Transforming science into medicine
Forward-looking statements

This presentation contains “forward-looking statements.” These statements include words like “may,” “expects,” “believes,” “plans,” “scheduled,” and “intends,” and describe opinions about future events. These forward-looking statements involve known and unknown risks and uncertainties that may cause the actual results, performance or achievements of BioLineRx to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements.
Our mission is to become a leader in the development of novel therapeutics for the treatment of cancer
## Who Are We?

<table>
<thead>
<tr>
<th>Ticker / Exchange</th>
<th>BLRX (NASDAQ)</th>
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<tbody>
<tr>
<td>Headquarters</td>
<td>Tel Aviv, Israel</td>
</tr>
<tr>
<td>Market cap</td>
<td>~$140 million (1-Oct-18)</td>
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<tr>
<td>Shares outstanding</td>
<td>~108 million</td>
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<tr>
<td>Cash</td>
<td>~$41.1 million (30-Jun-18)</td>
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<td>Cash runway</td>
<td>Through 1H 2020</td>
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<td>Employees</td>
<td>~55 (~40 in R&amp;D)</td>
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Investment Highlights

- **Singular focus on oncology**
  - Large-market indications with unmet medical needs
  - Phase 3: stem cell mobilization
  - Phase 2: AML, pancreatic, gastric

- **Multiple opportunities for value creation**
  - Nine mid-to-late stage studies ongoing
  - 3-4 data readouts over next 12 months
  - Phase 3 registrational topline data expected in 2020

- **Validation via significant pharma collaborations**
  - Merck/MSD (established Jan 2016; expanded Jul 2018)
  - Genentech (established Sep 2016)
  - Collaborations validate BL-8040’s novel mechanism of action

- **Compelling valuation**
  - ~$140 million market cap
  - ~$41 million cash as of 2Q 2018
  - Cash runway through 1H 2020
Leadership Team
Seasoned executives with decades of experience in medicine, drug development, clinical studies, and financial and corporate development

Philip A. Serlin, CPA, MBA
Chief Executive Officer

Mali Zeevi, CPA
Chief Financial Officer

Hillit Mannor Shachar, MD, MBA, MSFS
VP of Business Development

Abi Vainstein-Haras, MD
VP of Clinical and Medical Affairs

Ella Sorani, PhD
VP of Research and Development
# A Diverse Pipeline Targeting Multiple Oncology Indications

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>INDICATION</th>
<th>PRE-CLINICAL</th>
<th>PHASE 1</th>
<th>PHASE 2</th>
<th>PHASE 3</th>
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BL-8040 – Best-In-Class CXCR4 Antagonist for Multiple Oncology and Hematology Indications

For treatment of solid tumors, AML and indications requiring hematopoietic stem cell transplantation
BL-8040 – A Best-in-Class CXCR4 Antagonist Targeting Multiple Indications

A 14-amino acid synthetic cyclic peptide, high-affinity CXCR4 antagonist with long receptor occupancy (>48 hours) and extended CXCR4 inhibition

**Phase 3**

**Stem Cell Mobilization**

Robust mobilization of stem cells for collection and transplant

**Phase 2**

**Acute Myeloid Leukemia**

Mobilization of leukemic cells from bone marrow protective niche, resulting in a sensitization to anti-cancer treatment; induction of apoptosis

**Phase 1 & 2**

**Cancer Immunotherapy**

Mobilization of immune cells to peripheral blood; infiltration of immune cells into tumor; reduction of immunosuppression in tumor microenvironment
BL-8040 in Stem Cell Mobilization
Stem-Cell Mobilization For Patients Undergoing Bone-Marrow Transplantation

Patients with hematological malignancies often require HSC transplant after treatment to restore their immune system.

- Significant unmet medical need in SCM
  - Multiple apheresis sessions required
  - 50-70% of patients are poor mobilizers
  - For poor mobilizers, 1-4 daily injections of Mozobil on top of G-CSF are required

- BL-8040 potentially offers a more effective and convenient mobilization option for patients
GENESIS Phase 3 Study: Mobilization of HSCs for Autologous Transplant in Multiple Myeloma Patients

Initiated Q4 2017 - Phase 3 randomized, placebo-controlled, safety and efficacy study (n=177): NCT03246529

**Study design**

Part 1: Lead-in period - dose confirmation in up to 30 multiple myeloma patients

Part 2: Randomized placebo-controlled study in combination with G-CSF in 177 multiple myeloma patients

**Primary endpoint**

Proportion of subjects mobilizing ≥6.0 x 10^6 CD34+ cells/kg with up to 2 apheresis sessions in preparation for auto-HCT after a single administration of BL-8040 or placebo + G-CSF

**BL-8040 potentially offers patients:**

- Robust HSC mobilization
- Single administration on top of SOC
- No more than two apheresis sessions

**Lead-in period results (n=12)**

- BL-8040 in combination with G-CSF is safe and tolerable
- 83% of patients met primary endpoint with one administration of BL-8040 and in up to 2 apheresis sessions; 67% reached threshold in 1 apheresis session
- DMC recommended early continuation to randomized, placebo-controlled part of trial
BL-8040 in AML
BL-8040’s Potential Role in the AML Treatment Pathway – Sensitizing Leukemic Cells to Anti-Cancer Therapies

Malignant cells are harbored within protected niches in the bone marrow (minimal residual disease), which impacts remission and survival rates. BL-8040 mobilizes AML cells to the peripheral blood, detaching them from survival signals and sensitizing them to anti-cancer therapies, including checkpoint inhibitors.

AML diagnosis (30,000 cases, G7) → Induction treatment → Responders (50–70%) → Consolidation treatment → Refractory (30–50%) → Relapse

The BL-8040.01 Study: Ph 2 Study (completed) Assessing safety and efficacy of BL-8040+Ara-C in relapsed or refractory AML patients

Low risk → High risk – transplant

The BLAST Study: Ph 2b Study (ongoing) Assessing safety and efficacy of Ara-C + BL-8040 or placebo for consolidation treatment

~12,000 cases

The BATTLE Study: Ph 1/2 Study (ongoing) Assessing safety and efficacy of combination of BL-8040 and atezolizumab

High risk – unsuitable for transplant
BL-8040.01 Phase 1/2a Study: Encouraging Results in Patients with Relapsed/Refractory AML

**Study design**

Dose escalation (0.5 to 2.0 mg/kg) with expansion cohort at 1.5mg/kg

**Efficacy**

1. Composite CR for dose selected for expansion (1.5 mg/kg) = 39%

2. Median OS for dose selected for expansion (1.5 mg/kg) of 10.7 months, as compared to historical data of 6.1 months for patients treated only with high-dose Ara-C

3. Correlation between response to mobilization of AML blasts from bone marrow to peripheral blood and to differentiation of AML blasts to granulocytes

**Comparison of the composite response rate**

(CR + CRi) of BL-8040 + high-dose Ara-C, versus high-dose Ara-C alone

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**Phase 1/2a dose escalation/expansion study (n=42): NCT01838395**

<table>
<thead>
<tr>
<th>SCREENING</th>
<th>TREATMENT (DAYS)</th>
<th>FOLLOW UP (DAYS)</th>
<th>LONG-TERM FOLLOW UP</th>
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<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>8 10 12 14 16 18 20 22 24 26 28 30</td>
</tr>
<tr>
<td>High dose Ara-C</td>
<td>BL-8040</td>
<td>High dose Ara-C</td>
<td></td>
</tr>
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</table>

CR, complete response; CRi, complete response with incomplete hematological recovery
BLAST Phase 2b Study: Consolidation Therapy for AML Patients in First Remission

Phase 2b double-blind, multi-center placebo controlled study (n=194): NCT02502968

Treatment: Two or three cycles (age-based) of high-dose Ara-C in combination with either BL-8040 or placebo

Endpoints

- Relapse free survival (RFS)
- Toxicity, safety and tolerability of BL-8040 in combination with high-dose Ara-C
- Minimal residual disease (MRD)
- Overall survival (OS)

BL-8040 potentially offers AML patients prolonged remission and increased overall survival
BL-8040 in Cancer Immunotherapy
Despite significant advances in cancer immunotherapy, material needs remain:

- Improving efficacy of immunotherapy in “cold” tumors, such as pancreatic cancer
- Increasing rates and durability of response to existing therapies such as anti-PD1 and anti-PDL1 antibodies

BL-8040 addresses these needs by:

- Mobilizing immune cells to peripheral blood circulation
- Increasing immune cell infiltration into tumors
- Reducing immunosuppression in tumor microenvironment
Data Supporting Role of BL-8040 in Immunotherapy

Robust mobilization
- Healthy volunteers were treated with BL-8040 or placebo
- Single administration of BL-8040 triggered substantial mobilization
- Long receptor occupancy results in prolonged effect (≥ 24 hours)

Tumor infiltration
- Pre-treatment
- Day 5 BL-8040 monotherapy

Microenvironment modification
- CXCR4 antagonism selectively inhibits the migration of immunosuppressive cells

COMBAT Phase 2a study for BL-8040 + pembrolizumab (Keytruda®)
- Study in metastatic pancreatic cancer
- Open-label multi-center study
- Commenced September 2016; top-line results of BL-8040/Keytruda combination expected H2 2018
- Collaboration expanded in July 2018 to include additional cohort with triple combo of BL-8040, Keytruda + chemotherapy

Four phase 1/2 studies planned for BL-8040 + atezolizumab (Tecentriq™)
- 3 studies in solid tumors (pancreatic, gastric, NSCLC)
- 1 study in AML
- Open-label multi-center single arm studies
- Pancreatic and gastric studies commenced H2 2017
COMBAT Phase 2a Study in Advanced Pancreatic Cancer

Phase 2a open-label, multi-center study in combination with pembrolizumab (n=37): NCT02826484

To assess the safety and efficacy of BL-8040 in combination with pembrolizumab (Keytruda) in patients with advanced pancreatic cancer

Endpoints

- Objective response rate according to RECIST 1.1 criteria
- Disease control rate
- Progression-free and overall survival
- Safety and tolerability of the combination
- Multiple pharmacodynamic parameters

Intermediate monotherapy results

- BL-8040 increased absolute number of immune cells in the blood
- BL-8040 had long CXCR4 receptor occupancy on lymphocytes
- BL-8040 caused a reduction of T-regs in peripheral blood
- BL-8040 increased T-cell tumor infiltration in 75% of patients
AGI-134 – Cancer Immunotherapy

A universal anti-cancer vaccine with a unique mechanism of action
Alpha-Gal and Anti-Gal

- The alpha-Gal epitope is abundantly synthesized on glycolipids of non-primates while absent in human.
- Due to constant exposure to this antigen (expressed by gut flora) humans develop and maintain high levels of anti-Gal Abs.

Xenotransplantation experiments in the 1980’s-90’s found that, when introduced to humans, the alpha-Gal-positive tissue was bound by pre-existing human anti-Gal antibodies, which were the main cause of the rejection of porcine heart valves.
AGI-134 Induces a Potent Patient-Specific Anti-Tumor Immune Response

AGI-134 is being developed to realize the therapeutic potential of alpha-Gal/anti-Gal immunology

- Tumors vary from patient to patient in their neoantigen load and identity
- AGI-134 is a fully synthetic alpha-Gal glycolipid molecule for intratumoral injection into solid tumors

- **AGI-134 redirects pre-existing human anti-Gal antibodies to the treated tumor and induces an immune response against the patient’s own neoantigens**

\[
\text{AGI-134} = \alpha\text{-Gal} + \text{linker} + \text{phospholipid}
\]
Intratumoral Treatment with AGI-134 Induces Regression of Established Melanoma Tumors in Mice

- Administration of AGI-134 induced regression of established primary tumors
**AGI-134 Exerts a Potent Durable Abscopal Effect**

- Single dose of AGI-134 into primary tumor protected mice from **secondary tumor** development for more than 90 days

- Synergistic effect demonstrated in combination of AGI-134 with immune checkpoint inhibitor

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**Inoculate melanoma cells into right flank (1° tumor) and left flank (2° tumor)**

**Treat 1° tumor with PBS or AGI-134**

**Monitor the appearance of 2° tumors**

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**Mice free of visible distal tumors (%)**

- **PBS (n=7)**
- **AGI-134 (n=8)**

**DAYS**

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**Mice free of visible distal tumors (%)**

- **PBS (n=13)**
- **anti-PD1 (n=11)**
- **AGI-134 (n=16)**
- **AGI-134 + anti-PD1 (n=16)**

**DAYS**

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High Level Outline of Ongoing Phase 1/2a Clinical Study

Open-label study to evaluate the safety and tolerability of AGI-134 as monotherapy and in combination with pembrolizumab, in unresectable metastatic solid tumors (NCT03593226)

PART 1

Accelerated escalation monotherapy

PART 2

Monotherapy basket

Combination - mCRC

Combination - HNSCC

Initial safety results expected in 2H 2019

mCRC= metastatic colorectal cancer
HNSCC= head & neck squamous cell carcinoma
ICI= immune checkpoint inhibitor
Looking ahead
Recent Accomplishments and Upcoming Milestones

Multiple opportunities for value creation

- **BL-8040**  Partial results from Phase 2a COMBAT pancreatic cancer study (with Merck)  1Q 2018
- **BL-8040**  Top-line results from Phase 2 allogenic stem cell mobilization (Auto SCM) study  2Q 2018
- **AGI-134**  Initiation of Phase 1/2a trial in solid tumors  3Q 2018
- **BL-8040**  Lead-in results from Phase 3 GENESIS Auto SCM study  3Q 2018
- **BL-8040**  Initiation of Part 2 of Phase 3 GENESIS Auto SCM study  4Q 2018
- **BL-8040**  Top-line results from dual combo Phase 2a pancreatic cancer study (with Merck)  4Q 2018
- **BL-8040**  Initiation of Phase 2a triple combo pancreatic cancer trial (with Merck)  4Q 2018
- **BL-8040**  Partial results from Phase 1b/2 pancreatic cancer trial (with Genentech)  4Q18/1Q19
- **BL-8040**  Interim results from Phase 2 AML consolidation study  2H 2019
- **AGI-134**  Initial safety results from Phase 1/2a solid tumor study  2H 2019
- **BL-8040**  Top-line results from Phase 1b/2 pancreatic cancer trial (with Genentech)  2H 2019
- **BL-8040**  Top-line results from Phase 2 triple combo pancreatic cancer trial (with Merck)  2H 2019
**Key Takeaways**

| Singular focus on oncology | *Large-market indications with unmet medical needs*  
| | *Phase 3: stem cell mobilization*  
| | *Phase 2: AML, pancreatic, gastric* |

| Multiple opportunities for value creation | *Nine mid-to-late stage studies ongoing*  
| | *3-4 data readouts over next 12 months*  
| | *Phase 3 registrational topline data expected in 2020* |

| Validation via significant pharma collaborations | *Merck/MSD (established Jan 2016; expanded Jul 2018)*  
| | *Genentech (established Sep 2016)*  
| | *Collaborations validate BL-8040’s novel mechanism of action* |

| Compelling valuation | *~$140 million market cap*  
| | *~$41 million cash as of 2Q 2018*  
| | *Cash runway through 1H 2020* |