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 February 28, 2020, 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.
Late-Stage Clinical Pipeline with Upcoming Catalysts

- Enrolling uproleselan Phase 3: R/R acute myeloid leukemia
  - Breakthrough Therapy Designation in US and China
  - Targeting completion of enrollment 2H 2021
  - Apollomics license to develop & commercialize in Greater China
  - IP through 2032 in US, EU and Japan
  - Data at ASH meeting supports combination of upro and venatoclax

- Uproleselan market expansion via consortium-funded trial: NCI
  - Strong, independent KOL support in newly-diagnosed AML setting
  - First patient dosed 2Q19; active enrollment and significant engagement of sites

- Dual antagonist GMI-1359: orphan/rare pediatric disease designations; issued IP
  - Phase 1b trial initiated in 1Q; estimated readout in 1H 2021

- Sickle Cell Disease: Wholly owned, new efficacy data at ASH support potential two shots on goal
  - Visibility at key meetings: FSCDR, ASCAT, ASH

- Strong balance sheet; funded through multiple milestones
- Creating value in game-changing’ therapeutic opportunities; novel glycobiology/chemistry platform
Uproleselan (GMI-1271)
Breakthrough Therapy Designation
Significant Market Opportunity
Significant Unmet Need in AML
Highest Incidence, Lowest 5-yr Survival of all Leukemias

Estimated New Cases (2019)

- 21,450 New Cases
- All Other Leukemias

5-Year Survival (2008 – 2014)

- CML: 67.6%
- CLL: 84.2%
- ALL: 68.1%
- AML: 27.4%

SEER 2019 Statistics
Uproleselan Mechanism of Action

E-selectin:
- Is constitutively expressed in the bone marrow microvasculature, levels up-regulated in AML
- Binds to the E-selectin ligand expressed on AML cells to activate pathways for chemoresistance

In preclinical models:
- 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 disrupts the interaction between AML cells and the bone marrow microenvironment
Position uproleselan as potential foundational backbone treatment that:

- Deepens achievement / depth of remission
- Extends overall survival
- Mitigates chemotherapy-related toxicity

~21,000 Patients¹ (Estimated New Cases in USA)

“Fit” patients eligible for intensive therapy

GMI-Sponsored Phase 3
Relapsed / Refractory AML
Combination of Uproleselan + MEC/FAI
~8,500 Patients/Year

NCI-Sponsored Phase 2/3
Newly Diagnosed, Elderly AML
Combination of Uproleselan + 7&3
~12,500 Patients/Year

Recent venetaclax approval

~12,500 Patients/Year

¹ SEER 2019

-ASH (Dec. 2020) Upro plus venetoclax/HMA may prolong survival

“Unfit”
Final Efficacy/Correlative Results: Uproleselan Phase 1/2
Oral Presentation at ASH 2018

- 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 supports biological/clinical activity and late-stage registration program
Uproleselan Relapsed / Refractory AML Phase 3 Study Design

**Key Eligibility Criteria**
- ≥18 and ≤75 years in age
- Either primary refractory or relapsed (first or second relapse) AML
- Eligible for intensive salvage treatment
- ≤1 prior HSCT

**Induction**
(1 Cycle)
- Upro plus MEC or FAI (n=190)
- Placebo plus MEC or FAI (n=190)

**Consolidation**
(Up to 3 Cycles)
- Upro plus HiDAC or IDAC
- Placebo plus HiDAC or IDAC

1:1 Randomization (stratified by age, disease status and backbone chemo)

**Follow-Up for Overall Survival**

**MEC:** Mitoxantrone, etoposide and cytarabine
**FAI:** Fludarabine, cytarabine and idarubicin
**HiDAC/IDAC:** High-dose or Intermediate-dose cytarabine

Phase III Primary Endpoint: Overall Survival, defined as the time of randomization until death from any cause – analysis of OS will not be censored for transplant
## Historical Benchmarks - What Are We Trying to Beat?

<table>
<thead>
<tr>
<th>Population</th>
<th>Registration Program Primary Outcome Measure</th>
<th>Uproleselan Phase 1/2 Results</th>
<th>Historical Comparator's</th>
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<tbody>
<tr>
<td>Relapsed / Refractory AML</td>
<td>Overall Survival (months)</td>
<td>8.8 months</td>
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<td>Valspodar + MEC vs. MEC</td>
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<td>5.4 months (MEC)</td>
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<td>Feldman et al (2005)</td>
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<td>Lintuzumab + MEC vs. MEC</td>
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<td>5.2 months (MEC)</td>
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<td>Roboz et al (2014)</td>
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<td>Elcytarabine vs. Inv. choice</td>
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<td>3.4 months (Inv. choice)</td>
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<td>Newly Dx “Fit” for Intensive Chemo AML</td>
<td>Event-Free Survival (months)</td>
<td>9.2 months</td>
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<td>Lowenberger et al (2009)</td>
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<td>7+3</td>
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<td>~6.5 months</td>
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<td>Vyxeos vs. 7+3</td>
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<td>2.0 months (7+3)</td>
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Hypomethylating Agent Increases the Expression of the E-selectin Ligand - Adhesion is Reversed with Uproleselan

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).

*SOHO, September 2020
Combination of Uproleselan with Venetoclax/HMA Significantly Reduces Leukemia Burden*

AML-PDX From a Venetoclax/HMA Resistant Patient

*SOHO, September 2020

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

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
  - Mainland China, Hong Kong, Macau & Taiwan by
- All clinical development and commercialization costs in Greater China covered by Apollomics
  - Priority: Uproleselan R/R AML registration program
  - Commitment to advance GMI-1687
    - Preclinical and clinical
- IND cleared by Chinese regulatory authority
- Breakthrough Therapy Designation from Chinese authorities

$9M Upfront

~$180M in Potential Milestones

Tiered Royalties, 8 – 15%
Rivipansel for Treatment of Vaso-Occlusive Crisis Of Sickle Cell Disease
Supportive Efficacy Data in post hoc Analysis of Phase 3 RESET Trial

- Evaluated 345 patients experiencing acute VOC and requiring hospitalization
  - Total all ages group - six years to adult with mean age of 22 years

- Early treatment group (treated within 26.4 hours of onset of pain; first quartile)
  - Statistically significant difference from placebo:
    - Primary endpoint: Time to readiness for discharge (TTRFD)
      - Median improvement of 56.3 hours \((p=0.03; \text{hazard ratio } = 0.58)\) - rivipansel early treatment readied patients for discharge 2 days earlier than placebo
    - Key secondary endpoints: Time to discharge (TTD) and time to discontinuation of IV opioids (TTDIVO)
      - Median TTD decreased by 41.5 hours \((p=0.02)\)
      - Median TTDIVO decreased by 50.5 hours \((p=0.03)\)

- Clean safety profile
Pediatric: Supportive Efficacy Data in post hoc Analysis of Phase 3 RESET Trial

- Pediatric subgroup: 41% of patients treated within 30 hours of VOC onset (6-17 years)
  - Statistically significant reduction in median TTRFD by 29.3 hours ($p=0.02$)
  - Statistically significant reduction in median TTD by 23.2 hours ($p=0.02$)
  - Statistically significant reduction in median TTDIVO by 15.4 hours ($p=0.045$)
  - More children ready for discharge by 24, 48 and 72 hours, compared to placebo
Two Potential Shots on Goal for Acute Vaso-occlusive Crisis (VOC)

**Rivipansel**
- Compelling post hoc analysis of RESET Phase 3 and new ASH data for OLE
- High unmet need: Only therapy in late-stage development for acute VOC
- Ongoing FDA, KOL, and internal discussions to determine if there is a clinical path forward
- Strong KOL support following FSCDR and ASCAT presentations
- ASH oral presentation substantially completed data set

**GMI-1687**
- Potential best-in class E-selectin inhibitor for acute VOC
  - Subcutaneously bioavailable - potential to self-administer at home at onset of VOC (most critical factor)
  - Not constrained by logistical / time factors associated with acute care settings
- De-risked clinical program that leverages extensive Phase 2 & 3 efficacy, safety and biomarker data generated with rivipansel
- High KOL enthusiasm - oral presentations at SOHO, FSCDR, ASCAT and ASH
- Initiating IND-enabling studies
GMI-1359
E-Selectin / CXCR4 Antagonist
Solid Tumor Indications
GMI-1359 Product Profile

GMI-1359: Small molecule, dual inhibitor against E-selectin and CXCR4

- Disrupts tumor–stromal interactions
- Inhibits cell survival/activation pathways
- Prevent trafficking / mobilizes dormant cancer cells from protective niches to make them more susceptible to lysis by chemotherapy

Complementary pathways relevant for tumors that originate/metastasize to bone

Validated Biomarkers for Detection of Circulating Cancer Cells

<table>
<thead>
<tr>
<th>Tumor type (Reference)</th>
<th>Cell surface markers on circulating cancer stem cells</th>
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</thead>
<tbody>
<tr>
<td>Pancreatic (39,71,72)</td>
<td>CD133, CD44, CD26, CXCR4, c-Met, ALDH1, ABCG2</td>
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<tr>
<td>Breast (28,30,73-77)</td>
<td>CD44, ANTXR1, ALDH1, CXCR4, ALDH1</td>
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<tr>
<td>Colorectal (43,78,79)</td>
<td>CD133, CD44, CD44v6, CXCR4, CD26</td>
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<tr>
<td>Gastric cancer (80)</td>
<td>CD44</td>
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<tr>
<td>Glioblastoma (6,81)</td>
<td>CD133, MMP-13</td>
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<tr>
<td>Lung (82,83)</td>
<td>CXCR4, ABCG2, CD133, ALDH1</td>
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<tr>
<td>Osteosarcoma (84,85)</td>
<td>CD133</td>
</tr>
<tr>
<td>Retinoblastoma (86)</td>
<td>ABCG2</td>
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<tr>
<td>Head and neck cancer (87)</td>
<td>c-Met</td>
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<tr>
<td>Ovarian (88)</td>
<td>CD133</td>
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</tbody>
</table>

Major E-selectin ligands

CXCR4 ligand
GMI-1359 Phase 1b Dose Escalation  
Proof-of-Principle Program

- Lead Investigative Site - Duke University Medical Center
- FPI announced in Jan 2020 – Est’d readout 1H 2021
- Single/multiple ascending dose within each patient – 3.5, 5.0 & 7.0 mg/kg
- Range 6-12 patients with metastatic, HR+, stable/minimally progressive breast cancer
- Endpoints – Safety, PK & PD

Data read-out expected 1H 2021
Positioned for Success
Pipeline, Progress, Catalysts
# A Portfolio of Exciting Product Candidates

## Wholly Owned Proprietary Programs

<table>
<thead>
<tr>
<th>Compound</th>
<th>Therapeutic Area</th>
<th>Discovery</th>
<th>Pre-Clin</th>
<th>Ph 1</th>
<th>Ph 2</th>
<th>Ph 3</th>
<th>Registration</th>
<th>Partner</th>
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<td><strong>Selectins</strong></td>
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<td>Uproleseian (GMI-1271)</td>
<td>Relapsed / Refractory AML</td>
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<td>APL</td>
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<td>Newly Diagnosed “Fit” AML</td>
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<td><strong>Rivipansel</strong></td>
<td>SCD Vaso-occlusive Crisis</td>
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<tr>
<td><strong>GMI-1687</strong></td>
<td>SCD Vaso-occlusive Crisis &amp; AML</td>
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<td>APL</td>
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<tr>
<td><strong>GMI-1359</strong></td>
<td>Various Tumor Types</td>
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<td><strong>Galectins</strong></td>
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<tr>
<td>GMI-1757 (Galectin-3/E-selectin)</td>
<td>Hem-Onc &amp; Inflammatory</td>
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<tr>
<td>Galectin-3 Inhibitors</td>
<td>Fibrosis &amp; Oncology</td>
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APL = Apollomics (Greater China)
2020 Achievements / Upcoming News Flow

- Upro license for Greater China: development and commercialization
- GMI-1359 first patient enrolled in breast cancer P1b trial
- GMI-1359 orphan/pediatric rare disease designation & patent
- Post termination agreement with Pfizer executed – rights to SCD returned
- 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 H1 ’21
- Apollomics initiates first upro clinical trial H1 ’21
- GMI-1359 data read-out from Phase 1b breast cancer trial H1 ’21
- Enrollment complete, R/R pivotal trial 2H ‘21
**Investment Opportunity – Nasdaq: GLYC**

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<th>Advancing Pipeline</th>
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<tr>
<td>• Uproleselan: BTD for R/R AML; Greater China deal; Two Phase 3s underway</td>
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<tr>
<td>• GMI-1359: Simultaneous blockade of CXCR4 &amp; E-Selectin; Proof-of-principle trial; orphan/pediatric designations, new patent</td>
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<tr>
<td>• Evaluating path forward in SCD for rivipansel and GMI-1687</td>
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<th>Significant Revenue Opportunities</th>
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<tr>
<td>• Uproleselan: &gt; 44,000 AML patients in 7 major markets; expansion potential into other hematologic malignancies; Greater China</td>
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<tr>
<td>• GMI-1359: Targeting solid tumors with high propensity to metastasize to the bone (e.g. breast, osteosarcoma); market enhancing FDA designations</td>
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<th>Strong Investment Base</th>
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<tr>
<td>• Top-tier biotech investors</td>
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<td>• Cash balance of ~$142.9 million as of September 30, 2020; runway into ‘22</td>
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<th>Experienced Team</th>
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<td>• Pioneers in the field of glycobiology and small-molecule, therapeutic “mimetics”</td>
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<tr>
<td>• Relationships with leading KOLs and oncology networks</td>
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