

Corporate Investor Presentation

April 2018

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Recent Milestone: 02/28/18 US FDA APPROVAL

ZTlidoTM
(lidocaine topical system) 1.8%



Product Z for the treatment of post-herpetic neuralgia (PHN) pain

STICK TO ITIVENESS

Proven 12-hour contact designed to follow each contour.

Product Z is the only lidocaine patch with data that demonstrated 12-hour patch-to-skin adhesion:

- 91% of subjects in a study experienced NO LIFT after 12 hours of wear
- In the remaining 9%, some edges only lifted off after 12 hours of wear

Product Z

Immuno-Oncology and Non-Opioid Pain Management



G-MABs™ | CAR-T | ADCs | iTAbS | Oncolytic Virus

ZTlido™ | Resiniferatoxin (RTX)

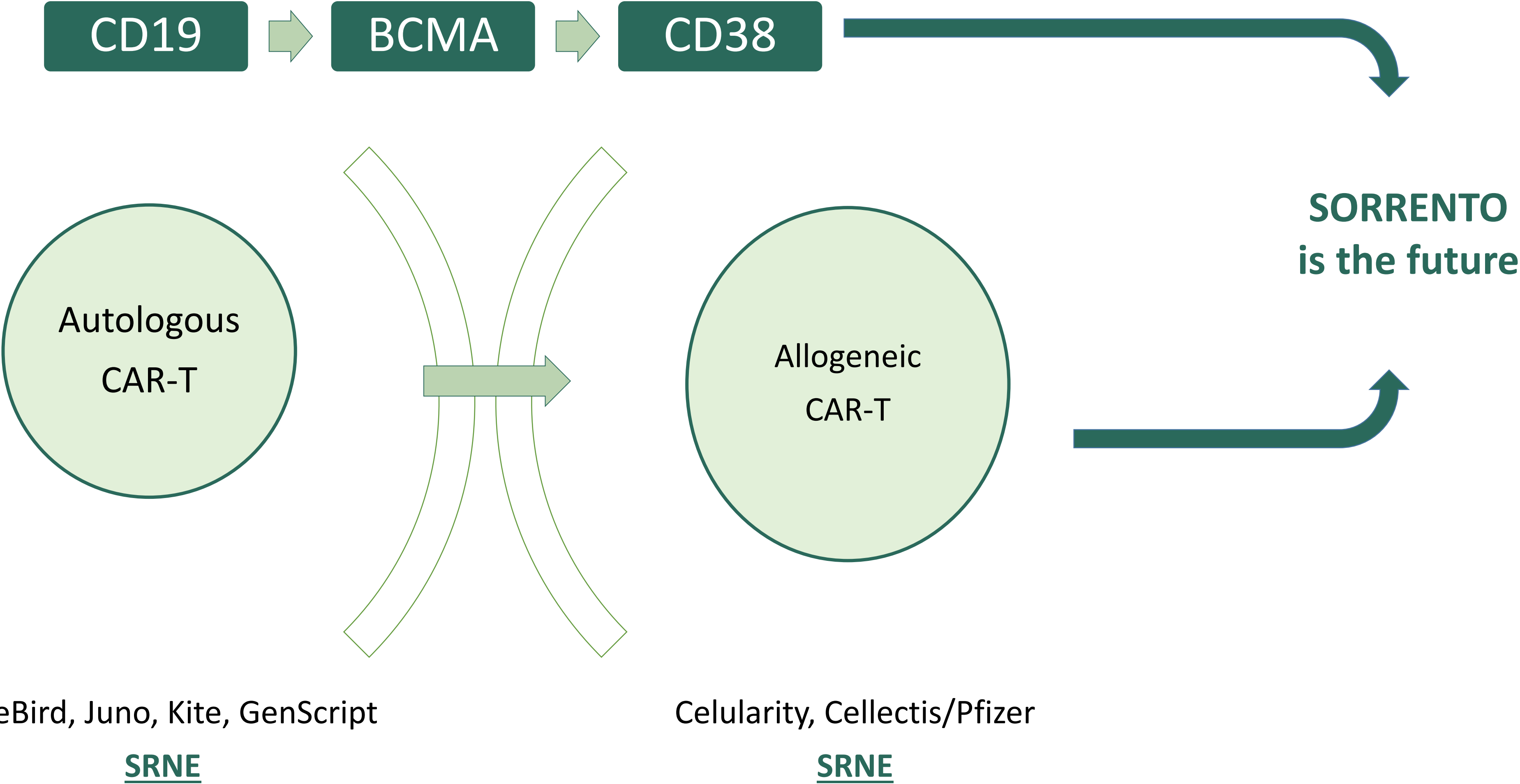
Turning malignant cancers into manageable, and possibly curable, chronic diseases.

Novel therapies to ease patients' disease or treatment related suffering.

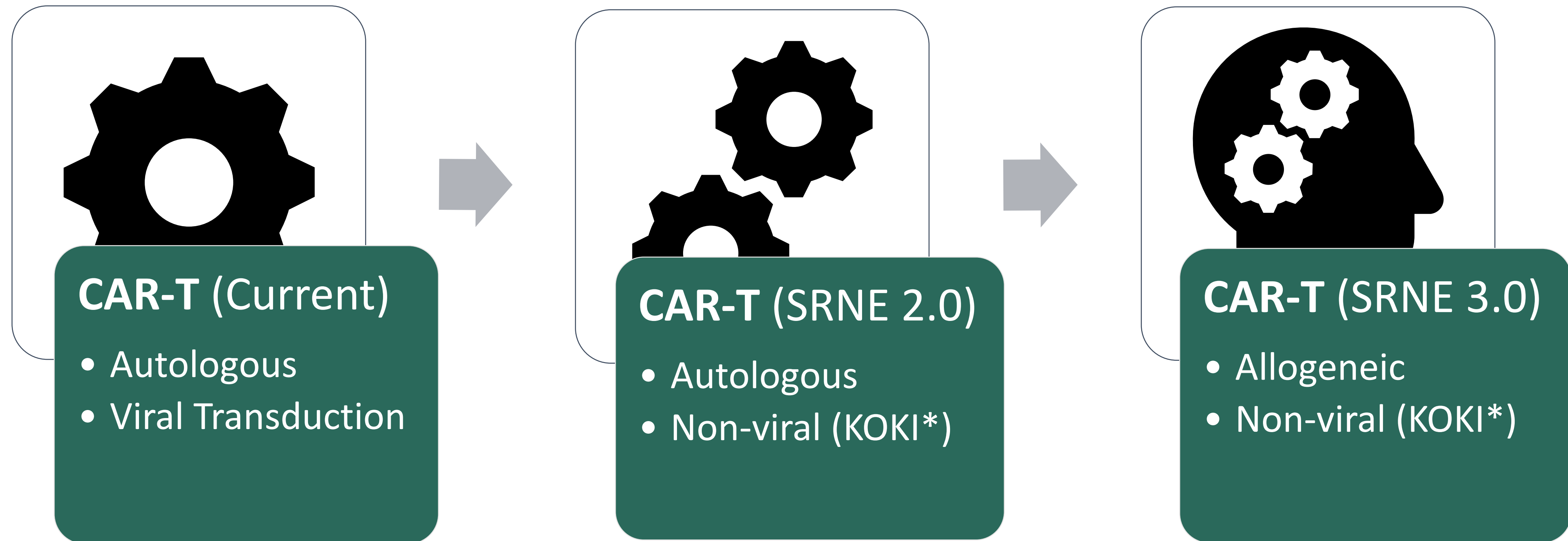
CAR-T Immune Therapies for Hematological Malignancies

- CAR-T cell therapies are the “game-changer” therapeutic modalities against hematological malignancies ...
- Treatment pricing (per patient) in the \$350K to \$500K range.
- **Anti-CD19 CAR-T Cell Therapies:**
 - Kymriah™ (Novartis): ALL in children and young adults
 - Yescarta™ (Kite/Gilead): Certain B cell lymphomas
 - \$\$\$ Gilead acquired Kite for \$11.9B (2017)
 - \$\$\$ Celgene acquired Juno for \$9B cash (2018)

Future Outlook on CAR-T Therapies (Competition)



Outlook on SRNE Next-Generation CAR-T Technology



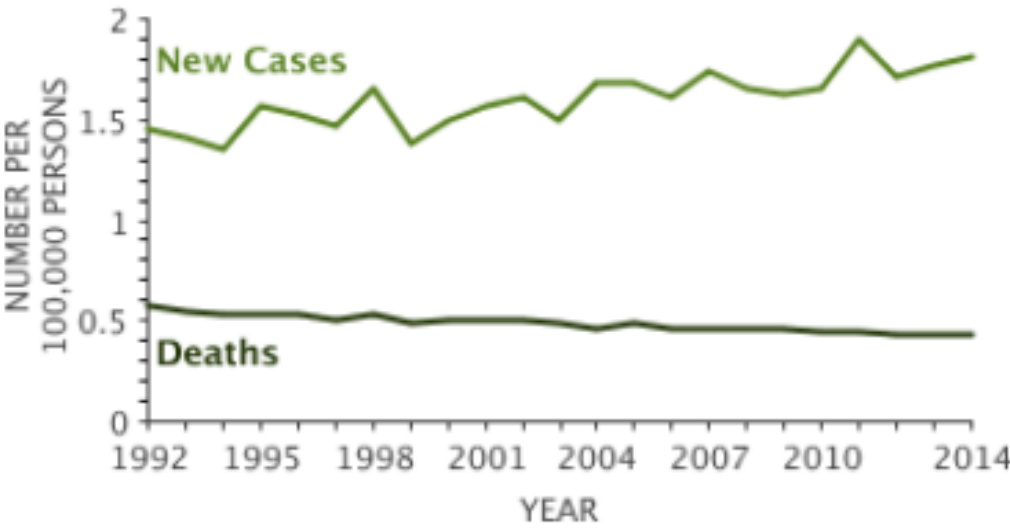
* KOKI = “Knock-Out/Knock-In” non-viral technology proprietary to Sorrento therapeutics for non viral CAR-T manufacturing

Industry-Leading CD38 CAR-T Program

Hematological Malignancies in the US

82K ALL Patients (US)
2024 market forecast: \$1B

| | |
|-----------------------------|-------|
| Estimated New Cases in 2017 | 5,970 |
| % of All New Cancer Cases | 0.4% |
| Estimated Deaths in 2017 | 1,440 |
| % of All Cancer Deaths | 0.2% |

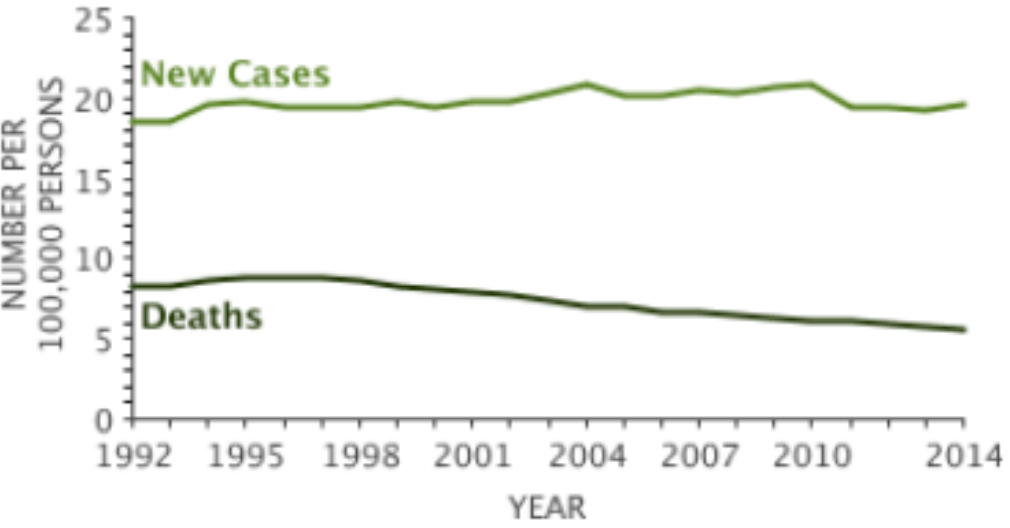


| |
|---------------------------|
| Percent Surviving 5 Years |
| 68.2% |
| 2007-2013 |

CD19: Novartis (Kymriah™)

662K NHL Patients (US)
2024 market forecast: \$5.4B

| | |
|-----------------------------|--------|
| Estimated New Cases in 2017 | 72,240 |
| % of All New Cancer Cases | 4.3% |
| Estimated Deaths in 2017 | 20,140 |
| % of All Cancer Deaths | 3.4% |

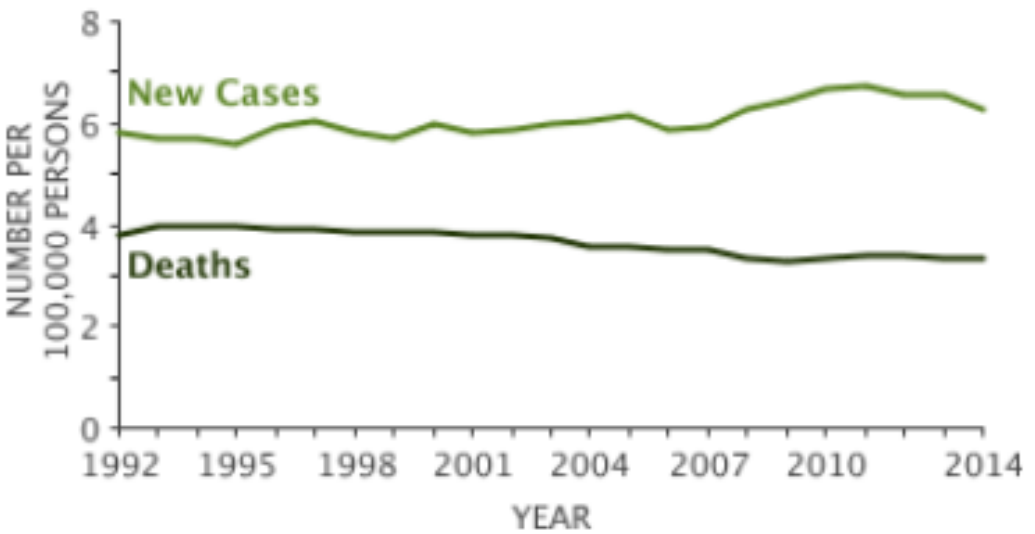


| |
|---------------------------|
| Percent Surviving 5 Years |
| 71.0% |
| 2007-2013 |

CD19: Kite (Yescarta™)

120K MM Patients (US)
2023 market forecast: \$22.6B

| | |
|-----------------------------|--------|
| Estimated New Cases in 2017 | 30,280 |
| % of All New Cancer Cases | 1.8% |
| Estimated Deaths in 2017 | 12,590 |
| % of All Cancer Deaths | 2.1% |



| |
|---------------------------|
| Percent Surviving 5 Years |
| 49.6% |
| 2007-2013 |

CD38: Janssen/GenMab (Darzalex®)
CD38: Sorrento (CD38 CAR-T)
BCMA: Bluebird Bio
(bb2121 for BCMA CAR-T)

CD38 CAR-T for Multiple Myeloma

› **CD38 is a Validated, High Priority Target for MM Immunotherapies:**

- Darzalex® mAb (Janssen). License from Genmab.
- \$\$\$ GenMab Market cap: \$12.65B (March 2018)
- \$\$\$ Darzalex expected 2022 sales of \$5.8B in MM

Sorrento CD38 CAR-T Program: A Very Big Opportunity

- › Addressing Multiple Myeloma indication => \$22 B market opportunity
- › Targeting validated, high value CD38 target (Darzalex®; anti-CD38 mAb approved for MM treatment)
- › Proven CAR-T cell therapy modality for hematologic malignancies (Kymriah™ & Yescarta™ for CD19 CAR-T)
- › Development overseen by a seasoned clinical team, with success track record in MM
- › cGMP facilities and manufacturing ready for clinical trials
- › Most advanced CD38 CAR-T program in the industry

Sorrento – Most Advanced CD38 CAR-T Program in Development

› **CAR based on fully human anti-CD38 antibody**

- Different binding site than Darzalex® on CD38
- Different kinetic binding profile
- Preference for high-expressing CD38 cells
 - High density expression found in:
 - Multiple myeloma
 - Other B cell malignancies
 - Activated T cells
 - T cell malignancies

› **Late stage IND-enabling studies**

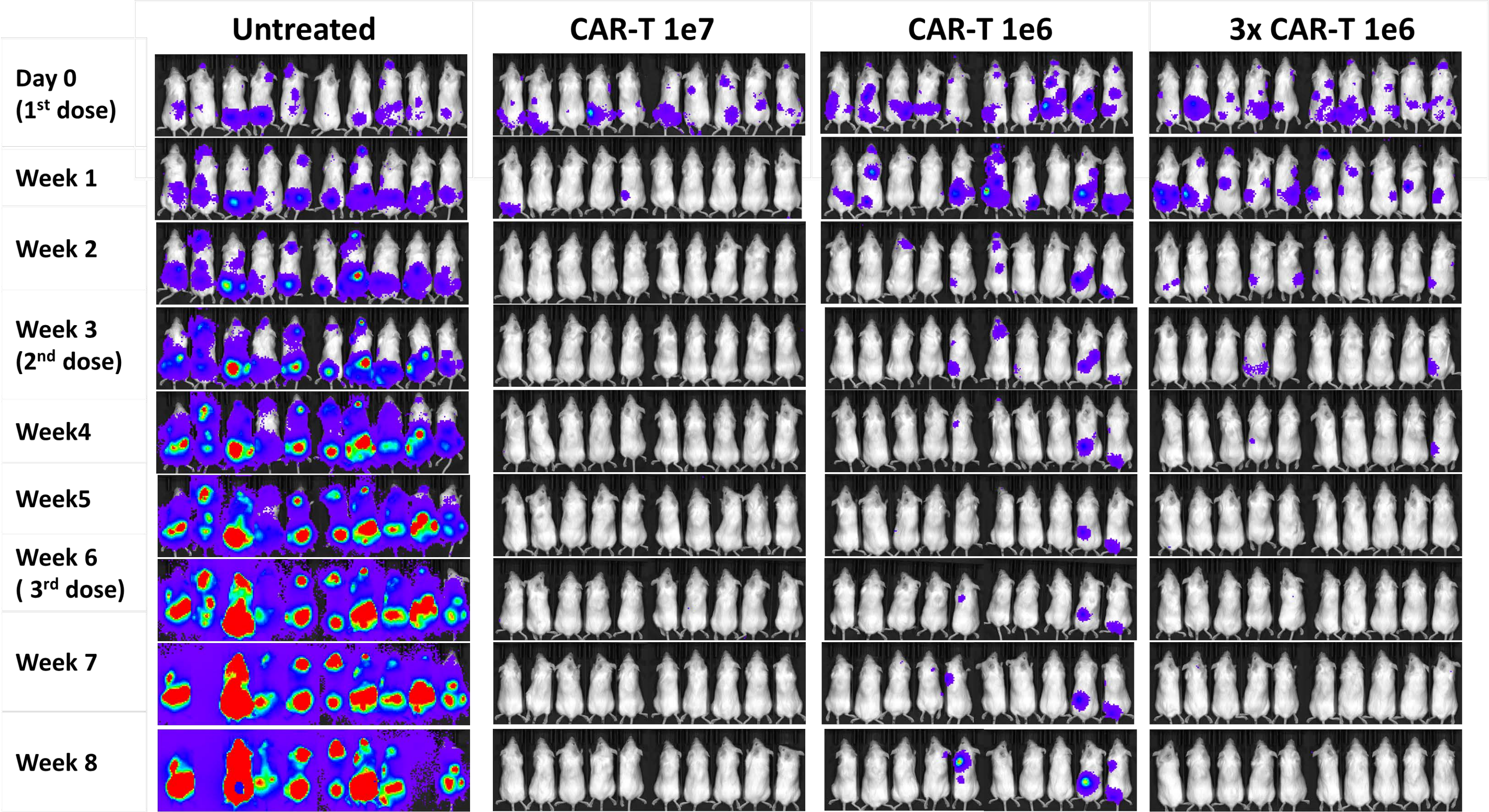
- IND filing: 1Q18

› **Multiple Myeloma is lead indication**

- First-patient-in: 1H18

Anti-Myeloma Activity of CD38 CAR-T Cells In Mouse Model

- On Day -23, immunodeficient NSG mice were infused with human RPMI8226 MM tumor cells
- On Day 0, CAR-T cells were administered i.v.
- Re-dosing was performed every 3 weeks (total of 3 CAR-T doses)



Anti-CD38 CAR-T Cells Eradicated CD38 Positive Human Multiple Myeloma in NSG Mice

CRITICAL ASSET = “CAR-T” cGMP Manufacturing Capabilities (2 Sites)



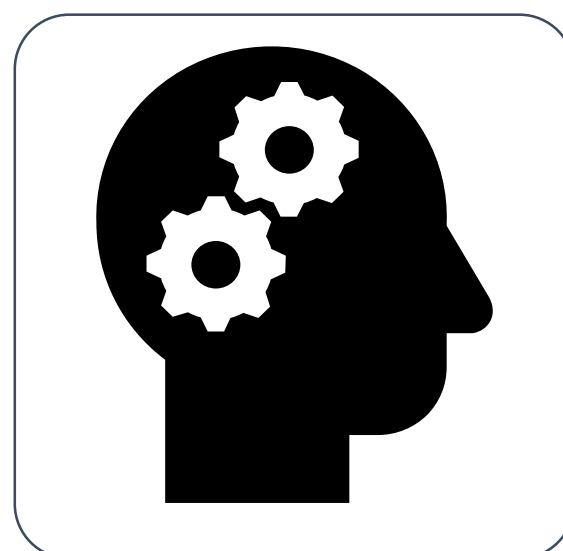
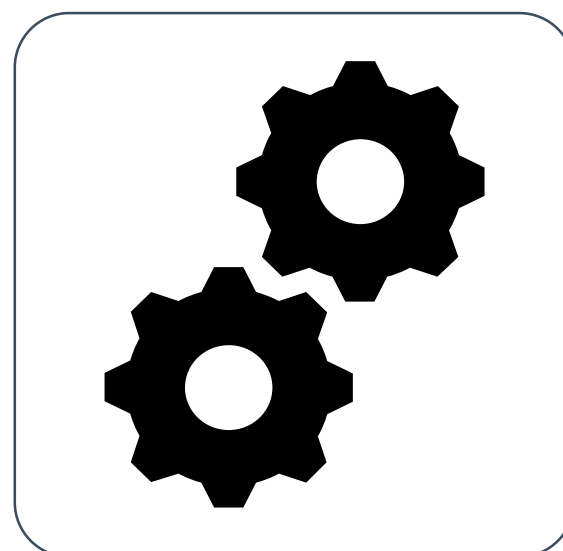
Expected capacity:
> 300 patients per year

CRITICAL ASSET = “Industry Leading MM Expert” Clinical Development Team

| <i>Name</i> | <i>Position(s)</i> |
|-------------------------------------|--|
| Jerome B. Zeldis, M.D., Ph.D. | Chief Medical Officer & President of Clinical Development |
| Ken Takeshita, MD | Sr VP Clinical Research |
| Robert Knight, MD | Sr VP Clinical Research |
| Mark Brunswick, Ph.D. | VP Regulatory Affairs and Quality |
| Stephen L Klinecicz, DO, MPH, JD | VP Pharmacovigilance and Clinical Operations |

> **Track record of success**

- > **Led development of MM drugs**
- IMiDs (more than \$8B in revenue)
 - Thalomid® (Thalidomide)
 - Revlimid® (Lenalidomide)
 - Pomalyst® (Pomalidomide)



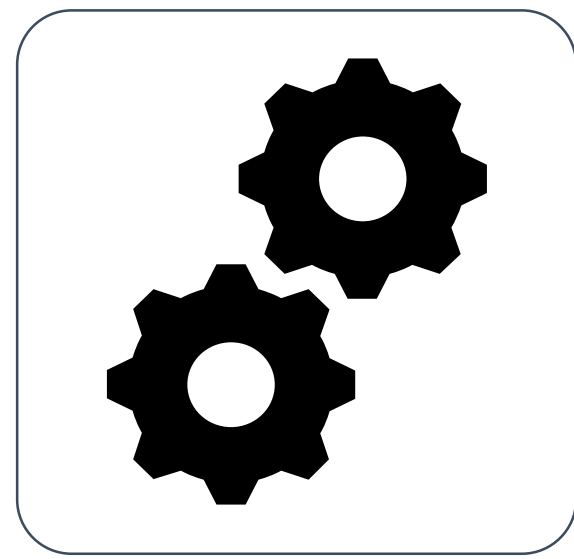
What's Next?

Future Direction for CAR-T & CAR-NK Therapies

- **“Viral-Free” CAR Expression**
- **“Off-the-Shelf” (allogeneic)**
- **Solid Tumor:**
 - **Local Infusion**
 - **“Combo” with Other Modalities**

Next-Generation SRNE CAR-T Therapies: potentially faster, cheaper and easier to make!

| Current Limitation | Next-generation Solutions |
|--|--|
| Viral vector-based transduction <ul style="list-style-type: none">➤ <i>Time to manufacture and release virus cGMP material</i> | Non-viral genetic modification <ul style="list-style-type: none">➤ <i>Faster preclinical development</i>➤ <i>Faster cGMP manufacturing steps (time & cost savings)</i> |
| Autologous (patient-derived) cells <ul style="list-style-type: none">➤ <i>Weeks until therapy manufactured</i>➤ <i>Not all patients qualify for autologous approach</i>➤ <i>Manufacturing costs (GMP per patient)</i> | Allogeneic (“off-the-shelf”) donor cells <ul style="list-style-type: none">➤ <i>Available to patients immediately</i>➤ <i>Scalable manufacturing (many doses)</i> |
| Focus on hematological malignancies <ul style="list-style-type: none">➤ <i>Cleaner target (lineage-restricted antigens)</i>➤ <i>Easier access of CAR-T cells to tumor cells</i>➤ <i>Fewer immunosuppressive effects from tumor microenvironment (TME)</i> | Combination therapy to treat solid tumors <ul style="list-style-type: none">➤ <i>Loco-regional administration of CAR-T cells to avoid systemic exposure</i>➤ <i>Synergy from combination therapy (immuno-oncology mAb, oncolytic virus)</i>➤ <i>Genetically-engineered T cells resistant to immunosuppression</i> |



Sorrento KOKI™ CAR-T Technology

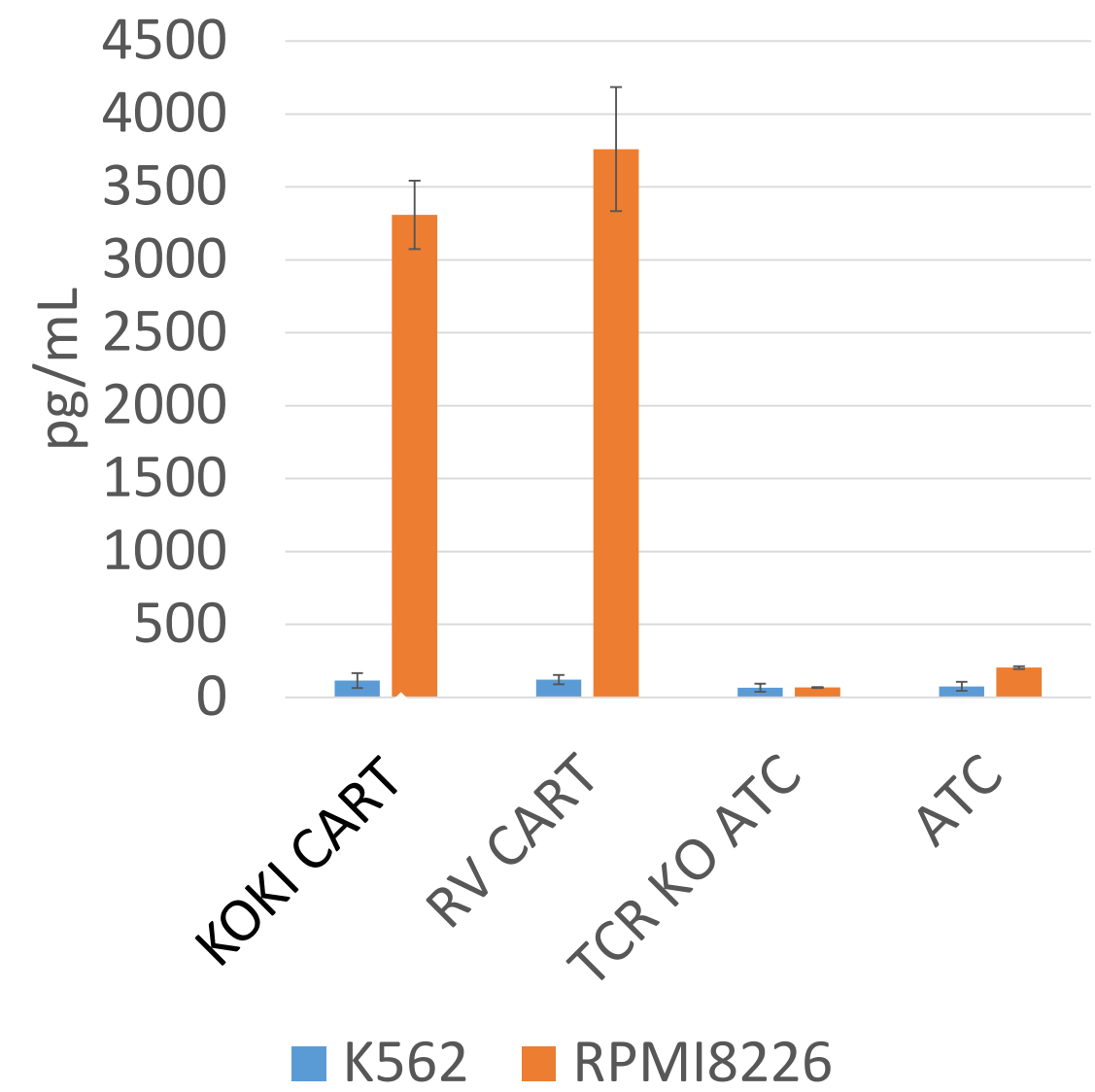
* KOKI = “Knock-Out/Knock-In” non-viral technology proprietary to Sorrento therapeutics for non viral CAR-T manufacturing

Non-Viral KOKI CD38-CAR-T Cells are Functionally Similar to retrovirally-transduced CD38-CAR-T Cells

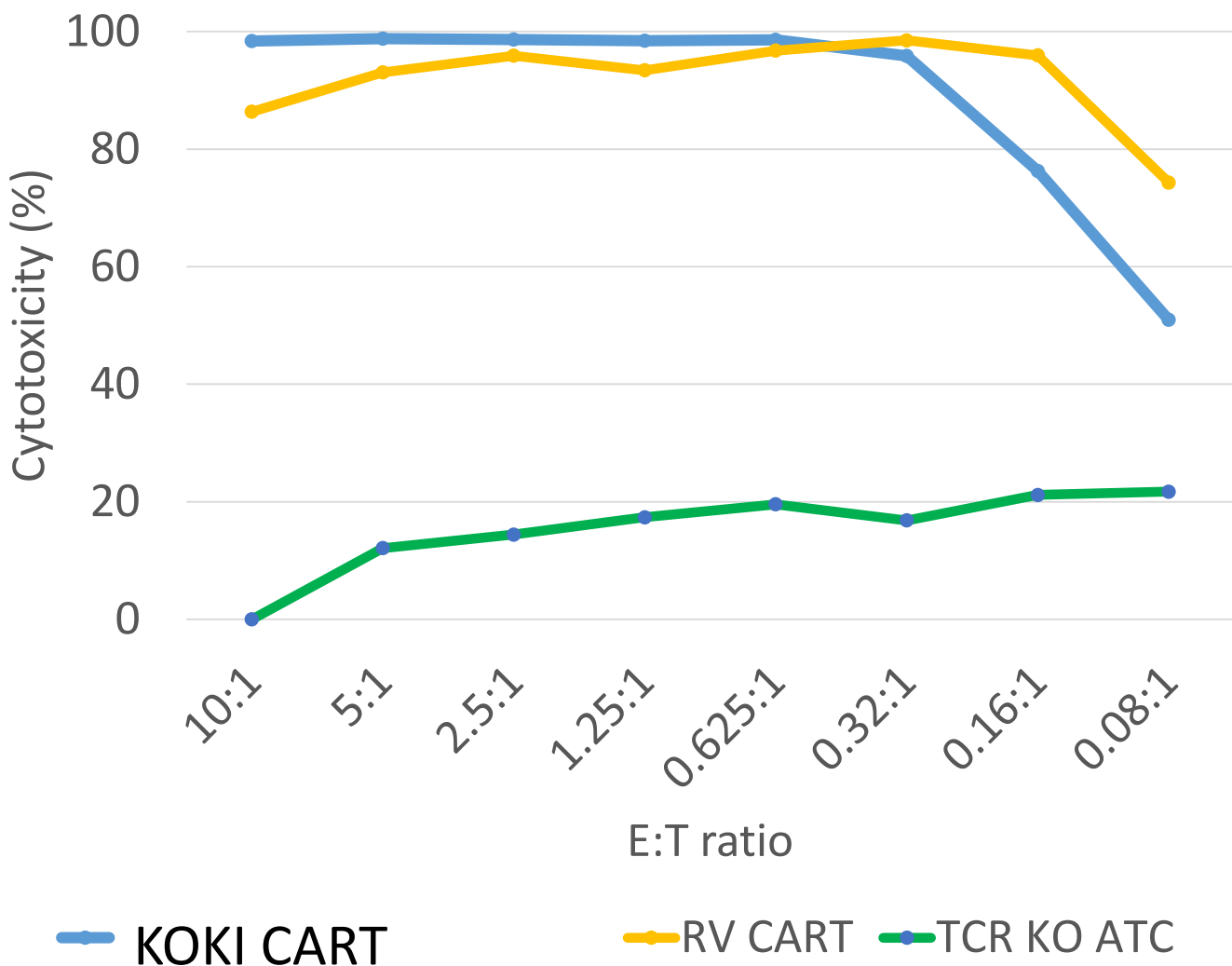
CAR Expression

| Donor | CAR expression (KOKI) | CAR expression (RV) |
|-------------|-----------------------|---------------------|
| A (exp. #1) | 57% | 78% |
| A (exp. #2) | 80% | 71% |
| B | 72% | 48% |

Cytokine Release
(Interferon-γ)

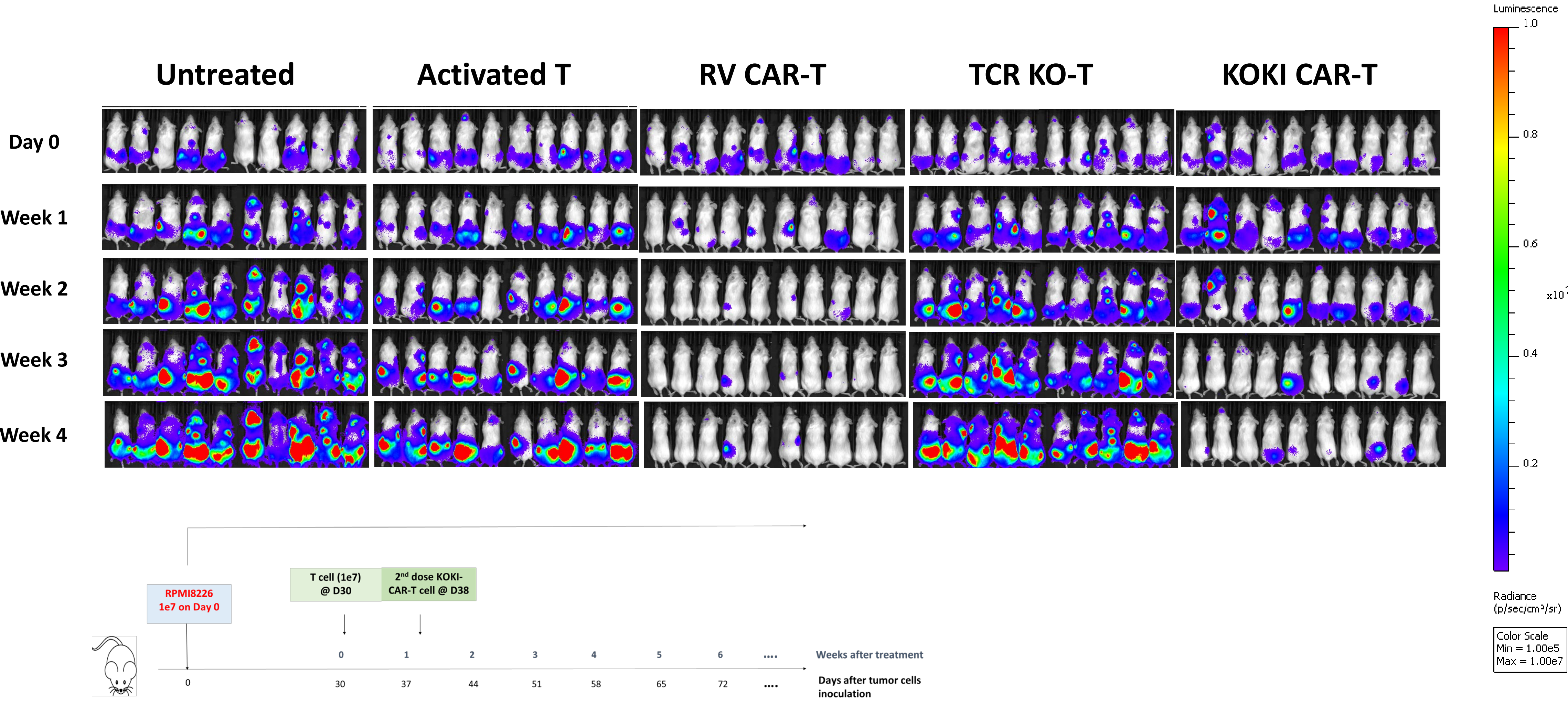


Target Specific Cytotoxicity



Donor A (#1) Cytokine analysis: 24 hours co-cultured with K562 or RPMI8226
Donor A (#1) Cytotoxicity: 3 days co-cultured with K562 and RPMI8226

Anti-Tumor Activity of non-viral KOKI CD38 CAR-T Cells in RPMI8226 Model (ongoing)



Non-Viral KOKI CAR-T Technology (Summary)

› **Genetic modification**

- results in up to 40-80% CAR-positive T cells (comparable to RV transduction)
- Knock-out of TCR

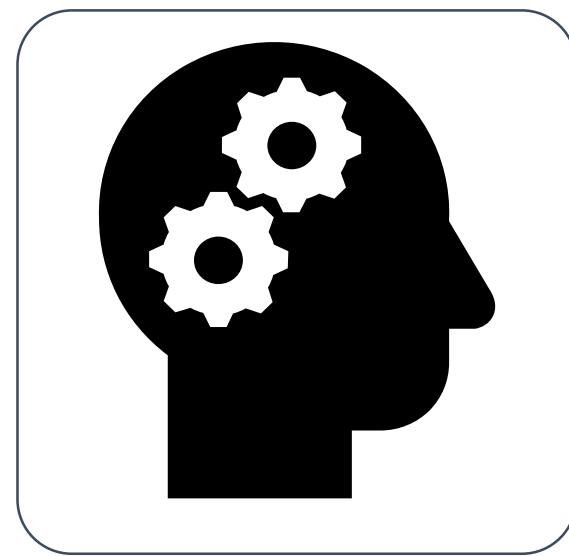
› **Proof-of-concept for 2 different CARs**

- anti-CD38
- anti-CD19

› **In vitro activity comparable RV-transduced CAR-T**

› **In vivo evaluation is ongoing**

› **IND filing planned for 2H 2018**



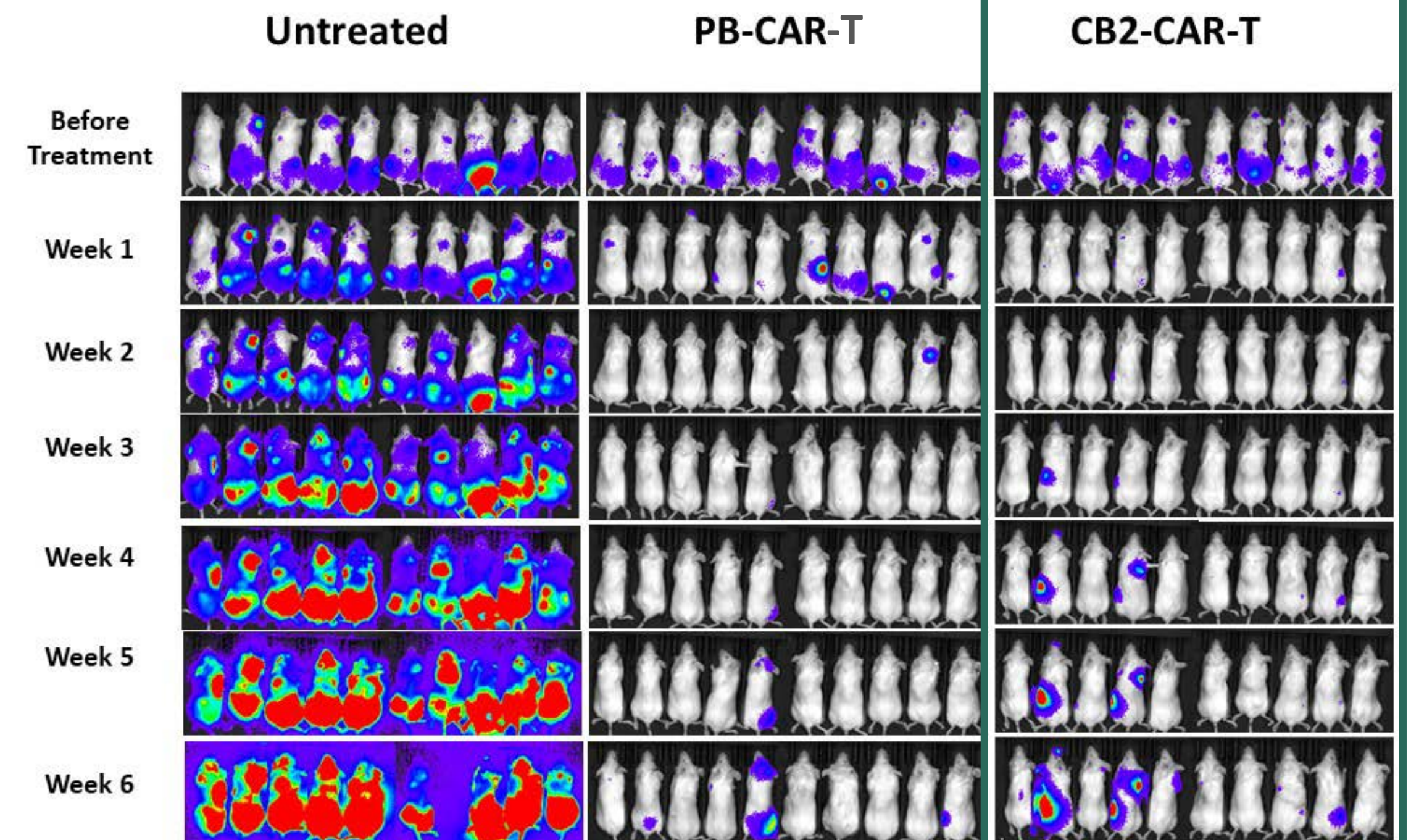
Sorrento
CD38 CAR-T “CBA”
(Cord Blood Allogeneic)

Eradication of CD38+ Human Multiple Myeloma in NSG Mice by Anti-CD38 CAR-T CBA Cells

- CAR-T cells were successfully generated from Cord Blood.
- CB-CAR-T cells produced less cytokines than PB-CAR-T cells when activated by targeted antigen.
 - Potentially lower risk of severe cytokine release syndrome (CRS).
- CB-CAR-T cells exhibited similar specific anti-tumor cytotoxicity as PB-CAR-T in vitro.
- CB-CAR-T cells demonstrated anti-tumor activity against MM tumor cells in an animal model.

Our results indicate that anti-CD38 CB-CAR-T cells exhibit strong CD38-specific anti-MM tumor activity in vitro and in vivo.

Off-the-Shelf
Cord Blood
CAR-T Cells



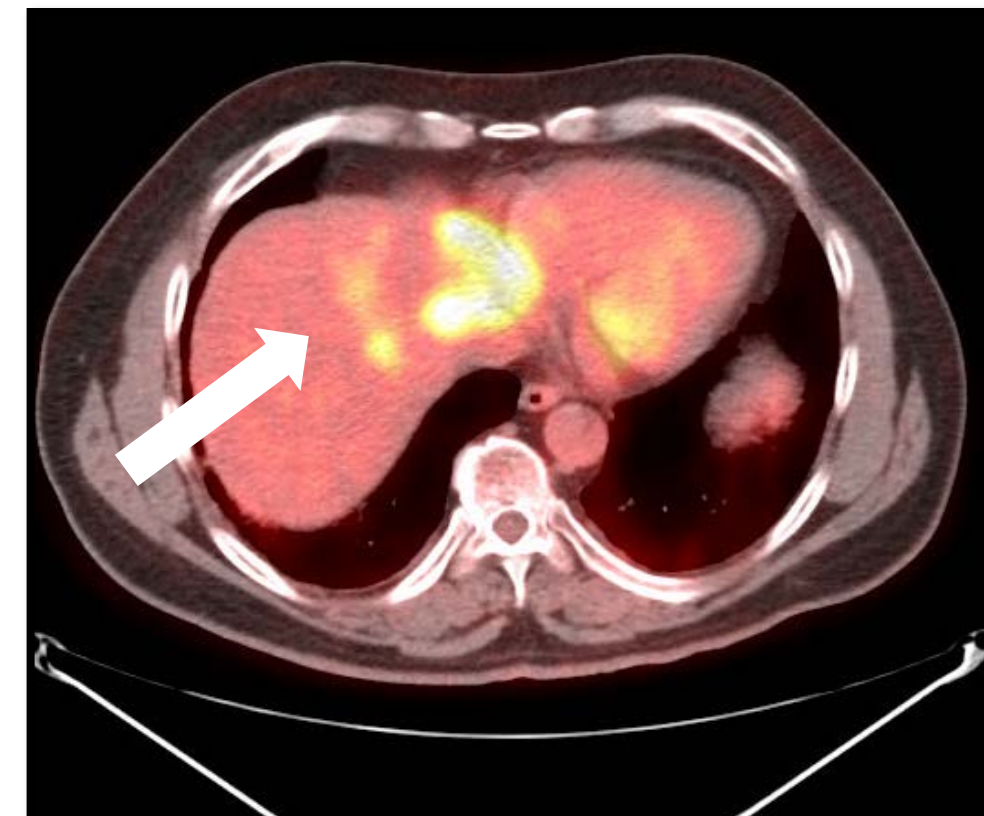
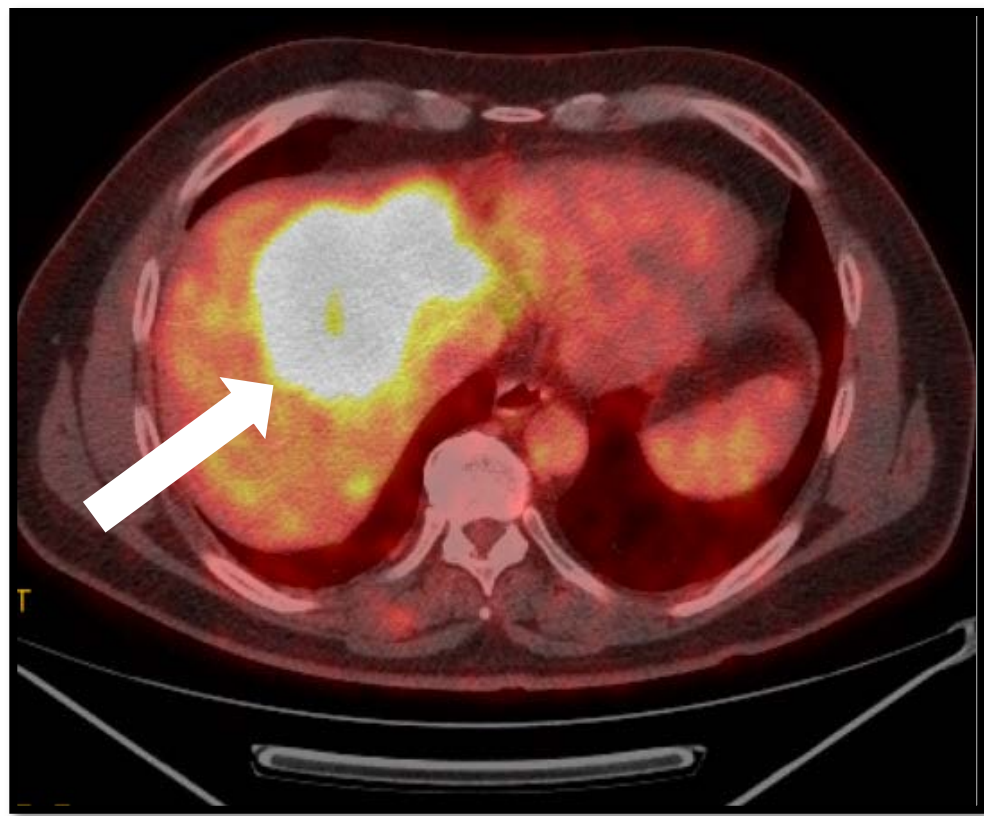
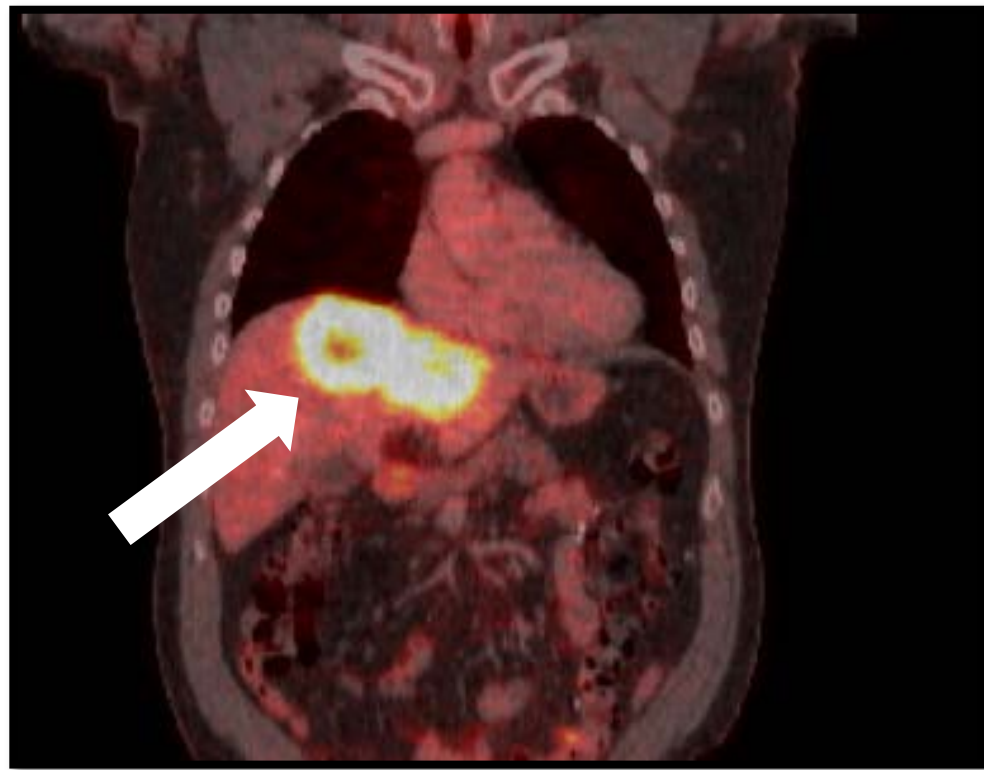
Allogeneic Cell Therapies – Sorrento's Strategic Partner: Celularity

› Utilizes cells derived from cord blood or placental tissue

- Celularity raised \$250M in funding; Sorrento holds 25% equity stake
- assets contributed by Sorrento, Celgene Corporation (CELG), United Therapeutics (UTHR) and Human Longevity, Inc.
- only company with an allogeneic placental cell platform
- placental stem cells are uniquely immune privileged not requiring cells to be engineered or matched for each individual patient.
- placental stem cells allow for unprecedented scalability of Celularity's CAR-T and CAR-NK platforms

CEA CAR-T for Liver Metastases

HITM Phase 1: Patient 5 Clinical Summary



BL

Post-Infusion

Pre-enrollment history

- › Liver-only metastatic colon cancer
- › Failed 3 lines of conventional chemotherapy and ablation

On study events

- › No detectable serum CEA; expression confirmed on tumor biopsy specimens
- › Grade 1 fever and grade 3 emesis
- › Liver metastasis metabolic response on PET
- › No extrahepatic disease developed

Follow-up

- › Excellent post-study quality of life
- › **51 month survival**

HITM-SURE Phase 1b (initial first 3 patient data)

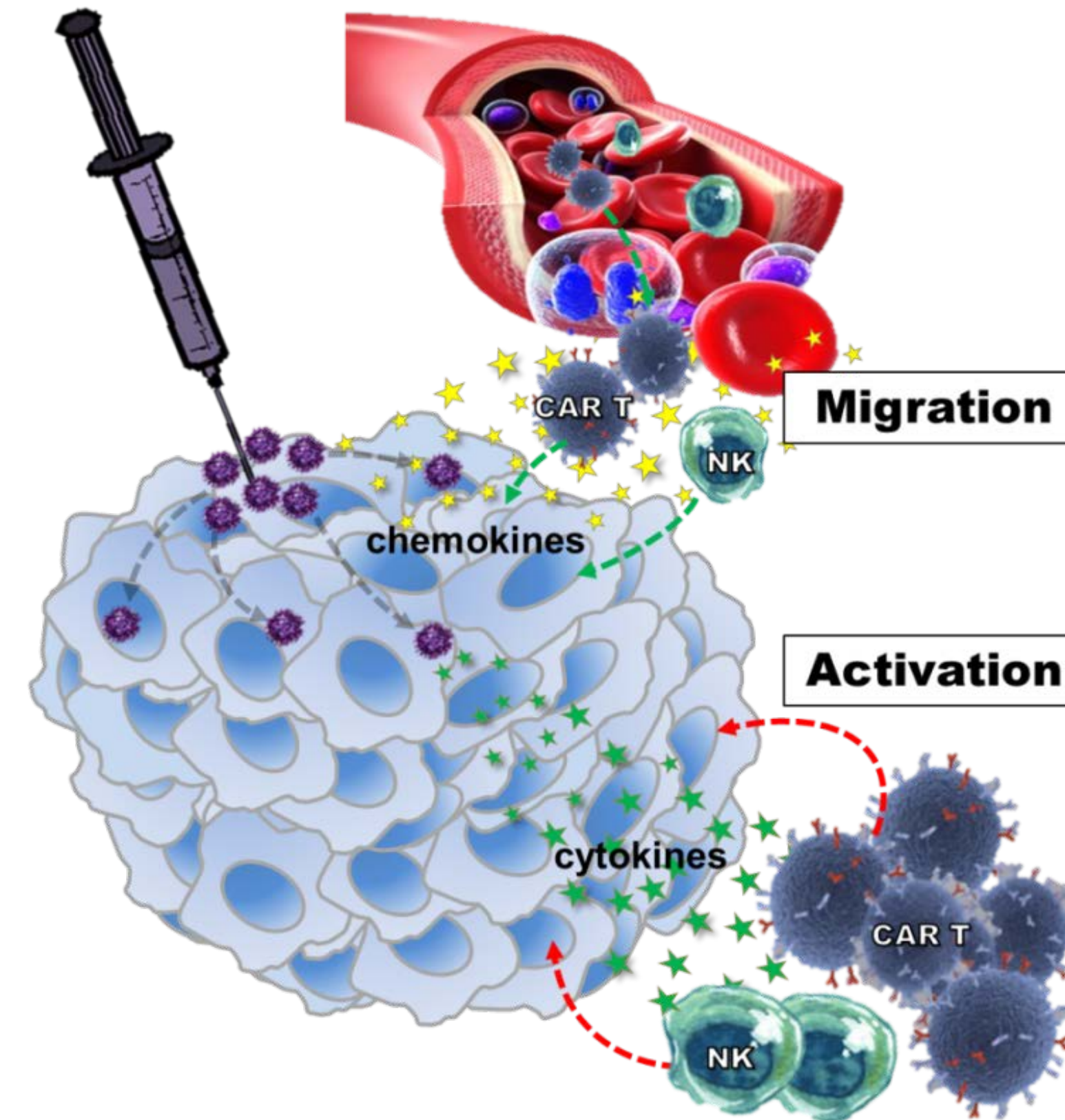
“One subject with stage IV pancreas cancer has no viable liver metastases by PET scan 11 months after treatment”

Press Release 03/05/18

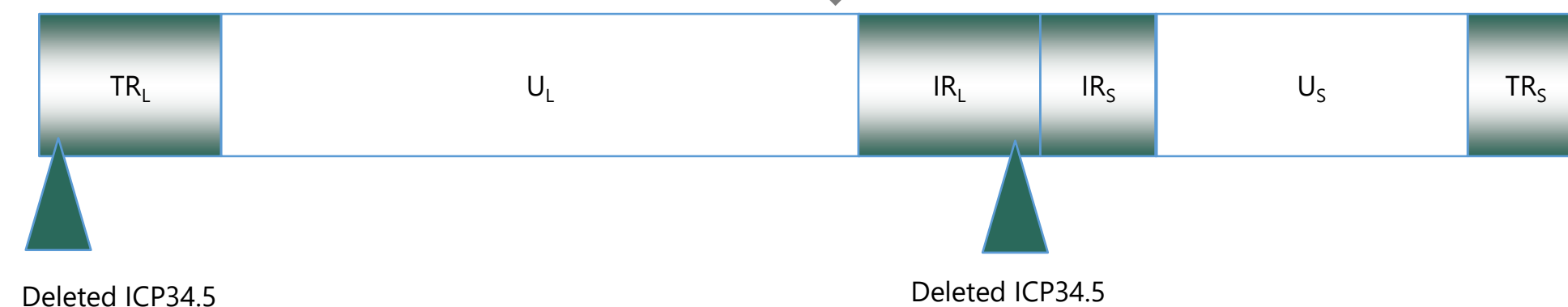
CAR-T
+
Oncolytic Virus

Oncolytic Viruses: Potential Synergy with Cell-Based Immuno-Therapeutics

- augmenting T cell migration
- and*
- enhancing T cell activation



SEPREHVIR: Leading Next-Generation HSV-1 based Oncolytic Virus Immunotherapy



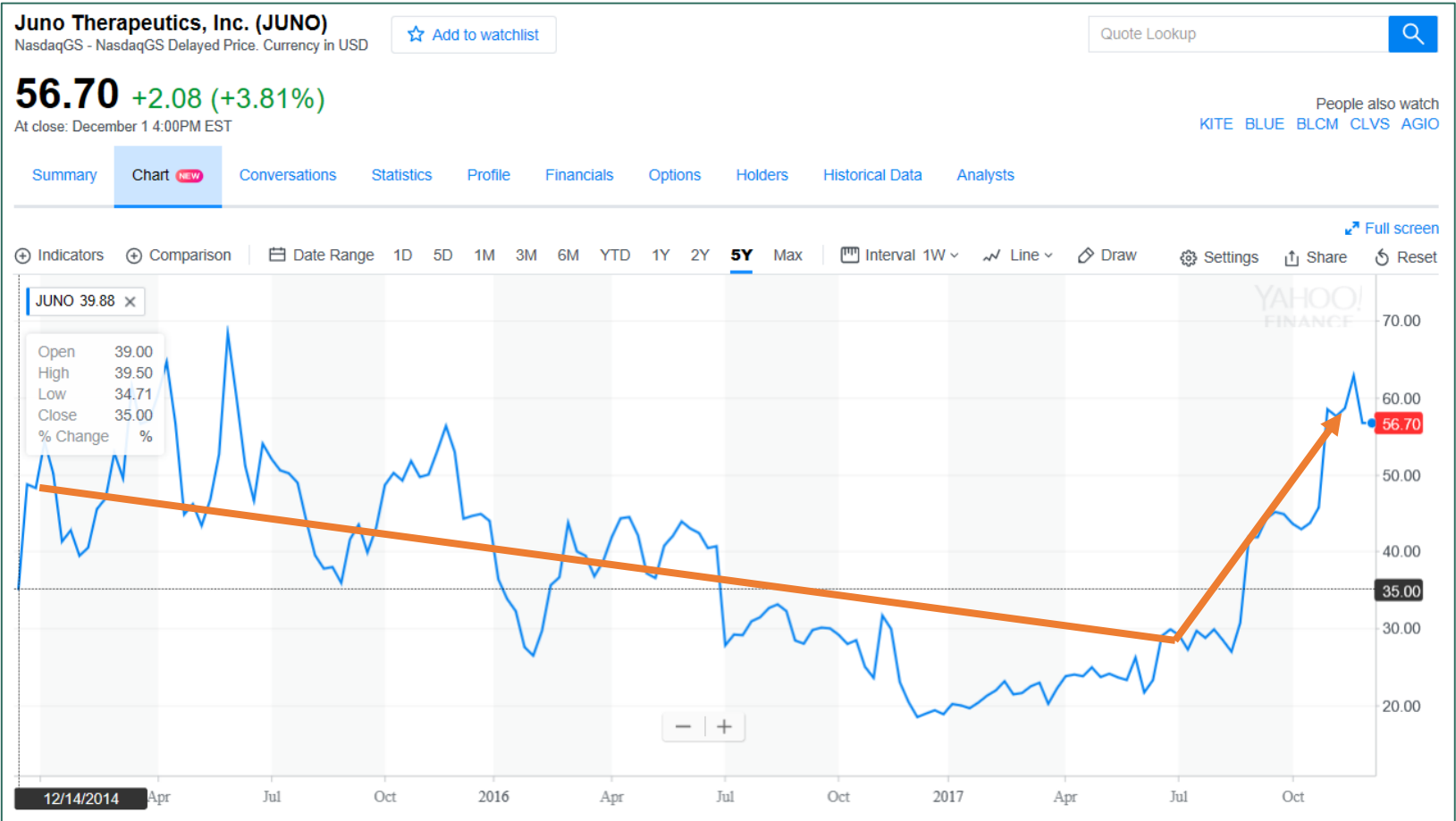
- **Seprehvir (HSV1716) is a Phase II-ready HSV-1 based immuno-oncolytic therapy with over 100 patients treated to date**
- **Designed with the ability to specifically target and destroy tumor cells while also stimulating an anti-tumor T-cell mediated immune response**
- **5 Phase I Trials: High Grade Glioma, SCCHN, melanoma, mesothelioma, pediatric neuroblastoma/osteosarcoma**
- **Well tolerated, no toxicity and expected AEs have been mild and transient**
- **Ability to be delivered intratumorally and systemically could provide administration advantages versus recently approved HSV-1 oncolytic viral immunotherapy, IMLYGIC™ (Amgen)**
- **Phase II trial in planning phase**

Leading Players in the CAR-T Space

CD19 CAR-T

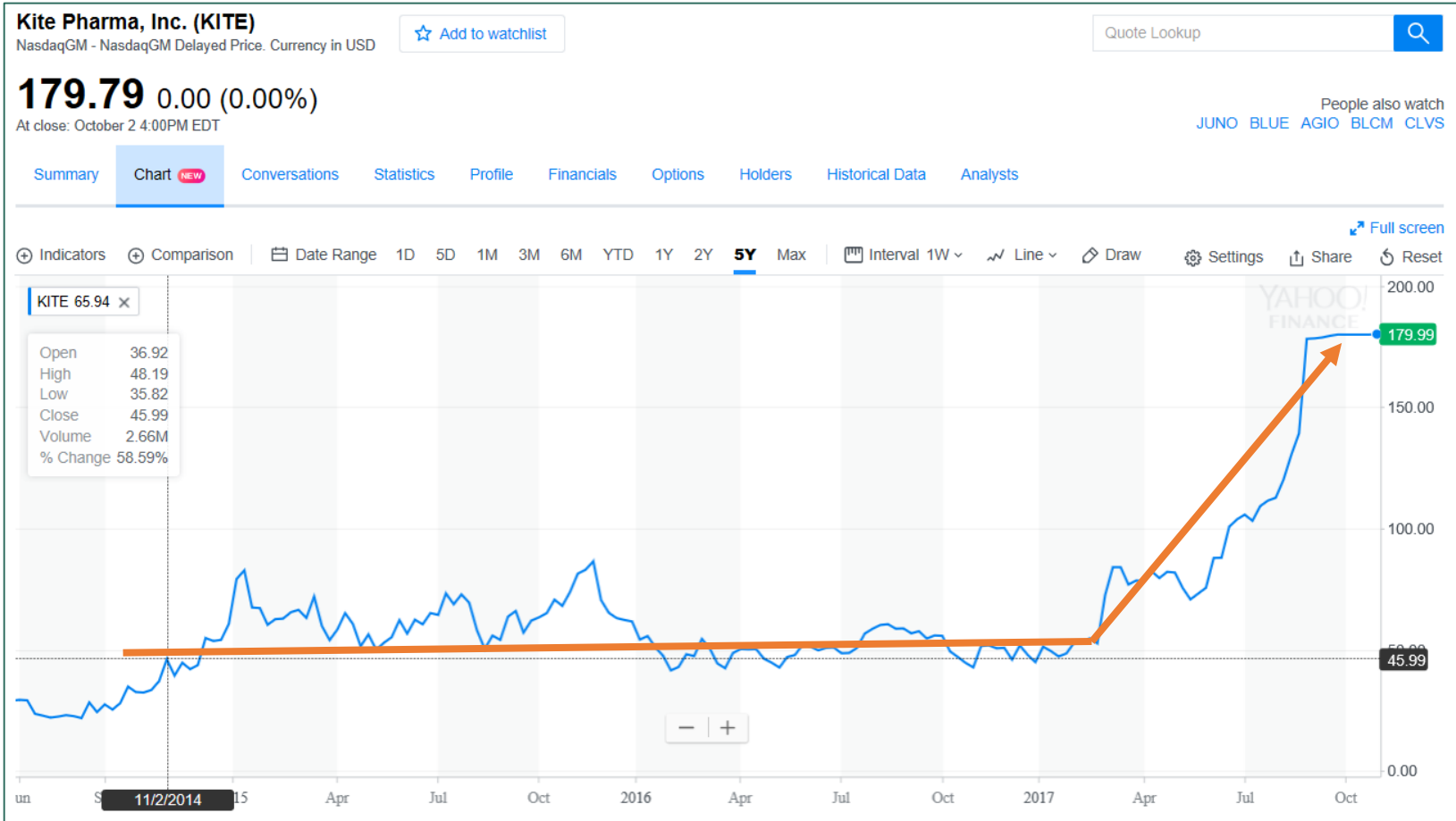
JUNO

\$9B (01/22/18)



KITE

\$11.8 B (2017)



BCMA CAR-T

BLUE

\$8.1 B
(04/06/18)

CD38 CAR-T

SRNE

\$0.5 B
(04/06/18)

Timetable and Upcoming Milestones

| Lead Development Programs | IND | Phase 1 | Phase 2 | Phase 3 | NDA submission |
|--|------|------------|---------|---------|----------------|
| CD38 CAR-T (Multiple Myeloma) | | Recruiting | | | |
| CD38 ADC (Multiple Myeloma) | 2H18 | | | | |
| RTX (resiniferatoxin) - intractable pain (terminal cancer) | | Recruiting | | | |
| RTX (resiniferatoxin) - articular pain (osteoarthritis) | 1H18 | | | | |

> **CD38 CAR-T (with partner Celularity, Inc)**

- Phase 1 refractory or relapsing multiple myeloma study currently recruiting patients
<https://clinicaltrials.gov/ct2/show/NCT03464916?term=cd38&rank=1>

> **CD38 ADC**

- 2H18 = IND filing

> **RTX (resiniferatoxin)**

- Phase 1 intractable cancer pain (epidural) currently recruiting patients
<https://clinicaltrials.gov/ct2/show/NCT03226574?term=resiniferatoxin&rank=3>
- 1H18 IND filing (Phase 1) for osteoarthritis pain (intra-articular) and First in Human patient treatment

> **ZTlido™ (lidocaine topical system 1.8%)**

- 2019 European approval

Sorrento’s Senior Leadership Team

| <i>Name</i> | <i>Position(s)</i> |
|--------------------|--|
| Henry Ji, Ph.D. | Chairman & CEO |
| George Ng, J.D. | EVP, Chief Administrative Officer & Chief Legal Officer |
| Jiong Shao | EVP, Chief Financial Officer |
| Alexis Nahama, DVM | VP Corporate Development and President Ark Animal Health |
| Hui Li, PhD | VP Business Development and General Manager China Operations |
| Bill Farley | VP Business Development and Corporate Development (east coast) |

| <i>Name</i> | <i>Position(s)</i> |
|----------------------------------|--|
| Jerome B. Zeldis, M.D., Ph.D. | Chief Medical Officer & President of Clinical Development |
| Mark Brunswick, Ph.D. | VP Regulatory Affairs and Quality |
| Robert Knight, MD | Sr VP Clinical Research |
| Ken Takeshita, MD | Sr VP Clinical Research |
| Stephen L Klinecicz, DO, MPH, JD | VP Pharmacovigilance and Clinical Operations |
| Gunnar F. Kaufmann, Ph.D. | Sr VP of Immunotherapy, Head of Research and Global Partnerships |

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