# UNITED STATES
# SECURITIES AND EXCHANGE COMMISSION
**Washington, D.C. 20549**

# FORM 8-K

**CURRENT REPORT**
**Pursuant to Section 13 or 15(d)**
**of The Securities Exchange Act of 1934**

**Date of Report (Date of Earliest Event Reported): March 7, 2019**

# UNUM THERAPEUTICS INC.
**(Exact name of registrant as specified in its charter)**

| **Delaware** | **001-38443** | **46-5308248** |
|---|---|---|
| **(State or other jurisdiction of incorporation)** | **(Commission File Number)** | **(I.R.S. Employer Identification No.)** |

| | |
|---|---|
| **200 Cambridge Park Drive, Suite 3100**<br>**Cambridge, Massachusetts**<br>**(Address of principal executive offices)** | **02140**<br>**(Zip Code)** |

**Registrant's telephone number, including area code (617) 945-5576**

**Not Applicable**
**(Former name or former address, if changed since last report)**

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 or Rule 12b-2 of the Securities Exchange Act of 1934.

Emerging growth company ☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☒

**Item 7.01 Regulation FD Disclosure.**

Unum Therapeutics Inc. (the "Company") is furnishing a corporate presentation, attached as Exhibit 99.1 to this Current Report on Form 8-K, which the Company intends to use from time to time in meetings with investors. The corporate presentation will also be available in the investor relations section of the Company's website at http://unumrx.com.

The information in this Item 7.01 and Exhibit 99.1 attached hereto shall not be deemed "filed" for purposes of Section 18 of the Securities and Exchange Act of 1934, as amended, or otherwise subject to the liabilities of that section, nor shall they be deemed incorporated by reference in any filing under the Securities Act of 1933, as amended, except as expressly set forth by specific reference in such filing.

**Item 9.01 Financial Statements and Exhibits**

| Exhibit No. | Description |
|---|---|
| 99.1 | Unum Therapeutics Inc. corporate presentation. |

**SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Date: March 7, 2019

**UNUM THERAPEUTICS INC.**

By: /s/ Charles Wilson
Charles Wilson, Ph.D.
Chief Executive Officer

Exhibit 99.1

# UNUM THERAPEUTICS

## CORPORATE PRESENTATION

COWEN AND COMPANY 39TH ANNUAL HEALTHCARE CONFERENCE
BOSTON, MA
MARCH 2019

# FORWARD-LOOKING STATEMENTS AND RISK FACTORS

This presentation and the accompanying oral commentary contain forward-looking statements that involve risks, uncertainties and assumptions. If the risks or uncertainties ever materialize or the assumptions prove incorrect, our results may differ materially from those expressed or implied by such forward looking statements. All statements other than statements of historical fact could be deemed forward-looking, including, but not limited to, any statements of the plans, strategies, and objectives of management for future operations, including our clinical development and commercialization plans; any projections of financial information; any statement about historical results that may suggest trends for our business; any statement of expectation or belief regarding future events; potential markets or market size, technology developments, our clinical product pipeline, clinical data or the implications thereof, enforceability of our intellectual property rights, competitive strengths or our position within the industry; any statements regarding the anticipated benefits of our collaborations or other strategic transactions; and any statements of assumptions underlying any of the items mentioned.

These statement are based on estimates and information available to us at the time of this presentation and are not guarantees of future performance. Actual results could differ materially from our current expectations as a result of many risks and uncertainties, including but not limited to, risks associated with: the success, cost and timing of our product development activities and clinical trials; our ability to obtain regulatory approval for and to commercialize our product candidates; our ability to establish a commercially-viable manufacturing process and manufacturing infrastructure; regulatory requirements and regulatory developments; the effects of competition and technological advances; our dependence on third-party collaborators and other contractors in our research and development activities, including for the conduct of clinical trials and the manufacture of our product candidates; our ability to obtain, maintain, or protect intellectual property rights related to our product candidates; among others. For a further description of the risks and uncertainties that could cause actual results to differ from those expressed in these forward-looking statements, as well as risks relating to our business in general, see our periodic filings filed from time to time with the Securities and Exchange Commission. Unless as required by law, we assume no obligation and do not intend to update these forward looking statements or to conform these statements to actual results or to changes in our expectations.

All of Unum Therapeutics ("Unum") product candidates are investigational product candidates and their safety and efficacy have not yet been established. Unum has not obtained marketing approval for any product, and there is no certainty that any marketing approvals will be obtained or as to the timelines on which they will be obtained.

Any data pertaining to Unum product candidates is interim data, and may include investigator-reported interim data for which Unum has not yet independently reviewed the source data. The interim data may not be representative of the final results that may be obtained in the corresponding trials and results from earlier trials may not be representative of results obtained in later trial or pivotal trials.

# KEY COMPANY HIGHLIGHTS

## Providing potentially curative T cell therapies to treat a broad range of cancer patients

1. NOVEL TECHNOLOGIES to overcome limitations of current T cell therapies
2. Potent ANTI-TUMOR ACTIVITY and ENCOURAGING SAFETY in lead program
3. Ability to address challenges in treating SOLID TUMORS
4. MULTIPLE MILESTONES with readouts from four clinical trials in 2019

# CURRENT CHALLENGES FOR T CELL THERAPIES

## CAR-T therapy liabilities limit their use in broad patient populations

**Severe toxicities associated with T cell activation**

- CRS and/or neurotoxicity are observed in the majority of patients who are treated with currently approved CAR-T therapies, and can be severe or life-threatening
- These toxicities limit the patient population fit for CAR-T therapy, create unpredictable risks to patients and unnecessary burden on the healthcare system

**Limited ability to target solid tumor antigens**

- Traditional CAR-T cannot discriminate between high level expression of antigen on tumor cells versus low level expression on healthy tissue
- Several CAR-Ts have shown toxicities consistent with on-target – off-tumor toxicity (e.g., CAIX, HER2)

**Lack of efficacy in solid tumors due to immunosuppression**

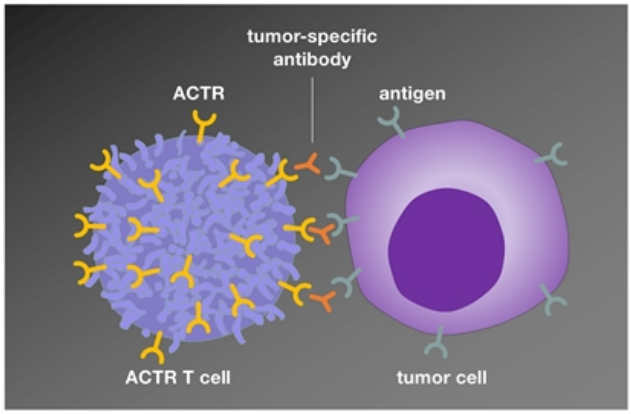
- The microenvironments of many solid tumors inhibit immune function limiting efficacy of engineered T cells
- CAR-T therapies to date have not demonstrated potent efficacy in solid tumors

# ACTR: ANTIBODY-COUPLED T CELL RECEPTOR

## An engineered T cell receptor that uses tumor-targeting mAbs to direct attack

### Potential ACTR benefits

- The same universal T cell product can be used in several different cancer indications
- Potent anti-tumor activity with reduced rates and severities of CAR-T associated toxicities
- Ability to pursue antigens inaccessible to CAR-T
  - Selectively target solid tumor antigens, avoiding on-target off-tumor toxicity
  - Target T cell-expressed antigens, avoiding fratricide




**ACTR components**

- **antibody recognition:** ectodomain of CD16 (normally found on NK cells), linked via a hinge and transmembrane domain
- **T cell activation:** costimulatory signals (e.g., CD28 or 41BB) and TCR signals (CD3ζ)



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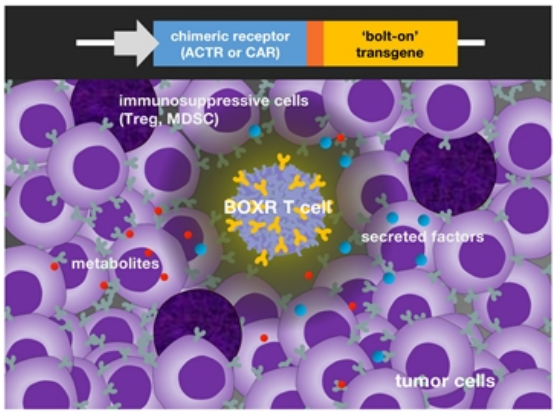
# BOXR: BOLT-ON CHIMERIC RECEPTOR

## Designed to improve T cell function in solid tumor microenvironments

### Potential BOXR benefits

- T cell function improved by expression of a 'bolt-on' transgene (e.g., metabolic enzymes/transporters, signaling receptors/ligands, survival factors, etc.)
- Counteracts mechanisms driving immunosuppression in solid tumors
  - Metabolic competition
  - Immune cell suppression (T-Reg, MDSC)
  - Chronic antigen stimulation
- Bolt-on transgene may augment many types of T cell therapies (ACTR, CAR, TCR, TIL, etc.)




**BOXR components**

- **chimeric receptor:** universal ACTR or antigen-specific CAR drives cancer cell targeting and attack
- **bolt-on:** novel transgene re-programs T cell biology to improve functionality in the tumor microenvironment



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# PIPELINE

## Rapidly expanding pipeline in both hematologic and solid tumor cancers

| Product Candidate | Indication | Antibody | Pre-Clinical | Phase I |
|---|---|---|---|---|
| *Hematologic Cancers* | | | | |
| **ACTR707** | r/r CD20+ B cell NHL | rituximab | ATTCK-20-03 | |
| **ACTR087** | r/r CD20+ B cell NHL | rituximab | ATTCK-20-2 | |
| **ACTR087** | r/r Multiple Myeloma | SEA-BCMA *with Seattle Genetics* | ATTCK-17-01 | |
| *Solid Tumor Cancers* | | | | |
| **ACTR707** | Advanced HER2+ cancers | trastuzumab | ATTCK-34-01 | |
| **BOXR1030** | Advanced GPC3+ cancers | n/a | | |

*ACTR087 and ACTR707 distinguished by differences in co-stimulatory domains (ACTR087: 4-1BB, ACTR707: CD28) and structural sequences*


HEMATOLOGIC CANCERS

# ACTR IN LYMPHOMA

## Provides proof-of-platform for the ACTR technology, demonstrating potential best-in-class product profile

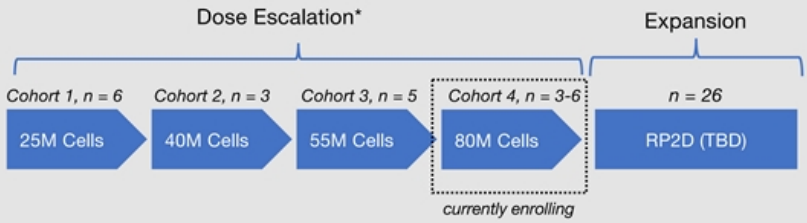
- Compelling profile demonstrated at early dose levels in two independent trials in r/r NHL
  - ATTCK-20-03: ACTR707 (CD28) (selected as program lead)
  - ATTCK-20-2: ACTR087 (41BB)
- Anti-tumor activity comparable to approved NHL CAR-T therapies
- Favorable safety demonstrated at the correct dose level
- Potential profile opens path for applying T cell therapies across broad NHL patient populations including those unfit for current CAR-T

# TESTING ACTR707 IN NHL

**Study Design and Objectives**

- Phase I, single arm trial testing escalating single doses of ACTR+ T cells in combination with rituximab
  - Patients pretreated with 3 days of lymphodepleting chemotherapy (fludarabine + cytarabine)
  - Rituximab administered on the R-CHOP schedule (375 mg/m$^2$ IV every 3-weeks)
- Key Eligibility: Rituximab-treated CD20+ aggressive NHL; Primary refractory, >2 prior lines of therapy, or post auto-HSCT
- Primary objective is safety, determination of MTD and proposed recommended Phase II dose

***ATTCK-20-03 Trial Design***




***Status***

- 14 patients dosed to date through first three dose cohorts
- Cleared DLT assessment at DL3, completing response assessments
- Enrolling patients at DL4

***Next Steps***

- Complete dose escalation, safety evaluation and response assessments
- Cohort expansion at recommended phase 2 dose (RP2D)

*study design allows for additional dose cohorts



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# ACTR707 TOLERABILITY IN NHL

## No DLTs and no significant CRS or neurologic events in the first two dose levels

| Preferred Term, n (%) | Subjects with Serious Adverse Events (SAEs) Related to ACTR707 | |
|---|---|---|
| | Dose Level 1 (n=6) | Dose Level 2 (n=3) |
| Febrile neutropenia | 1 (17) | 1 (33) |
| Pancytopenia | 0 (0) | 1 (33) |

| Adverse Events of Special Interest (AESI) | Subjects with AESI, n | |
|---|---|---|
| | Dose Level 1 (n=6) | Dose Level 2 (n=3) |
| New malignancy | 0 | 0 |
| Cytokine release syndrome | 0 | 0 |
| Use of therapeutic plasma exchange for any non-disease related AE | 0 | 0 |
| Clinically significant neurologic disorder | 0 | 0 |
| Clinically significant rheumatologic/autoimmune disorder | 0 | 0 |
| Clinically significant hematologic disorder (excluding cytopenias related to LD chemo) | 0 | 0 |

*Clinically significant = in the opinion of the investigator, clinically meaningful*
*Database snapshot: 01November18*



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# ACTR707 ANTI-TUMOR ACTIVITY IN NHL

## Potent antitumor activity including complete responses in initial cohorts

**Dose Level 1**

- Six enrolled and treated subjects
- Three subjects with complete responses; three with disease progression

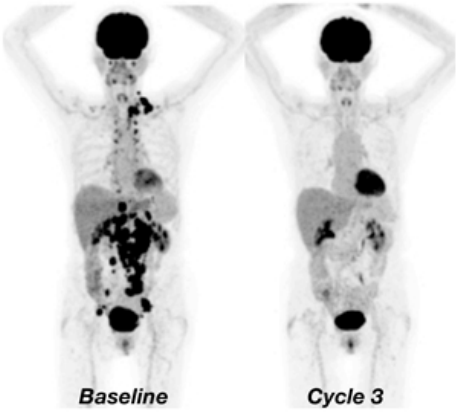
**Dose Level 2**

- Three enrolled and treated subjects
- One subject with complete response; two with disease progression

***Summary of complete responses***

| Dose Level | Response | # prior therapies^ | Refractory* to prior therapy | Diagnosis |
|---|---|---|---|---|
| 1 | Complete | 2 | no | Gr3b FL |
| 1 | Complete | 5 | yes | DLBCL |
| 1 | Complete | 3 | yes | DLBCL |
| 2 | Complete | 3 | yes | DLBCL |

**Refractory defined as PD as best response to any line of prior therapy or relapse ≤ 12 months post ASCT*
*^All subjects received rituximab as prior therapy*
*Database snapshot: 01November18*




*Representative image of complete response in DLBCL subject treated with 5 prior therapies including ASCT*



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# CD19 CAR-T BENCHMARK IN NHL

## Initial data indicates potential for a durable CR rate in line with approved CD19 CAR-T with an improved safety profile

| | YESCARTA® (axicabtagene ciloleucel) | KYMRIAH® (tisagenlecleucel) |
|---|---|---|
| Indication | r/r DLBCL, PMBCL, TFL | r/r DLBCL |
| N evaluable for response | 101 | 68 |
| OR rate | 72% | 50% |
| CR rate | 51% | 32% |
| Ongoing OR at 6 months | 44%[a] | 33%[b] |
| Ongoing CR at 6 months | 39%[a] | 29%[b] |
| N evaluable for safety | 108 | 106 |
| CRS (≥Grade 3) | 94% (13%) | 74% (23%) |
| Neurologic toxicities (≥Grade 3) | 87% (31%) | 58% (18%) |

*No head to head trials have been conducted that would enable a direct safety and efficacy comparison to Yescarta or Kymriah*

*Source: USPI unless otherwise noted*

[a] *AACR, 2017. Analysis triggered when 92 patients reached a minimum of 6 months followup.*

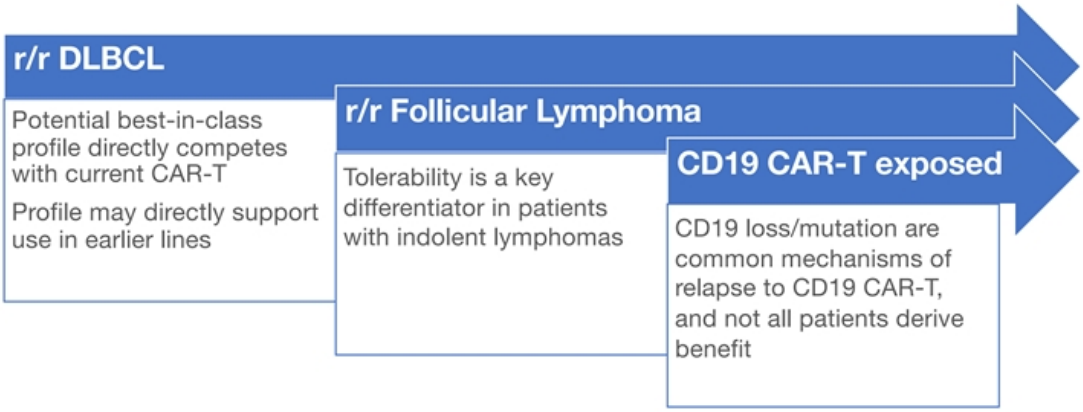
[b] *Schuster, SJ et. al. NEJM 2019. Analysis based on 93 subjects who received tisagenlecleucel in the JULIET study.*

# PRODUCT OPPORTUNITY IN NHL

## Potential to address unmet medical need for under-served patient populations

**Comparable durable CR rate and reduced CRS/neurotox would enable several paths forward**

- Compete directly with approved CAR-Ts
- Move more quickly into earlier lines of therapy
- Expand into new patient populations




Total of over **20K** patients per year in the US



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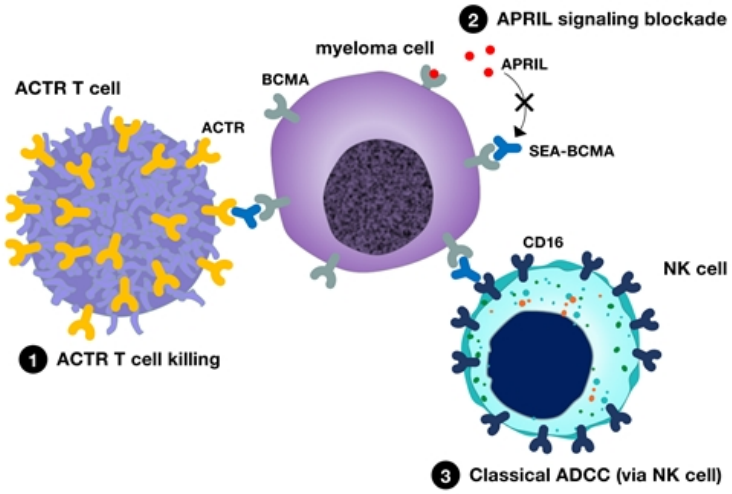
# ACTR IN MULTIPLE MYELOMA

## Multiple mechanisms of action of ACTR in combination with SEA-BCMA enable a potentially more effective treatment compared to BCMA-targeting CAR-T

### Potential differentiating characteristics

- Despite high response rates, durability remains a concern for many BCMA-targeted programs in development
- Improved ACTR T cell persistence may translate into enhanced response duration
- Three mechanisms of action combine to potentially counteract resistance mechanisms and enhance durability:
  - BCMA-targeted T cell cytotoxicity
  - APRIL-signaling blockade
  - NK cell-mediated ADCC



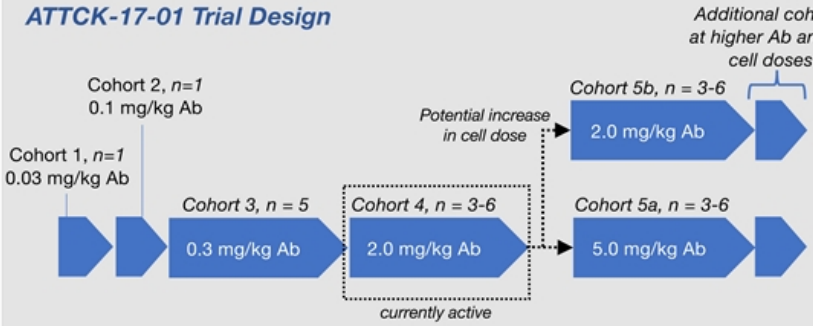
# TESTING ACTR087 IN MULTIPLE MYELOMA

## Promising safety profile through early dose cohorts supports further dose escalation

### Study Design and Objectives

- Phase I, single arm trial testing escalating single doses of ACTR+ T cells in combination with escalating SEA-BCMA
  - Patients pretreated with 3 days of lymphodepleting chemotherapy (fludarabine + cytarabine)
  - Antibody administered on a 3-week cycle
- Key Eligibility: r/r multiple myeloma, ≥3 prior lines of therapy or double refractory
- Primary objective is safety, tolerability and to determine recommended Phase II dose

### *ATTCK-17-01 Trial Design*




### *Status*

- Three dose levels completed at very low antibody doses and 30M ACTR+ T cells
- No dose limiting toxicities observed
- No severe CRS or neurologic events observed

### *Next Steps*

- Continuation of dose escalation exploring increases in cell and/or Ab dose



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SOLID TUMOR CANCERS

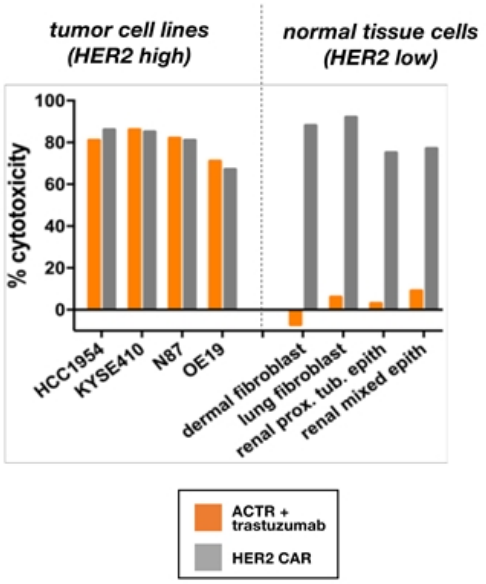
# ACTR + TRASTUZUMAB IN HER2+ TUMORS

## First ACTR solid tumor program

- Combination for the treatment of adult patients with relapsed/refractory advanced HER2+ cancers
- Enrolling patients with HER2+ breast cancer, gastric cancers, and other HER2+ malignancies

## HER2 is a challenging target for traditional CAR-T

- Like many solid tumor antigens, HER2 is expressed at low levels on some normal tissues
- Several CAR-T have shown toxicities consistent with on-target-off-tumor toxicity (e.g., CAIX, HER2)
- Preclinical studies demonstrate a threshold effect for ACTR cytotoxic killing – minimal activity when antigen is below a target threshold



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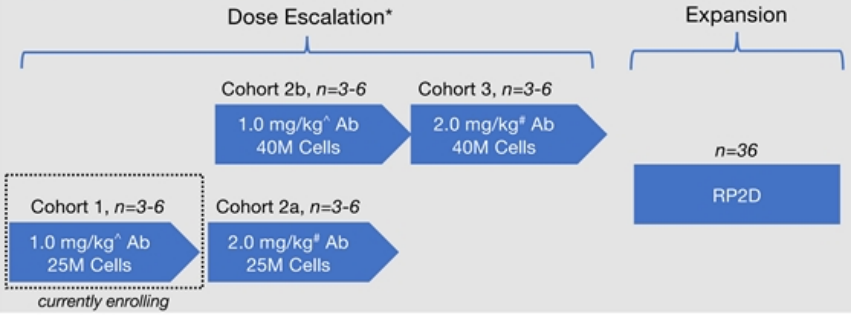
# TESTING ACTR707 IN HER2+ SOLID TUMORS

**Study Design & Objectives**

- Open label Phase I adaptive dose-escalating study to define optimal ACTR cell dose and antibody dose
- Key eligibility: Advanced HER2 (3+) solid tumor malignancy. Must have received adequate prior therapy including HER2 directed therapy
- Primary objectives: assess safety, tolerability, and to determine recommended Phase II dose

***ATTCK-34-01 Trial Design***




***Status***

- Currently enrolling patients in Cohort 1
- Completing additional site activations

***Next Steps***

- Proceed with dose escalation through 2019
- Potential for multiple expansion cohorts across specific HER2+ malignancies

*study design has the flexibility to modify or add additional cohorts
^ 1 mg/kg weekly X 6wks then 3 mg/kg q3w
# 2 mg/kg weekly X 6wks then 6 mg/kg q3w



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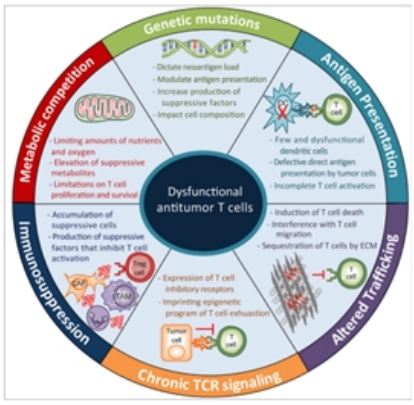
# BOXR DISCOVERY ENGINE

## Enables discovery of ACTR- and CAR-based BOXR candidates addressing specific mechanisms of immunosuppression




*Anderson et al., Cancer Cell, 31:311-325 (2017)*

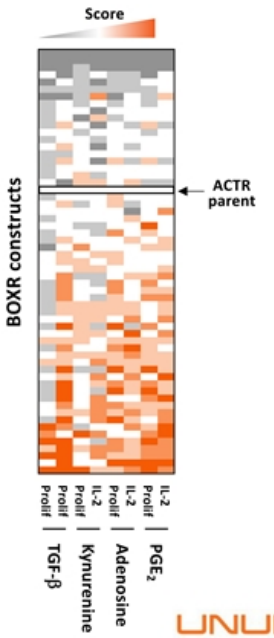
**BOXR Discovery Engine**

***Translational Medicine***
Identify patients whose tumors are most susceptible to each BOXR

***Biologic Hypothesis***
Unique insights into immunoregulation within tumors

***High Throughput Screening***
Novel, multi-stage screening strategy to simulate TME

***In Vivo Validation***
Stringent xenograft models to test BOXR activity in hostile environments



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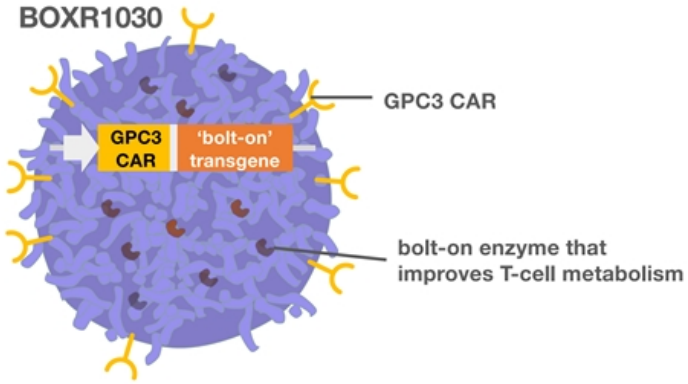
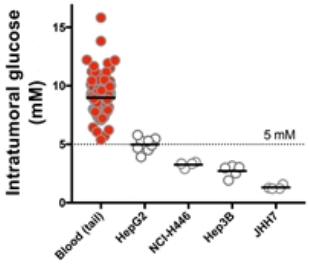
# BOXR1030: FIRST BOXR CANDIDATE

## BOXR1030 is a GPC3 targeted CAR-T engineered for enhanced metabolism in the solid tumor microenvironment

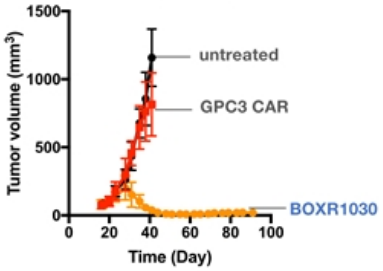
- Low glucose compromises T cell function, correlates with poor patient outcomes in lung and liver cancers
- BOXR1030 has superior activity in xenograft models that mimic the low glucose environments of lung and liver tumors




***Stringent xenograft models deplete TME glucose***




***BOXR1030 activity in low glucose HEP3B model***



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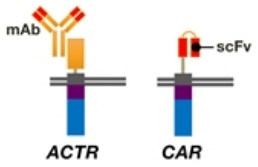
# SOLID TUMOR PRECLINICAL PIPELINE

## Multiple platform technologies (ACTR and BOXR) enable a broad pipeline tailored to particular targets and tumor types

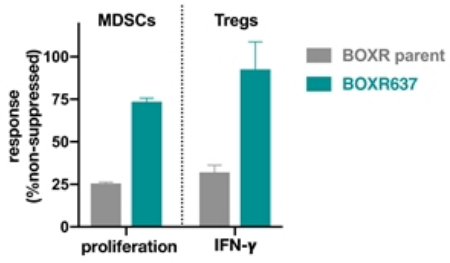
**Tumor Targeting Technology:** Either ACTR or CAR depending on factors including:

- potential for off-tumor attack
- antibody availability

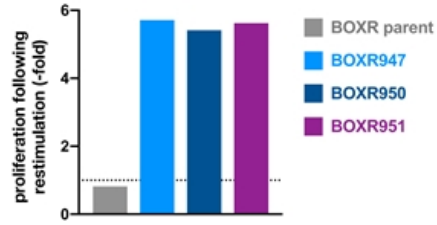



**Bolt-on Technology:** Tailored to different indications based upon translational insights

***ACTR-targeted BOXR overcomes immune cell suppression***




***CAR-targeted BOXR overcomes exhaustion / chronic stimulation***



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BUILDING FOR THE FUTURE

# PLATFORM ENHANCES COMMERCIALIZATION POTENTIAL

### Reduced COGS

**Closed automated system** enables scalability and reduced operator time; further process automation maximizes plant utilization

**Cost synergies** of a universal product (e.g., large scale virus manufacture)

### Scalable capacity

CMO capacity supports current development activities, ability to scale with additional suites

**Clear path to scale** manufacturing to meet commercial need in Unum owned manufacturing site

### Reliability

**100% success** delivering ACTR product to patient to date

Closed automated system **reduces risk for contamination**

### Turn around time

Currently in line with best practice in early development

Clear opportunity to shorten through **accelerated release testing**

### Simplifying patient care

Improved safety profile enables **reduced need for monitoring and hospitalization**, reducing overall cost and complexity of administration

### Patient access

Improved safety profile enables **expansion to the community setting** to access a broader patient population

**Physician familiarity** with universal product accelerates adoption of future products




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# STRONG FINANCIAL POSITION

## Unum has a capital-efficient business model and significant funding through both financing and partnerships

### Finances

- In April 2018, completed an IPO and concurrent private placement, raising $77M in gross proceeds
  - $154M raised since inception
- Current cash balance of $87M (as of 09/30) provides runway through at least Q2 2020
  - 9-months ended 09/30/2018 operating cash flow: ($23.5M)

### Seattle Genetics Partnership

- Strategic collaboration with Seattle Genetics has provided an additional ~$37MM to date in non-dilutive funding
  - Partnership to co-develop and co-commercialize novel ACTR + SGEN mAb combination therapies
  - Structured to leverage each partner's expertise
  - Provides us access to SGEN proprietary mAbs with retained value and rights in programs

# UPCOMING MILESTONES

## Multiple readouts across programs in 2019

| | | |
|---|---|---|
| ***NHL*** | **ACTR707 + rituximab** | ATTCK-20-03: dose escalation completed<br>ATTCK-20-03: preliminary data from cohort expansion |
| | **ACTR087 + rituximab** | ATTCK-20-2: confirm recommended Ph2 dose (study completion) |
| ***Multiple Myeloma*** | **ACTR087 + SEA-BCMA** | ATTCK-17-01: multiple readouts from dose escalation |
| ***Solid tumors*** | **ACTR707 + trastuzumab** | ATTCK-34-01: patient dosing initiated<br>ATTCK-34-01: dose escalation initial readouts |
| | **BOXR1030** | Initiate preclinical development |

# EXPERIENCED LEADERSHIP

**Chuck Wilson, PhD**
Chief Executive Officer

*Novartis, Global Head of Strategic Alliances*
*Archemix, Chief Technology Officer*

**Seth Ettenberg, PhD**
Chief Scientific Officer

*Novartis, Head of Oncology Biologics*
*CuraGen, NCI*

**Geoff Hodge**
Chief Technical Officer

*Xcellerex, VP Process Development & Manufacturing*
*GE Healthcare, Millennium*

**Michael Vasconcelles, MD**
Chief Medical Officer

*Takeda/Millennium, Therapeutic Area Head of Oncology*
*Sanofi, Genzyme*


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