers and inflammatory disease**
- Initial focus on **AML** and **SCD**
- Disrupting carbohydrate interactions through our glycobiology + specialized chemistry platform

ADVANCING A BROAD ONCOLOGY AND INFLAMMATORY PIPELINE

- **Two ongoing registration trials underway** with uproleselan in AML (BTD in US, China; Fast Track in US; Orphan Drug Designation in US, China)
- Transformative early-stage pipeline

CREATING SIGNIFICANT REVENUE OPPORTUNITIES

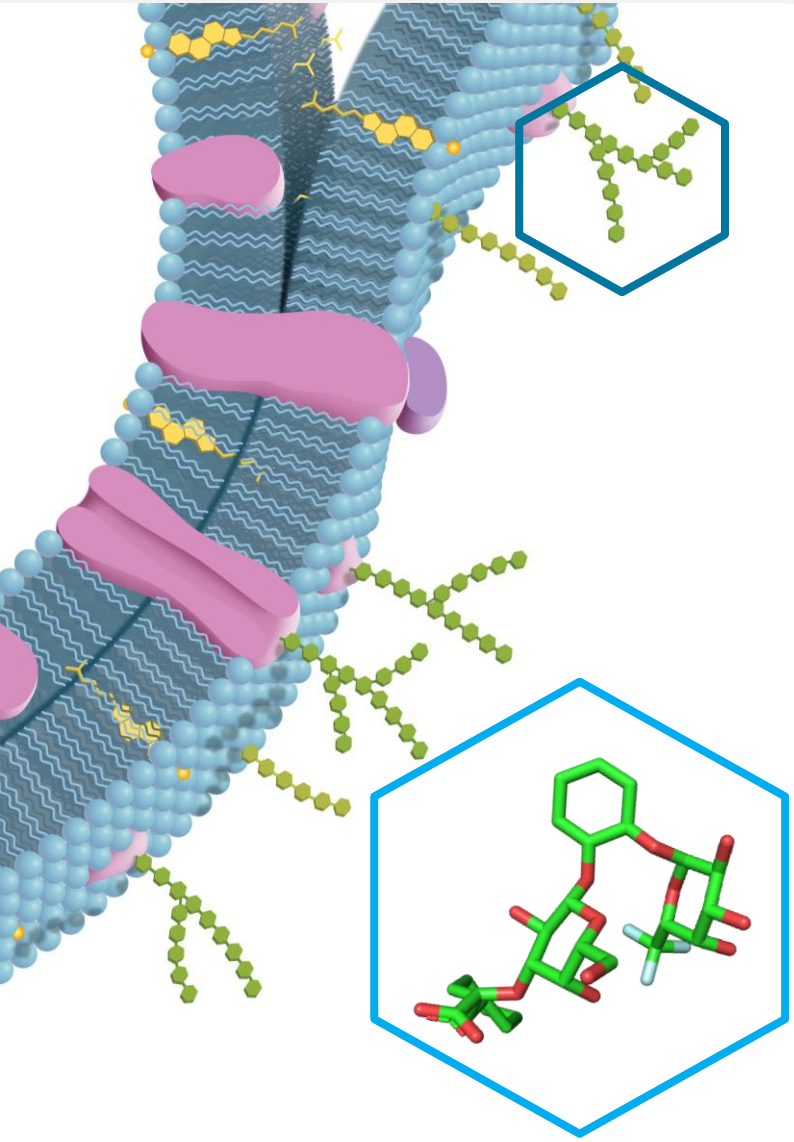


- **UPROLESELAN** 44K+ AML patients in 7 major markets; partner in Greater China; potential in other hem-onc malignancies
- **GMI-1359** Targeting solid tumors with high propensity to metastasize to the bone; market enhancing FDA designations

WELL-POSITIONED FOR SUCCESS

- Cash balance of ~$132.5m as of March 31, 2021; runway through ’22
- Experienced leadership and scientific team

Our Approach



GLYCANS ARE CARBOHYDRATES PRESENT IN EVERY LIVING ORGANISM

Coat the surfaces of all cells in nature

Affect key biological functions

- Cell interactions
- Pathogen binding

Important targets for drug development

- NIH Glycomics Consortium

GlycoMimetics DESIGNING NCEs THAT BUILD ON NATURE

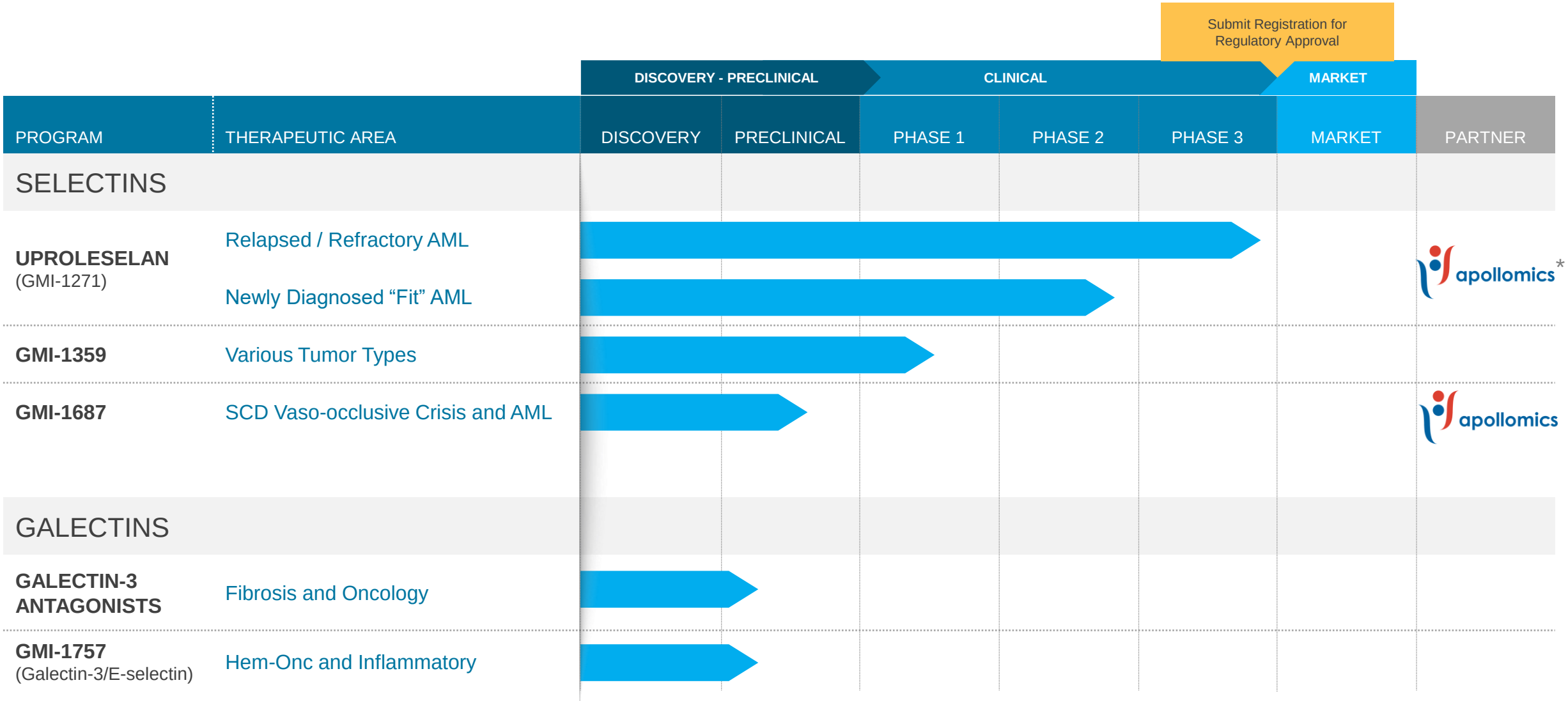
Mimic natural, functional carbohydrates

Improved drug-like properties

- Affinity for binding sites
- Pharmacokinetics

Amenable to structure-based discovery

A Portfolio of Exciting Product Candidates



* Apollomics (Greater China)

Uproleselan (GMI-1271)

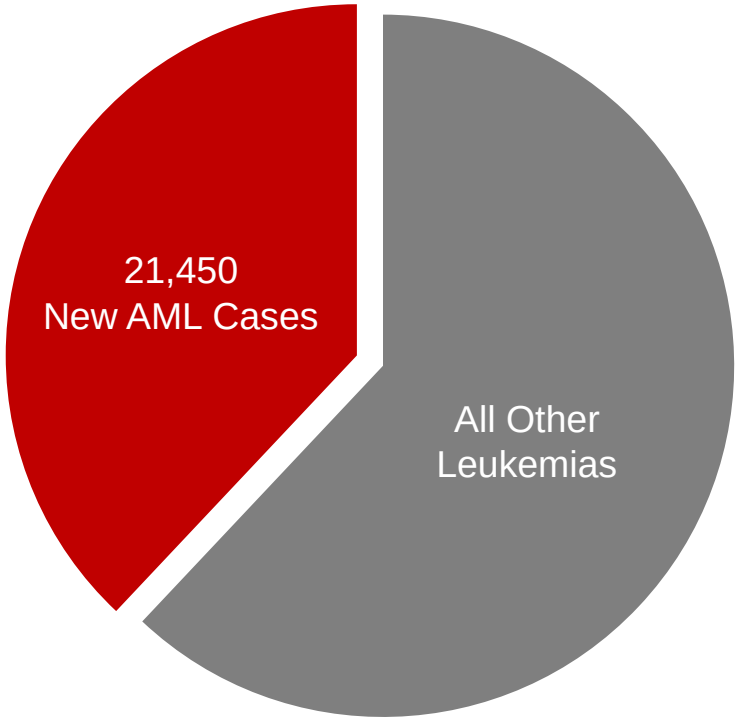
Breakthrough Therapy Designation in AML

GlycoMimetics

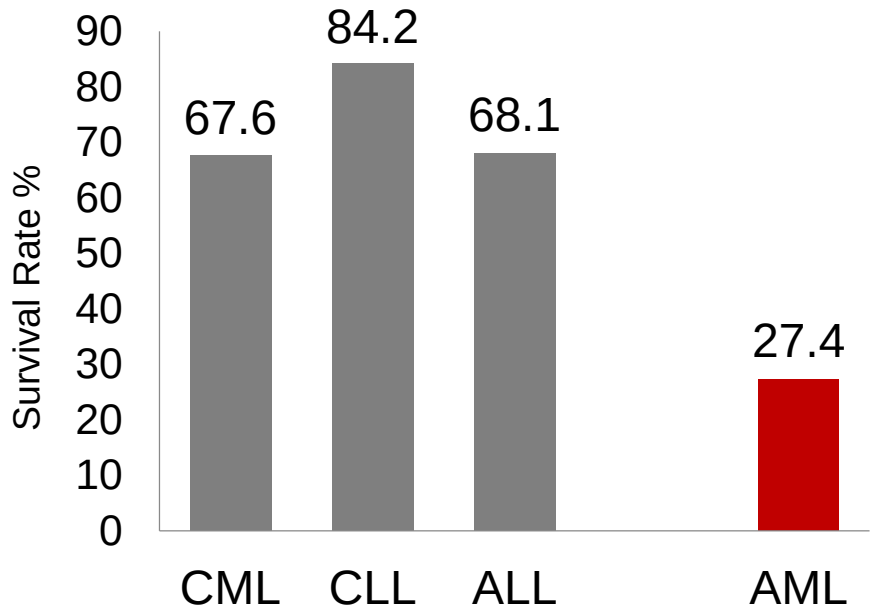
SIGNIFICANT UNMET NEED IN AML

Highest Incidence, Lowest 5-Year Survival of all Leukemias[1]

Estimated New Cases (2019)

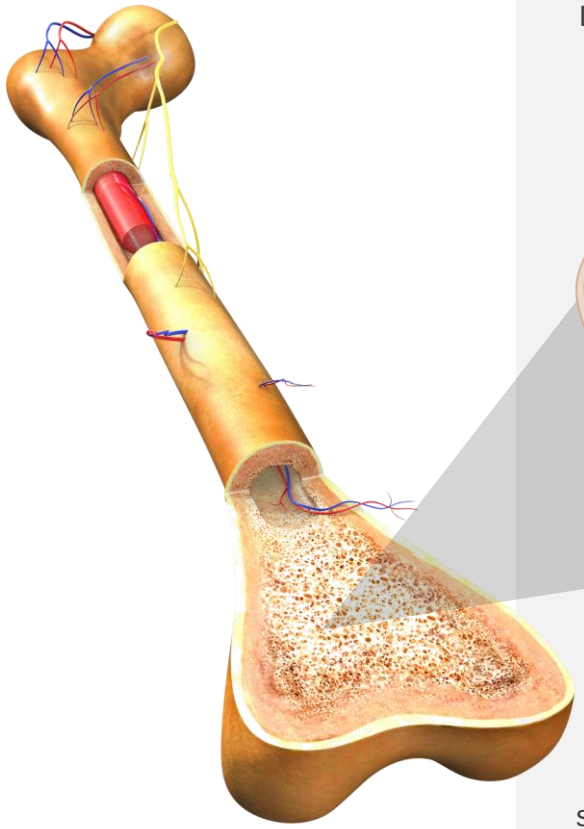


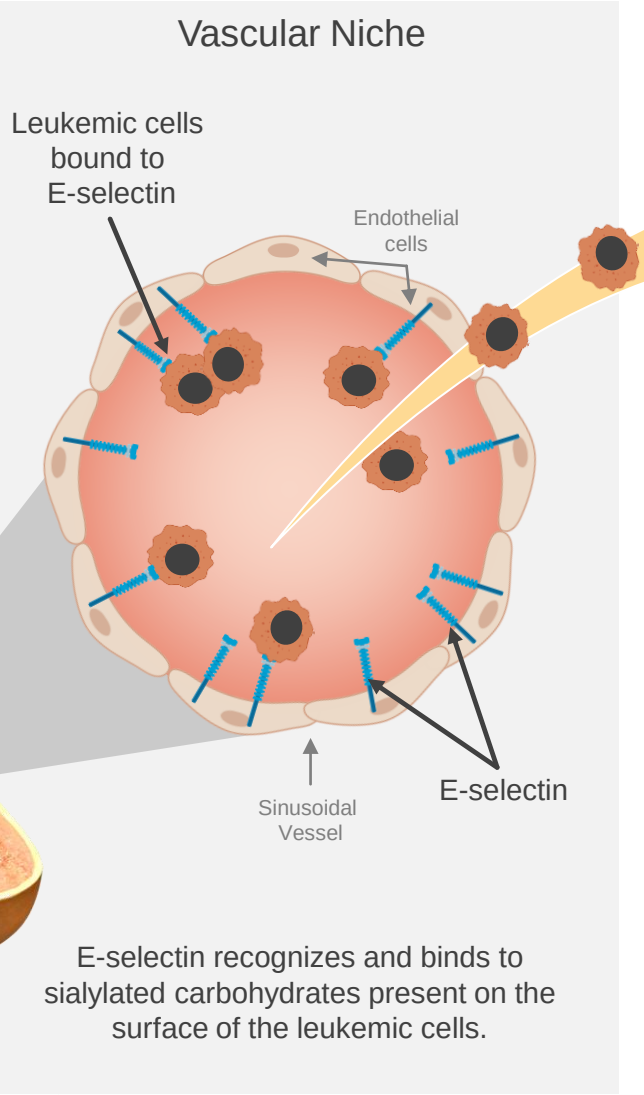
5-Year Survival (2008 – 2014)

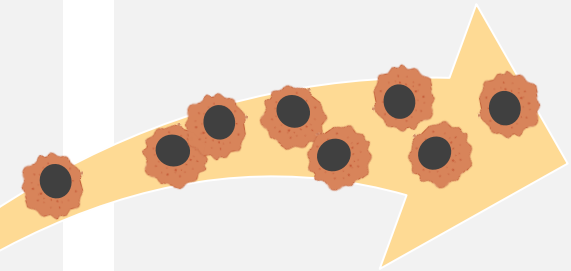


1. SEER 2019 Statistics

Uproleselan: Disrupts the Interaction Between AML Cells and the Bone Marrow Microenvironment







Uproleselan disrupts binding of leukemic cancer cells in the bone marrow microenvironment, breaking chemo-resistance.

IN PRECLINICAL MODELS, UPROLESELAN:

- Prevents trafficking of tumor cells to the bone marrow
- Disrupts cell adhesion-mediated drug resistance (CAMDR) within bone marrow microenvironment
- Inhibits activation of cancer survival pathways (e.g. NF-kB)
- Protects normal HSCs by enhancing quiescence and ability for self-renewal
- Reduces chemotherapy-associated toxicity (e.g. severe mucositis)

UPROLESELAN

Potential Foundational Backbone Across Spectrum in AML

~21,450 Newly Diagnosed AML Patients in the U.S.[1]

~12,500 "Fit" patients eligible for intensive chemotherapy

12.5K PATIENTS/YEAR

NEWLY DIAGNOSED, ELDERLY AML

NCI-Sponsored Phase 2/3

Combination of Uproleselan + 7&3

8.5K PATIENTS/YEAR

RELAPSED / REFRACTORY AML

GMI-Sponsored Phase 3

Combination of Uproleselan + MEC/FAI

~8,500 "Unfit"

8.5K PATIENTS/YEAR

Recent venetoclax approval

Uproleselan plus venetoclax/HMA may prolong survival

ASH (DEC. 2020)

UPROLESELAN MAY

- Deepen achievement / depth of remission
- Extend overall survival
- Mitigate chemotherapy-related toxicity

1. SEER 2019

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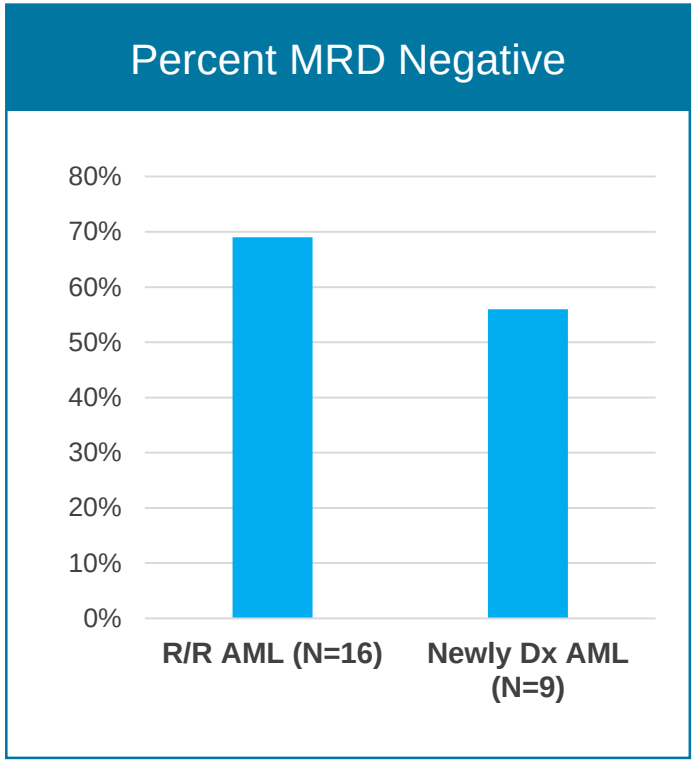
1. SEER 2019

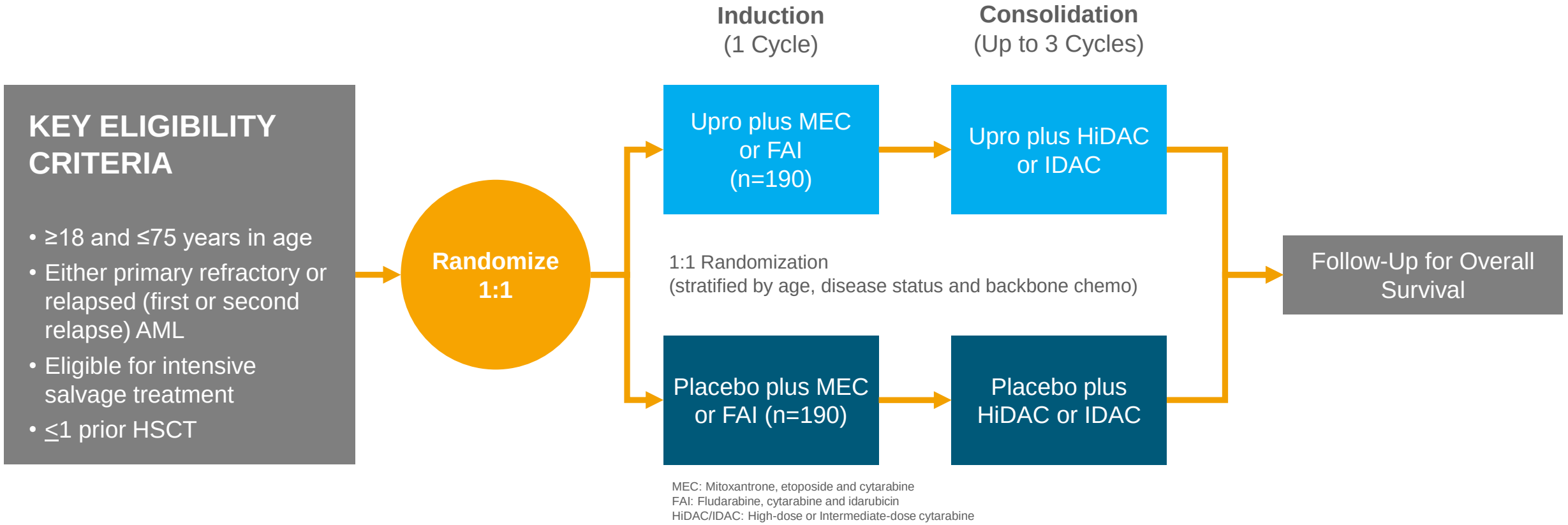
UPROLESELAN
Phase 1/2 Results

- R/R AML Cohort: 41% CR/CRi; 8.8 mos. Median Overall Survival
- Newly Diagnosed AML Cohort: 72% CR/CRi; 9.2 mos. Event Free Survival
- >50% of evaluable patients archived a stringent MRD-negativity
  - Appears to enhance depth of response
- E-selectin ligand expression
  - Detectable in every patient tested; target biologically relevant
  - Higher in those R/R patients achieving CR/CRi, MRD- and prolonged median OS



Data support biological/clinical activity and late-stage registration program

UPROLESELAN
Relapsed / Refractory AML Phase 3 Study Design



PRIMARY ENDPOINT • Overall survival **not censored** for transplant

UPROLESELAN

Historical Benchmarks — What Are We Trying to Beat?

AML Population	Registration Program Primary Outcome Measure	Uproleselan Phase 1/2 Results	Historical Comparator's		
			Result	Design	Publication
Relapsed / Refractory	Overall Survival (months)	8.8 months	5.4 months (MEC)	Valspodar + MEC vs. MEC	Greenberg et al (2004)
			5.2 months (MEC)	Lintuzumab + MEC vs. MEC	Feldman et al (2005)
			3.4 months (Inv. choice)	Elcytarabine vs. Inv. choice	Roboz et al (2014)
Newly Dx "Fit" for Intensive Chemo	Event-Free Survival (months)	9.2 months	~6.5 months	7+3	Lowenberg et al (2009)
			2.0 months (7+3)	Vyxeos vs. 7+3	Lancet et al (2014)

UPROLESELAN

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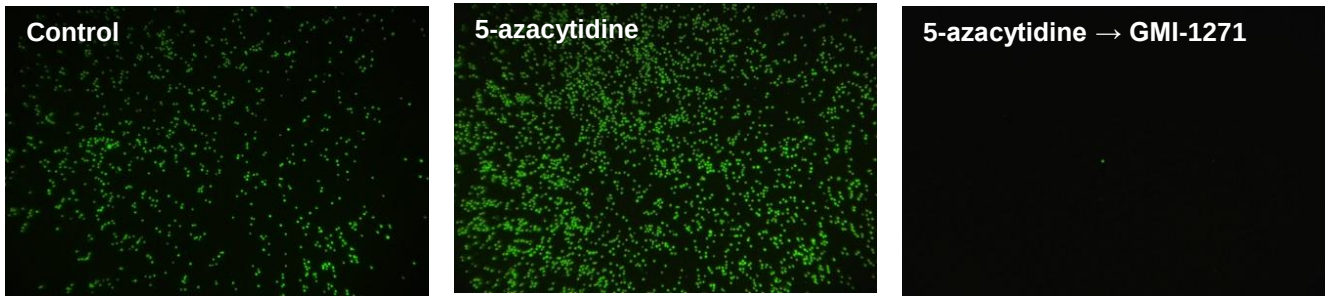
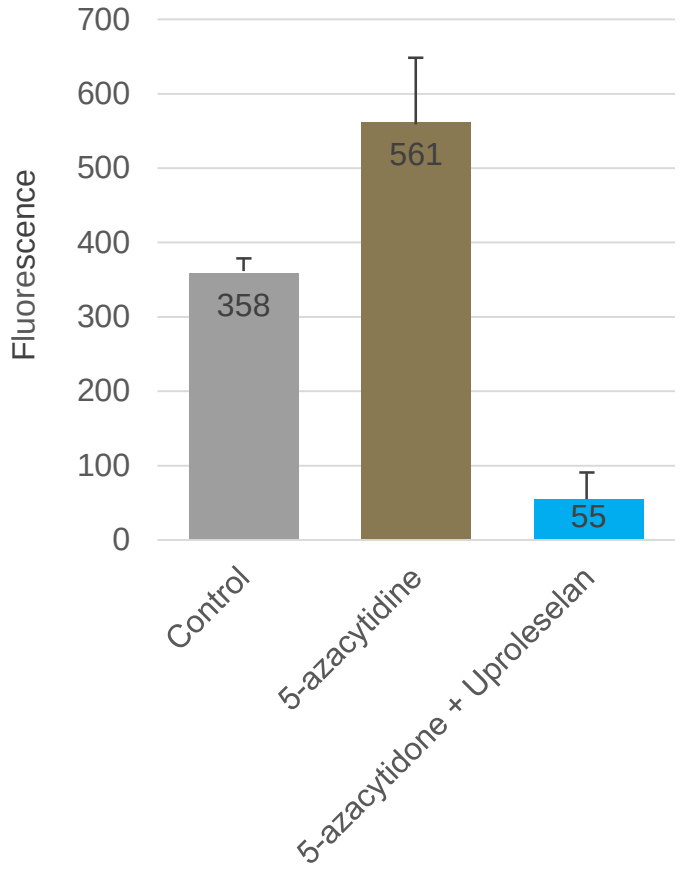
1. SEER 2019

HMA Resistance is Driven by E-selectin, Broken by Uproleselan

UPROLESELAN INHIBITS BINDING OF BLASTS

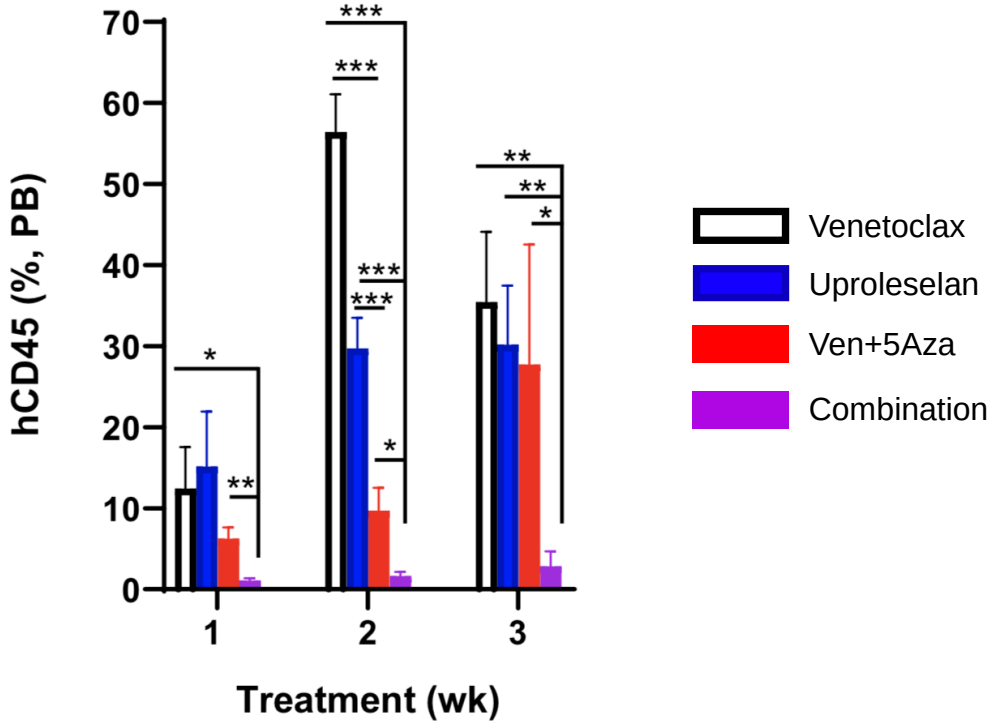


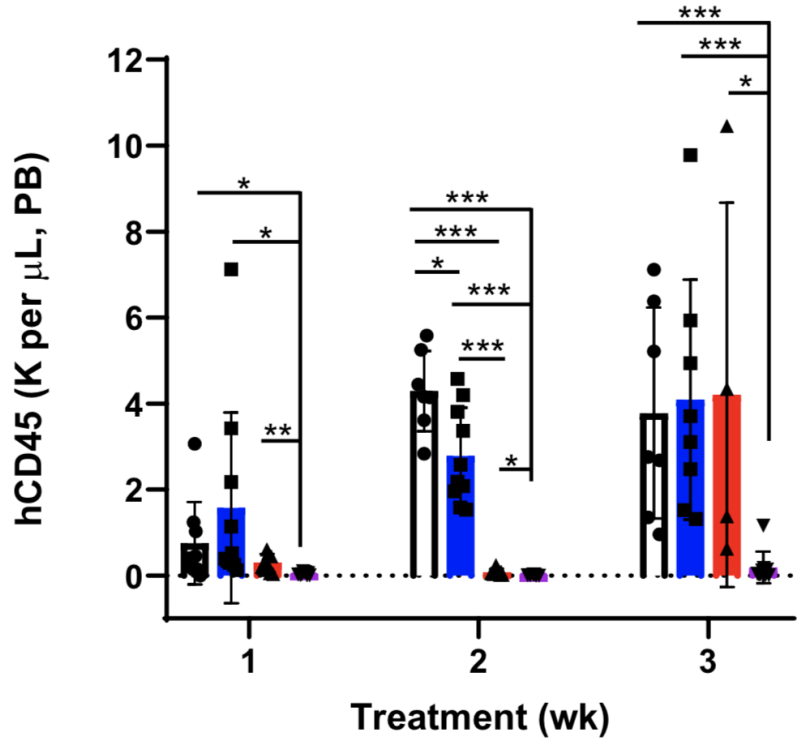
KG1 AML cells were incubated for 96 hours in the absence or presence of 100 nM 5-azacytidine, labeled with calcein and allowed to adhere to E-selectin coated plates (control and 5-azacytidine above). After 45 minutes of adhesion, Uproleselan was added to the wells and fluorescence determined after 30 minutes (5-azacytidine → Uproleselan above).



UPROLESELAN / VENETOCLAX / HMA COMBINATION
Significantly Reduces Leukemia Burden*

AML-PDX FROM A VENETOCLAX / HMA RESISTANT PATIENT





*p< 0.05; **p<0.01; ***p<0.001, Student's t-test for experiments that compare two groups.

GLYCOMIMETICS AND APOLLOMICS
Supporting Clinical Development in Greater China

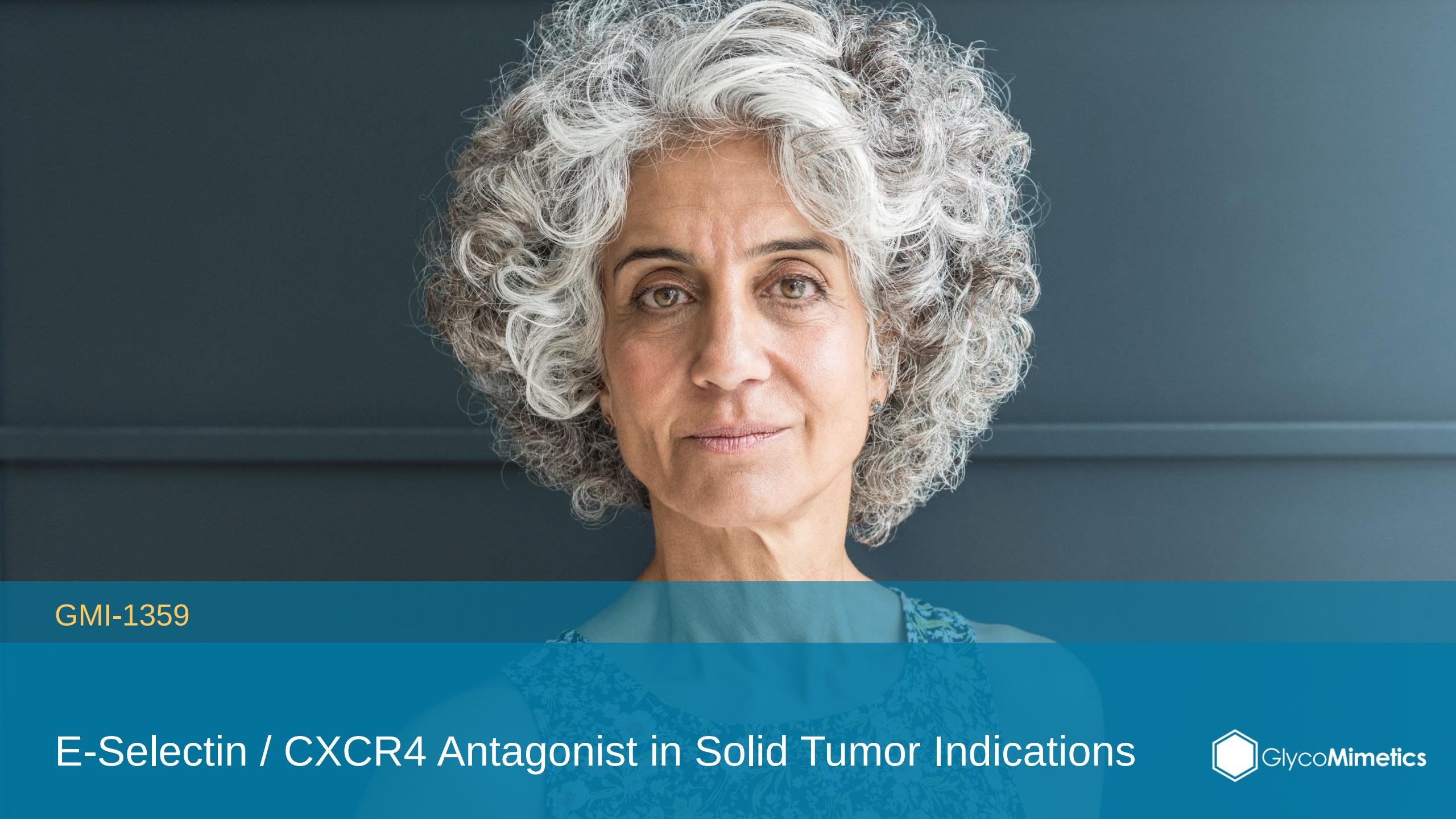
Apollomics

- Incubated by OrbiMed Asia; Series B financed by CMBI
- Proven track record of >40 commercialized drugs
- Oncology-only focus on biomarker-driven treatments

Exclusive license: Uproleselan and GMI-1687

- All therapeutic and prophylactic uses in Mainland China, Hong Kong, Macau and Taiwan
- All clinical development and commercialization costs in Greater China covered by Apollomics
  - Priority: Uproleselan R/R AML registration program
  - Preclinical and Clinical: Commitment to advance GMI-1687
- First patient dosed in Phase 1 clinical trial (initial phase of bridging clinical program)
- Breakthrough Therapy Designation from Chinese authorities

- $9M upfront
- ~$180M in potential milestones
- 8-15% tiered royalties



GMI-1359

E-Selectin / CXCR4 Antagonist in Solid Tumor Indications

GlycoMimetics

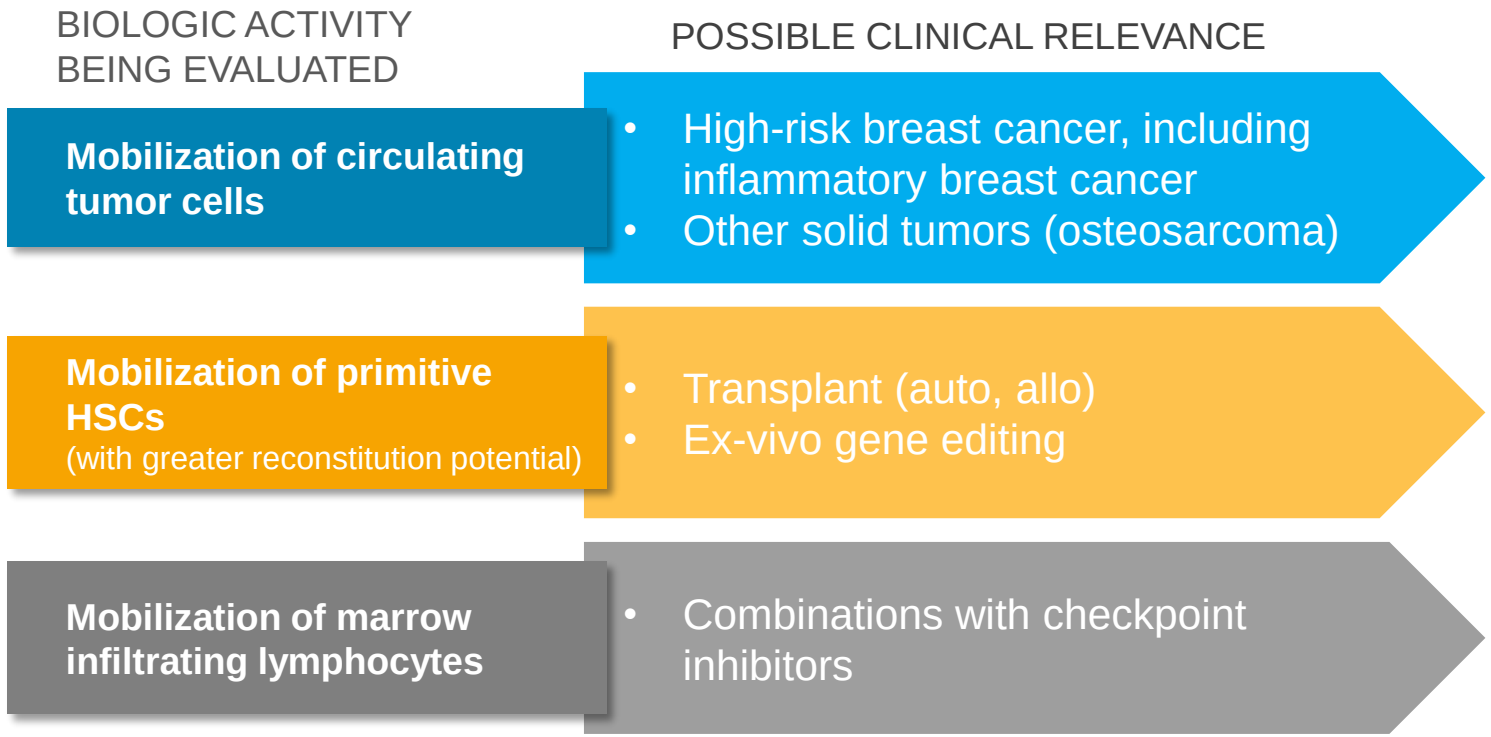
GMI-1359

Small Molecule, Dual Inhibitor Against E-selectin and CXCR4

- Lead Investigative Site

  Duke University School of Medicine

- Confirms on-target effects of dual antagonist
- Acceptable safety and tolerability profile
- No dose-limiting toxicities following multiple dose administration up to 7 mg/kg



GMI-1687

Treatment of Acute Vaso-occlusive Crisis (VOC) in Patients with Sickle Cell Anemia

GlycoMimetics

GMI-1687

Best-in-class Highly Potent E-selectin Antagonist for VOC

- High KOL enthusiasm – oral presentations at SOHO, FSCDR, ASCAT and ASH meetings in 2020
- Subcutaneously bioavailable:
  - Potential to self-administer at home at onset of VOC
  - Not constrained by logistical / time factors associated with acute care / IV dosing settings
- IND planned for 1H 2022
  - Program leverages extensive Phase 2 & 3 efficacy, safety and biomarker data generated with rivipansel

GMI-1687
Scientific Rationale

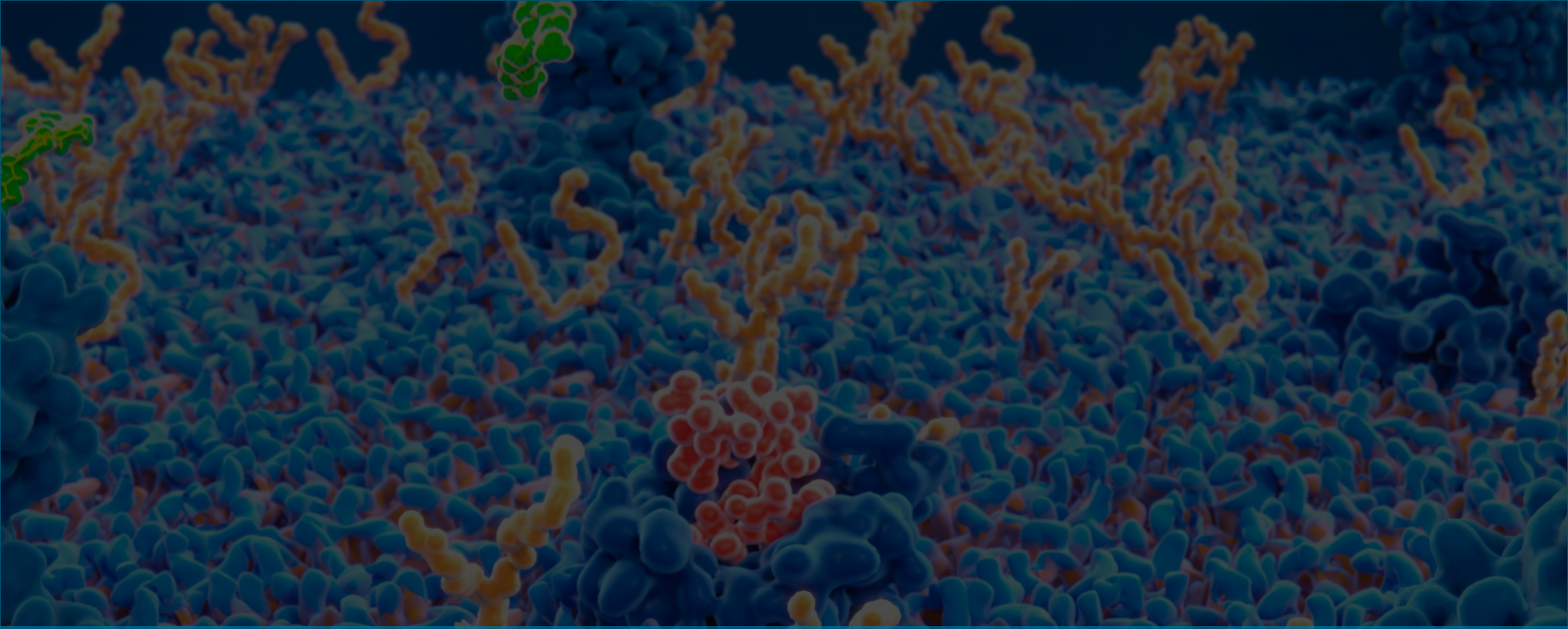
Patients treated early (within 26.4 hours of onset of pain) exhibited statistically significant difference from placebo

- Primary endpoint: Time to readiness for discharge (TTRFD)
- Key secondary endpoints: Time to discharge (TTD) and time to discontinuation of IV opioids (TTDIVO)
- Parallel, independent Open Label Extension Study corroborates RESET in all ages and pediatric subgroups

ANALYSIS OF PHASE 3 RESET AND OPEN LABEL EXTENSION TRIALS

Strong data confirm:

- Safety profile
- Key role of E-selectin in VOC
- Importance of treating early



GALECTIN-3 INHIBITORS

Potential Treatments in Oncology, Inflammation and Fibrosis

GlycoMimetics

GALECTIN-3 ANTAGONISTS

Highly Potent and Highly Differentiated

Galectin antagonists: A promising therapeutic target

- Carbohydrate-binding protein whose expression has been shown to play a central role in fibrosis and cancer
- Linked to biologic processes (e.g., inflammation, aberrant cell activation and proliferation, and fibrogenesis)
- Blockade of Galectin-3 has been shown to prevent, and even reverse, fibrosis following organ damage
- Rationally designed several high-potency, selective, small-molecule “glycomimetic” antagonists of Galectin-3 by applying our understanding of carbohydrate biology and chemistry
- Anti-fibrotic and antitumor activity, as demonstrated in various animal models of disease

GALECTINS PLAY IMPORTANT ROLES IN MODULATING THE IMMUNE AND INFLAMMATORY RESPONSE TO CANCER

Contribute to neoplastic transformation, tumor cell survival, angiogenesis and metastasis

Positioned for Success

GlycoMimetics

EXECUTIVE LEADERSHIP

Deep Drug Development and Scientific Expertise

- **Rachel K. King**
  Chief Executive Officer

- **John Magnani, Ph.D.**
  Chief Scientific Officer and Senior Vice President, Research

- **Eric J. Feldman, M.D.**
  Chief Medical Officer and Senior Vice-Present

- **Armand Girard**
  Chief Business Officer and Senior Vice President, Strategy and Corporate Development

- **Brian Hahn**
  Chief Financial Officer and Senior Vice President

BROAD EXPERIENCE

NOVARTIS · Shire · NEA New Enterprise Associates · alza · NIH · MiddleBrook PHARMACEUTICALS™ · Otsuka · AMPHIVENA Therapeutics · Seagen

Accomplishments and 2021 Key Priorities

• Upro license for Greater China: development and commercialization	✓
• GMI-1359 orphan/pediatric rare disease designation & patent	✓
• Rivipansel new efficacy data at FSCDR, ASCAT, ASH	✓
• GMI-1687 new preclinical data in SCD presented at FSCDR, ASCAT and ASH	✓
• Internal decision on rivipansel	✓
• Apollomics initiates upro registration program for greater China	✓
• GMI-1359 interim data read-out from Phase 1b breast cancer trial	✓
• FPI: Washington U IST evaluating upro in multiple myeloma	✓
• Series of additional ISTs to expand upro range of indications	2H ‘21
• Enrollment complete, upro R/R pivotal trial	YE ‘21
• Enrollment complete, upro Phase 2 for interim analysis frontline AML trial	YE ‘21

Delivering Meaningful Shareholder Value

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TRANSFORMING LIVES.