


# Presentation to STEM Education Innovation Alliance
# May 29, 2019

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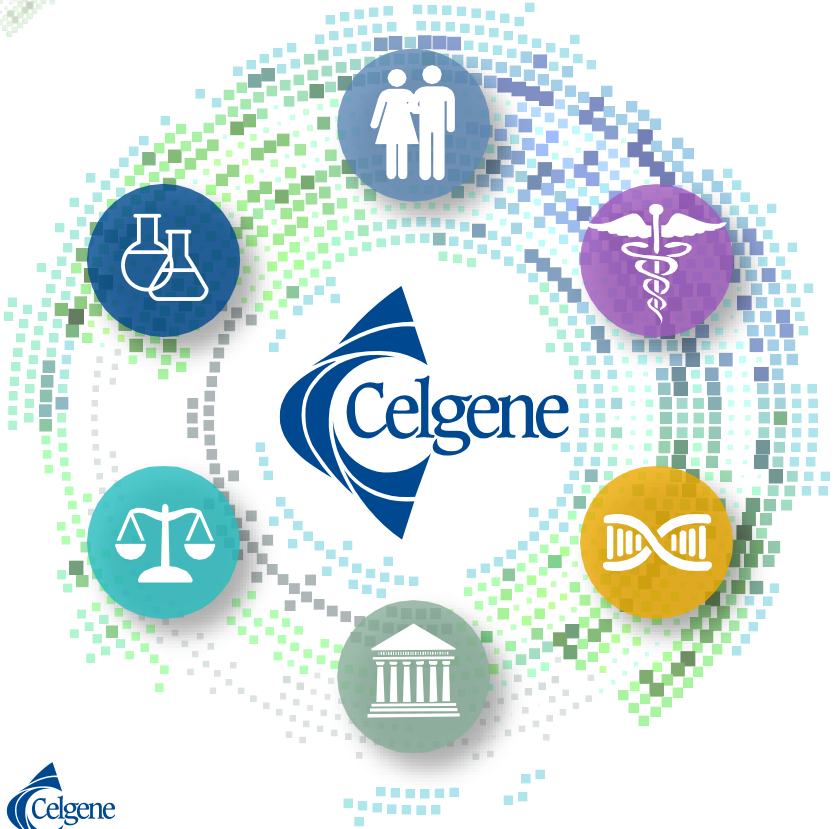
Juno Therapeutics, a Celgene Company, Seattle, WA

# Celgene: Our Mission and Vision




*Celgene is building a preeminent global biopharmaceutical company focused on the discovery, development and commercialization of innovative therapies for patients with cancer, immune-inflammatory disease, and other unmet medical needs*




Celgene

# Innovative Medicines with Unique Value Propositions

Revlimid®

**Market leader in multiple myeloma**
- Non-transplant NDMM reimbursed in 22 countries; TE Maintenance approved in US & EU
- Used in novel triplet combinations

Pomalyst® Imnovid®

**A standard of care in RRMM multiple myeloma**
- Approved in 58 countries
- Used in novel triplet combinations

Otezla®

**Most successful launch in the psoriasis / psoriatic arthritis category**
- Global expansion advanced: approved in 51 countries
- Exploring opportunities across multiple indications

Abraxane®

**Global market leading branded therapy for metastatic pancreatic cancer**
- Adjuvant pancreatic cancer trial enrollment complete
- Studies underway in Phase III I/O combination trials in NSCLC & triple negative breast cancer

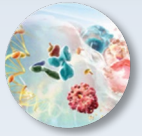
IDHIFA® (enasidenib) tablets

**First oral targeted therapy for relapsed / refractory AML with IDH2 mutation**
- FDA approved in August 2017
- Approval granted just four years after entering the clinic

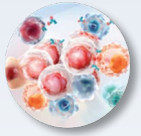
# Internal Research – Thematic Centers and Capabilities

## Thematic Centers of Excellence

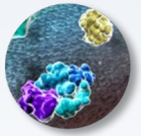
Fully enabled with aligned resources
Therapeutic hypotheses using translational data



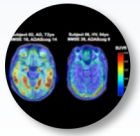
Protein Homeostasis and EpiGenetics



Immuno-Oncology and Cellular Therapy



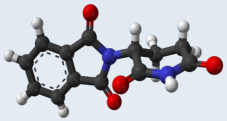
Inflammation & Immunology



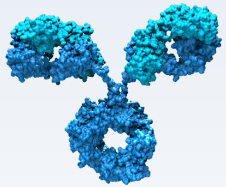
Neuroscience

## Leadership in Therapeutic Modalities

Agnostic to modality



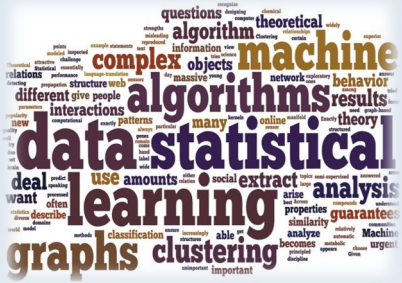
Chemistry



Biotherapeutics

Cell Therapies

## Informatics & Predictive Sciences



# An Introduction: Celgene Washington

- Research & Early Development site focused on Immuno-Oncology and Cellular Therapy – established in Seattle, 2013
- Collaboration with Juno Therapeutics for Cellular Therapy since 2015; led to acquisition of Juno by Celgene in 2018
- Combined entity now has over 900 employees in the state, adding expertise in Immunology and Cellular Therapy R&D, Clinical and Regulatory, CAR T Manufacturing

# Global Oncology Collaboration in Cellular Therapy and IO

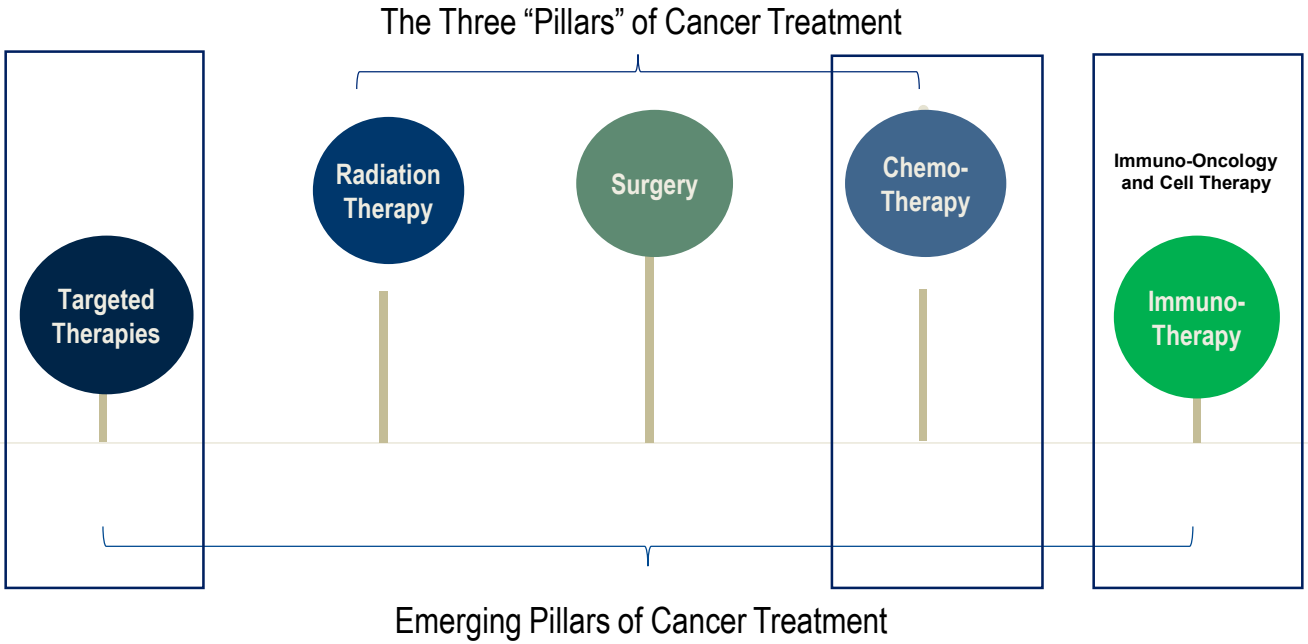
## Selected Academic Partnerships


## Selected Corporate Collaborations


Celgene

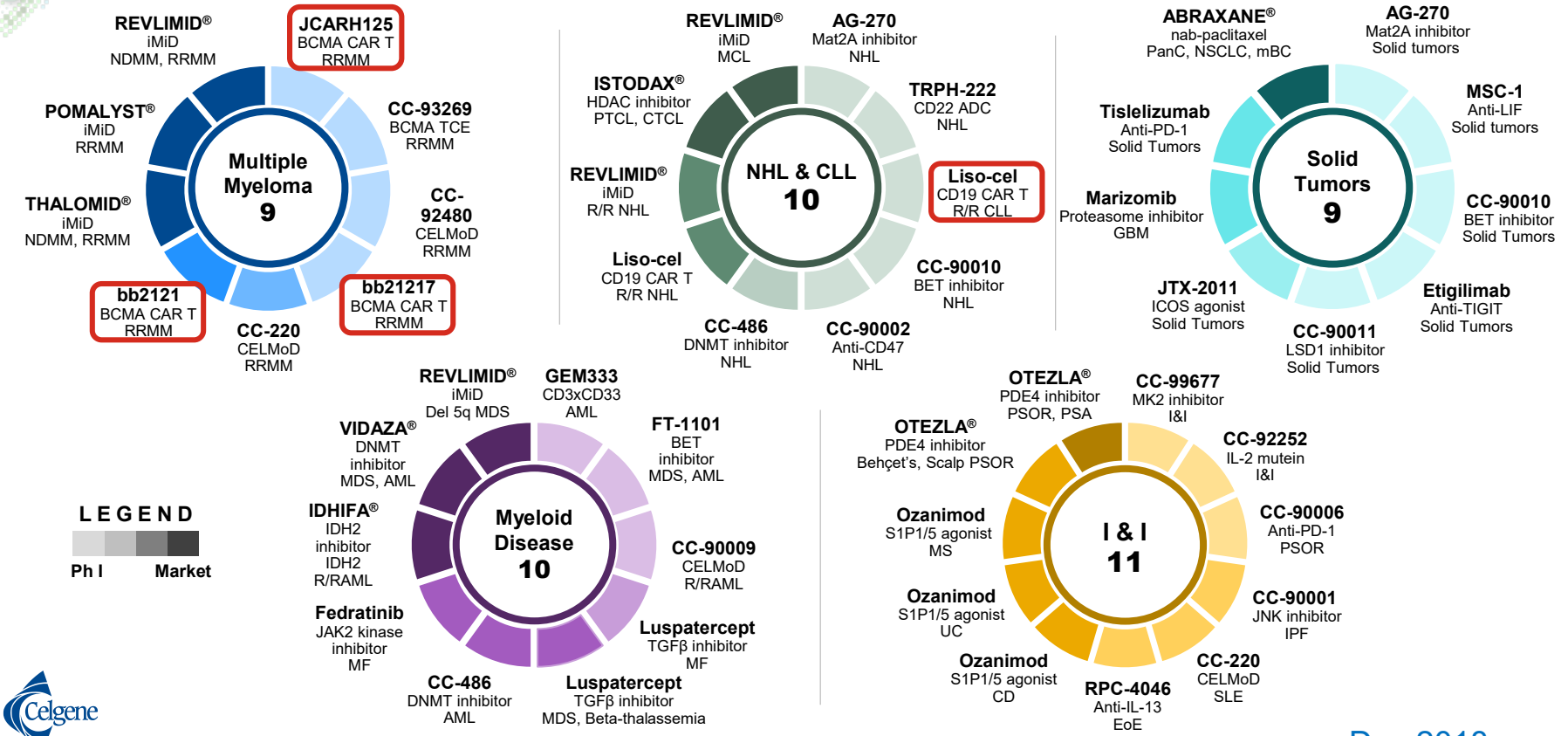
*Some of our active collaborations

# The Pillars of Cancer Treatment




**Celgene's CAR T cell therapies are investigational and have not been approved by the FDA.**

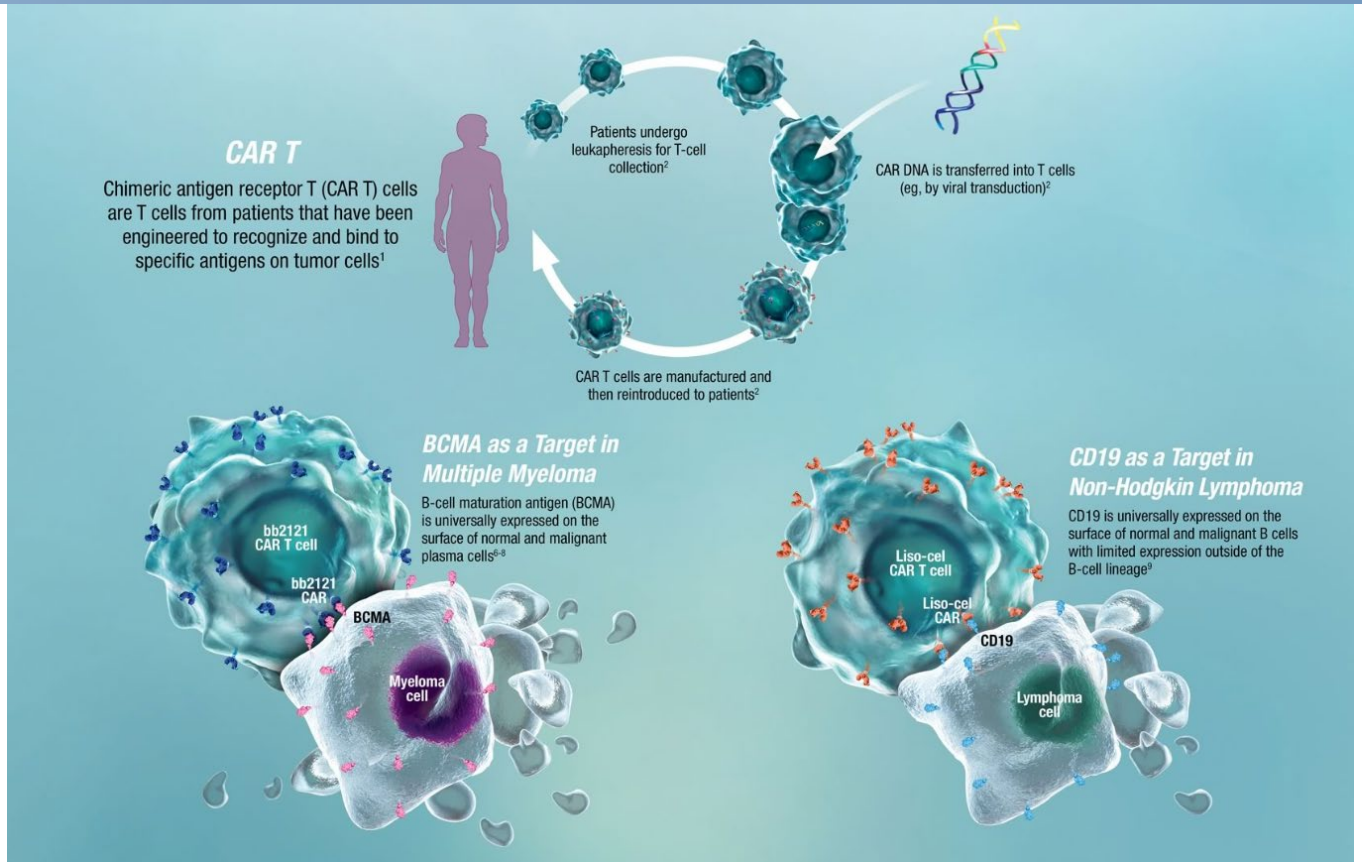
# Advancing a High Quality Pipeline with Significant Potential



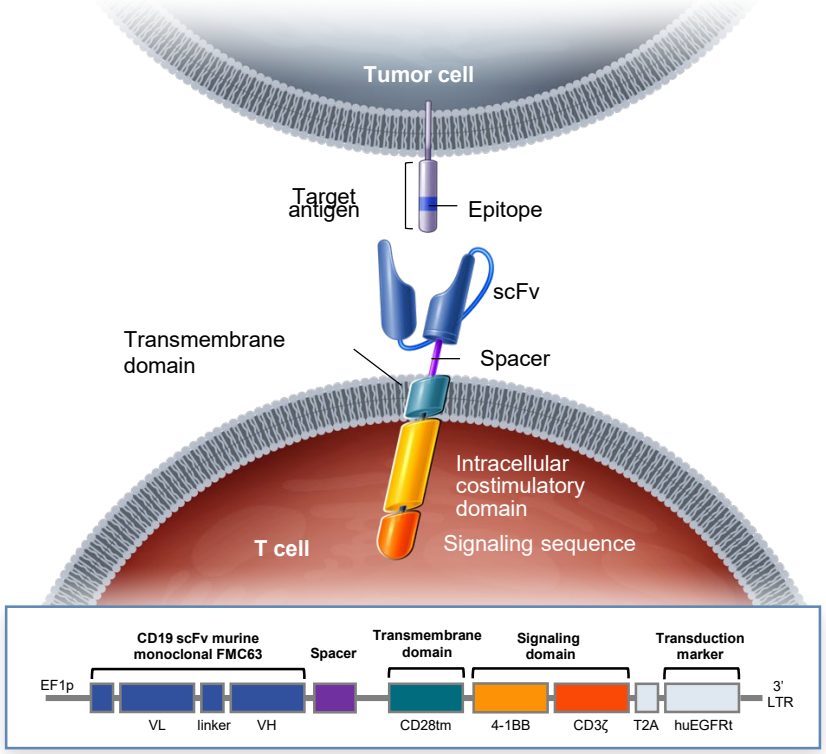

*Celgene has an exclusive option to license and/or option to acquire: TRPH-222,JTX-2011, Etigilimab, AG-270, and MSC-1*

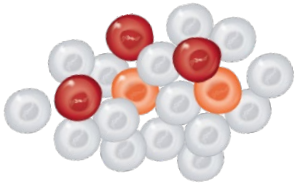
Dec 2018

# CAR T cells are a living drug



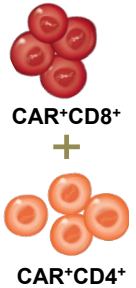
# Lisocabtagene Maraleucel (JCAR017): CD19 CAR T Cell Design



Patient's PBMCs

- Immunomagnetic selection
- Lentiviral transduction
- Expansion
- Formulated at specified composition of $CD4^+$ and $CD8^+$ CAR T cells
- Administered at precise doses of $CD4^+$ and $CD8^+$ CAR T cells



$CAR^+CD8^+$ + $CAR^+CD4^+$

- $CD8^+$ (targets tumor)
- $CD4^+$ (targets tumor, supports persistence)
- Other PBMC cell types

PBMC, peripheral blood mononuclear cell; scFv, single-chain variable fragment.

Abramson JS, et al: *J Clin Oncol*. 2018; 36(abstr 7505). Presented at the American Society of Clinical Oncology (ASCO) Annual Meeting. Chicago, IL; June 1-5, 2018.

# Translating Key CAR T Principles Into the Clinic: Efficacy and safety in 3rd Line R/R Non-Hodgkin Lymphoma

## High Response Rates in R/R DLBCL

**Potential Dose Response Relationship in CORE Patient Population; DL2 Chosen for Pivotal Cohort**

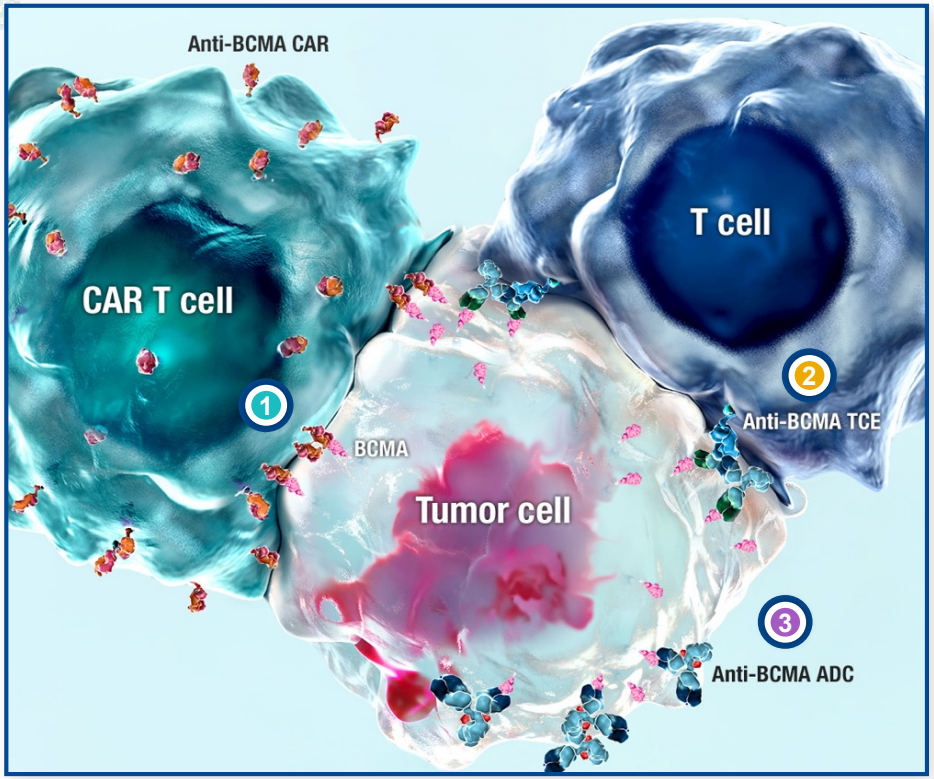
| | FULL | CORE | | |
|---|---|---|---|---|
| | All Dose Levels (n=102) | All Dose Levels[a] (n=73) | DL1S (n=33) | DL2S (n=37) |
| ORR (95% CI), % | 75 (65-83) | 80 (68-88) | 79 (61-91) | 78 (62-90) |
| CR (95% CI), % | 55 (45-65) | 59 (47-70) | 55 (36-72) | 62 (45-78) |
| 3-mo ORR (95% CI), % | 51 (41-61) | 59 (47-70) | 52 (34-69) | 65 (48-80) |
| 3-mo CR (95% CI), % | 38 (29-48) | 45 (34-57) | 36 (20-55) | 51 (34-68) |
| 6-mo ORR (95% CI), % | 40 (31-50) | 47 (35-59) | 42 (26-61) | 49 (32-66) |
| 6-mo CR (95% CI), % | 34 (25-44) | 41 (30-53) | 33 (18-52) | 46 (30-63) |

**Baseline high tumor burden well balanced between DL1 and DL2 (≈ 1/3)[b]**

[a] Three patients treated on DL1D with similar outcomes.
[b] Defined as sum of the products of diameters (SPD) > 50 cm².

Abramson, TRANSCEND, ASCO 2018, # 7505

# Targeting BCMA Antigen: A Disruptive Approach to Myeloma Therapy




**1 CAR-T Cell Therapy**

- bb2121* – pivotal KarMMa™ trial ongoing
- bb21217* – phase I trial ongoing
- JCARH125 – phase I trial ongoing

**2 T Cell Engager Antibody**

- CC-93269 – phase I trial ongoing

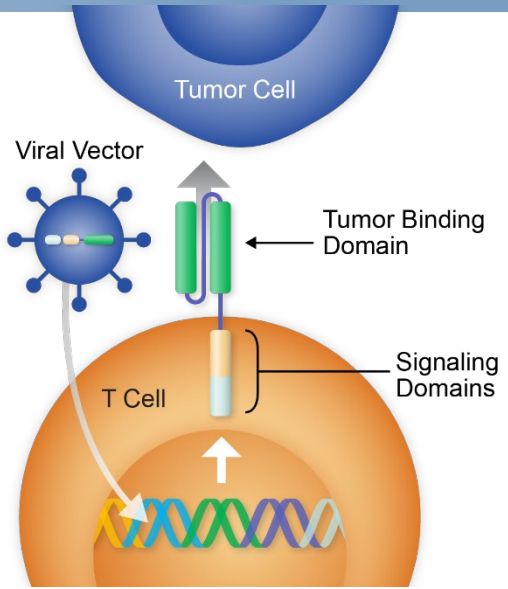
**3 Antibody Drug Conjugate**

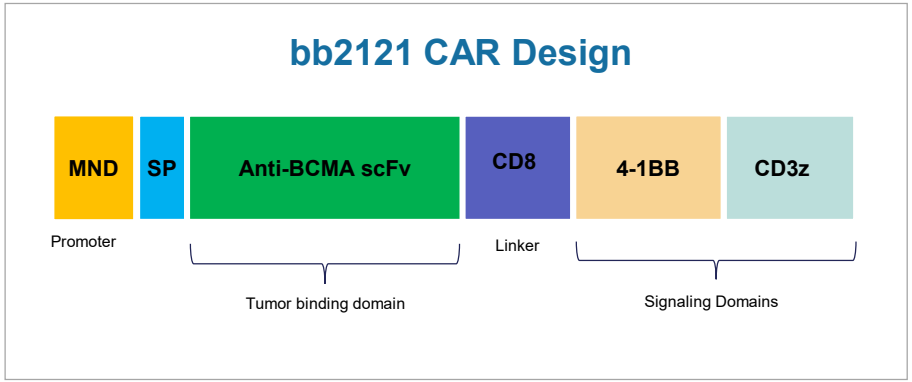
- BCMA ADC** – preclinical

* In collaboration with bluebird bio. ** In collaboration with Sutro Biopharma.

1. Chekmasova AA, et al. Presented at ASH 2015 [abstract 3094]. 2. Seckinger A, et al. *Cancer Cell*. 2017. doi:10.1016/j.ccell.2017.02.002. 3. Mailankody, ASH 2018 (Abstract 957) 4. Shah, ASH 2018

# bb2121: AN OPTIMAL BCMA CAR T CELL DESIGN



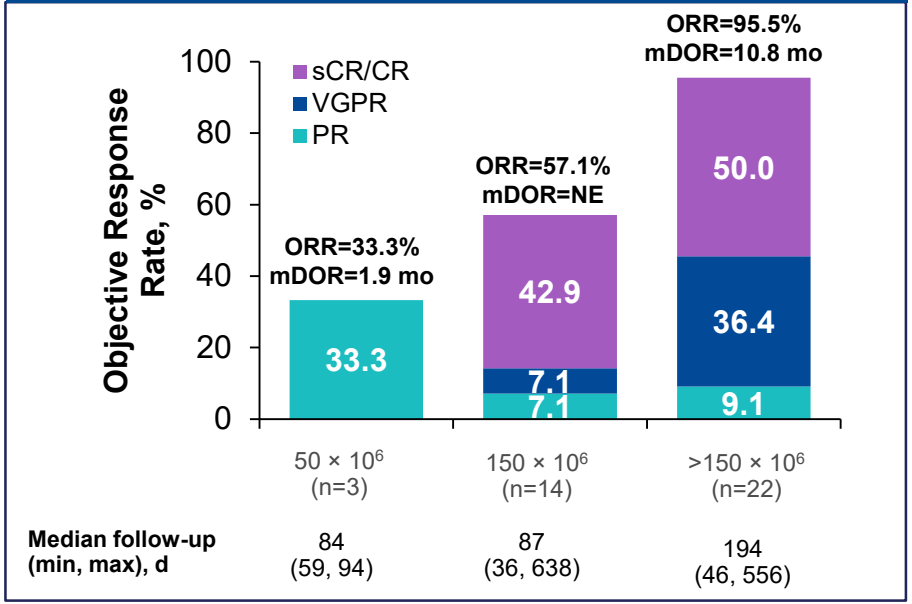




- Autologous T cells transduced with a lentiviral vector encoding a CAR specific for human BCMA
- State of the art lentiviral vector system
- Optimal 4-1BB costimulatory signaling domain: associated with less acute toxicity and more durable CAR T cell persistence than CD28 costimulatory domain[1]

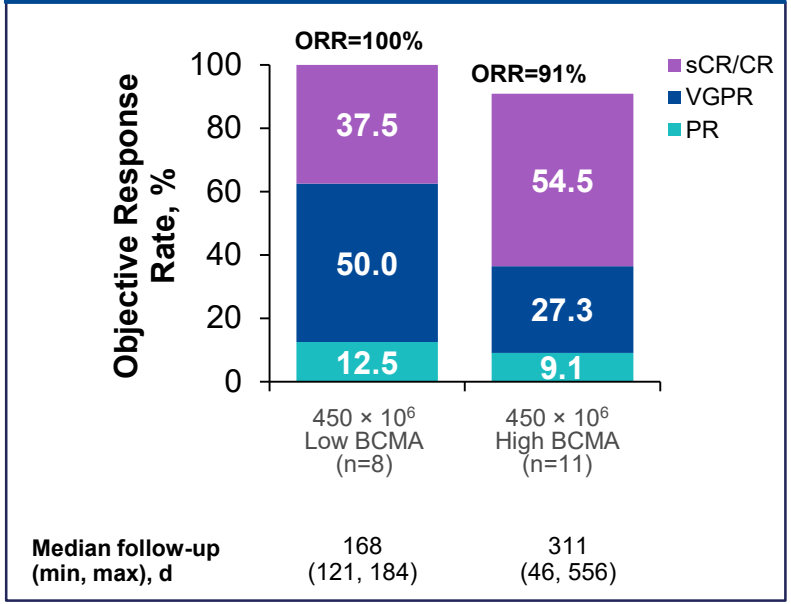
1. Ali SI, et al. *Blood*. 2016;128(13):1688-700. RajeN, et al. ASCO 2018: Abstract 8007

# TUMOR RESPONSE: DOSE-RELATED; INDEPENDENT OF TUMOR BCMA EXPRESSION

## Tumor Response By Dose[a]




## Tumor Response By BCMA Expression[a]

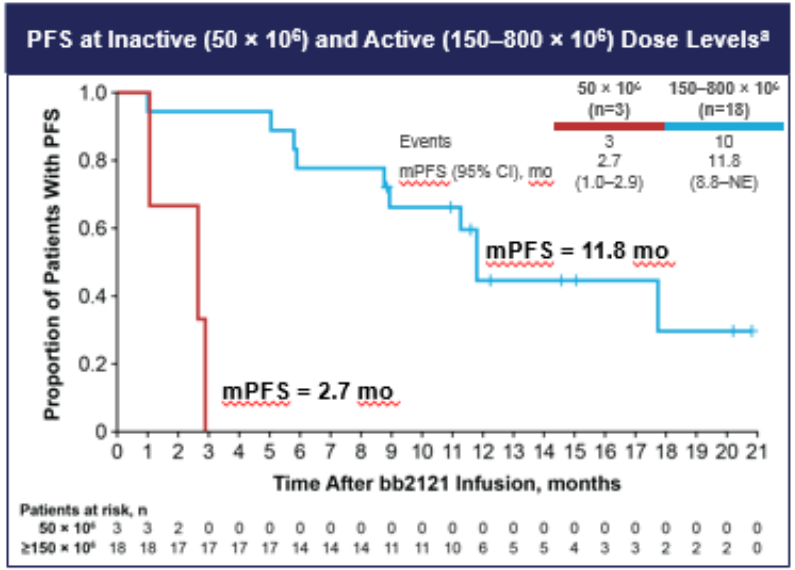


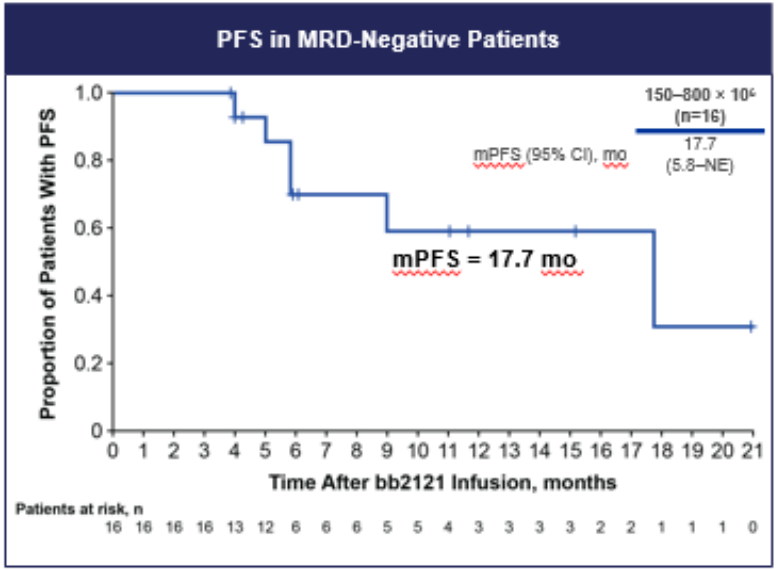

1. Raje N, et al. ASCO 2018: Abstract 8007.

Data cutoff: March 29, 2018. CR, complete response; mDOR, median duration of response; ORR, objective response rate; PD, progressive disease; PR, partial response; sCR, stringent CR; VGPR, very good partial response. [a]Patients with ≥2 months of response data or PD/death within <2 months. ORR is defined as attaining sCR, CR, VGPR, or PR, including confirmed and unconfirmed responses. Low BCMA is <50% bone marrow plasma cells expression of BCMA; high BCMA is defined as ≥50%.

# PROGRESSION-FREE SURVIVAL

- mPFS of 11.8 months at active doses (≥150 × $10^6$ CAR+ T cells) in 18 subjects in dose escalation phase
- mPFS of 17.7 months in 16 responding subjects who are MRD-negative




Data cutoff: March 29, 2018. Median and 95% CI from Kaplan-Meier estimate. NE, not estimable. [a]PFS in dose escalation cohort.

1. Raje N, et al. ASCO 2018: Abstract 8007.

# 5 Late-Stage Investigational Therapies Expected to Launch Through 2020

**Ozanimod**

**S1P1 Receptor Modulator for Relapsing Multiple Sclerosis**
- U.S. NDA submitted Q1 2019
- TRUE NORTH™ UC trial enrollment targeted to complete mid-2019

**Fedratinib**

**Highly selective JAK2 inhibitor for myelofibrosis**
- Priority review granted by FDA
- EU MAA submission planned in 2019

**Liso-cel**

**CD19-targeted CAR T for relapsed/refractory diffuse large B-cell lymphoma**
- U.S. submission anticipated 2H 2019
- Data from Ph I CLL presented at ASH 2018

**Luspatercept**

**First-in-class erythroid maturation agent for MDS and β-thalassemia**
- MEDALIST™ and BELIEVE™ positive phase 3 studies
- U.S. submission Apr 2019

**bb2121**

**BCMA targeted CAR T for highly refractory multiple myeloma**
- U.S. submission anticipated late 2019/early 2020
- Clinical program in earlier treatment lines advancing



All therapies listed are investigational and not approved in any jurisdiction.