LAVA THERAPEUTICS

Gamma-delta T-cell engagers for the development of next-generation cancer therapeutics

Corporate Presentation

January 2024

Legal Disclosure: Forward-looking Statements

This presentation contains statements that constitute forward-looking statements. Many of the forward-looking statements contained in this presentation can be identified by the use of forward-looking words such as “anticipate,” “believe,” “could,” “expect,” “should,” “plan,” “intend,” “estimate” and “potential,” and similar terms and phrases. Forward-looking statements appear in a number of places in this presentation and include, but are not limited to, statements regarding our intent, belief or current expectations. Forward-looking statements are based on our management’s beliefs and assumptions and on information currently available to our management. Such statements are subject to risks and uncertainties, and actual results may differ materially from those expressed or implied in the forward-looking statements due to various important factors. These risks and uncertainties include, among other things, the potential use of our product candidates, either alone or in combination with other products, to treat various tumor targets; the timing and results of our research and development programs, preclinical studies and clinical trials, including the availability of data therefrom, expectations regarding enrollment in clinical trials, the timing of our clinical trial for LAVA-1207, and the submission of INDs or CTAs for our other product candidates; the expected safety profile of LAVA’s product candidates; our ability to develop and obtain regulatory approval for and commercialize any of our product candidates; the ability of low-dose interleukin-2 to increase the number of Vγ9Vδ2 T-cells available for engagement by LAVA’s product candidates; the potential synergies between LAVA’s product candidates and other immune-oncology approaches; the potential market opportunity our product candidates seek to address; our intellectual property position; the ability of LAVA’s collaborators to support or advance collaborations or our product candidates; any payments to us under our license agreement with Seagen or our agreements with our collaborators and our cash runway; our ability to leverage our initial programs to develop additional product candidates using our Gammabody® platform; statements about expected manufacturing and product supply; and the risk that positive results in a preclinical study or clinical trial may not be replicated in subsequent trials or success in early stage clinical trials may not be predictive of results in later stage clinical trials. In addition, there may be adverse effects on our business condition and results from general economic and market conditions and overall fluctuations in the United States and international equity markets, including deteriorating market conditions due to investor concerns regarding inflation, interest rates, hostilities between Russia and Ukraine or Israel and Hamas, and recent and potential future disruptions in access to bank deposits or lending commitments due to bank failures. For a discussion of other risks and uncertainties, and other important factors, any of which could cause our actual results to differ from those contained in the forward-looking statements, see the "Risk Factors" section, as well as discussions of potential risks, uncertainties and other important factors, in the filings we make with the Securities and Exchange Commission from time to time.

Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified and some of which are beyond our control, you should not rely on these forward-looking statements as predictions of future events. Although we believe that we have a reasonable basis for each forward-looking statement contained in this presentation, the events and circumstances reflected in our forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. We qualify all of our forward-looking statements by these cautionary statements.

Any forward-looking statements represent the Company’s views only as of the date of this presentation and do not represent its views as of any subsequent date. The Company explicitly disclaims any obligation to update any forward-looking statements. By attending this presentation, you acknowledge and agree that you are cautioned not to place undue reliance on any forward-looking statements, and that you will conduct your own analysis and be solely responsible for forming your own view of the potential future performance of the Company.

Investment Highlights

Proprietary Gammabody® platform

Platform selectively and conditionally activates Vδ2[1] T-cells upon cross-linking with a TAA.
Anticipate reduced risk of high-grade CRS with preferential tumor recognition expected to limit on-target/off-tumor toxicities.
Growing pipeline of bispecific T-cell engagers led by clinical-stage prostate cancer program

Promising Lead for mCRPC

Phase 1 data (ASCO GU 2023) showed good tolerability, with continued evidence of antitumor activity
Study update planned for Q3 2024

Growing Pipeline

IND/CTA submission for LAVA-1266 (CD123) for hematologic malignancies: expected in H1 2024

Validating Strategic Partners

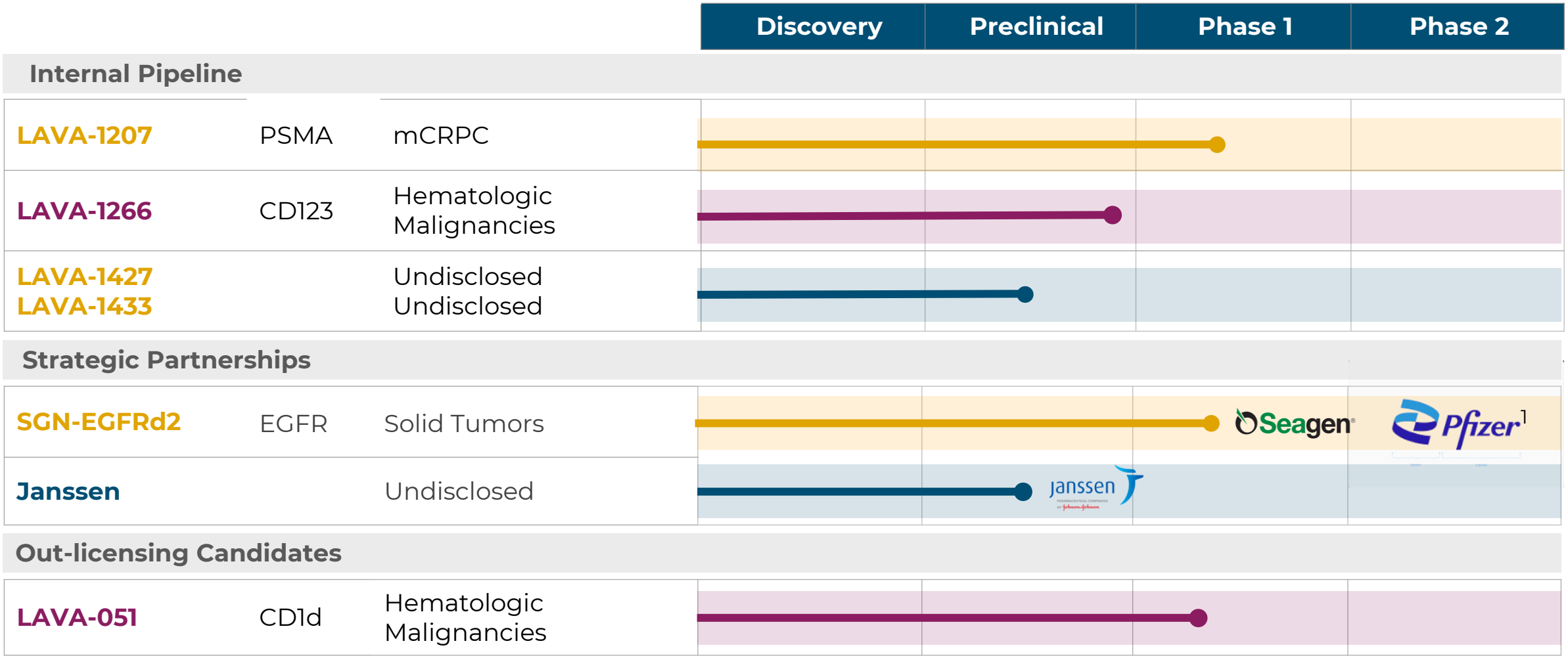
Seagen/PFE worldwide license agreement for SGN-EGFRd2 (LAVA-1223) for EGFR+ tumors, in Phase 1
Janssen collaboration has selected a lead candidate, in preclinical development

Strong Team, IP and Cash Position

Experienced management team, with a strong IP portfolio and a cash balance of $105 million[2], with an expected runway into 2026

1. Gamma-delta T-cells are abbreviated as Vγ9Vδ2 or Vδ2 in this deck. 2. Based on cash, cash equivalents and investments as of September 30, 2023, TAA = tumor-associated antigen, CRS = Cytokine Release Syndrome

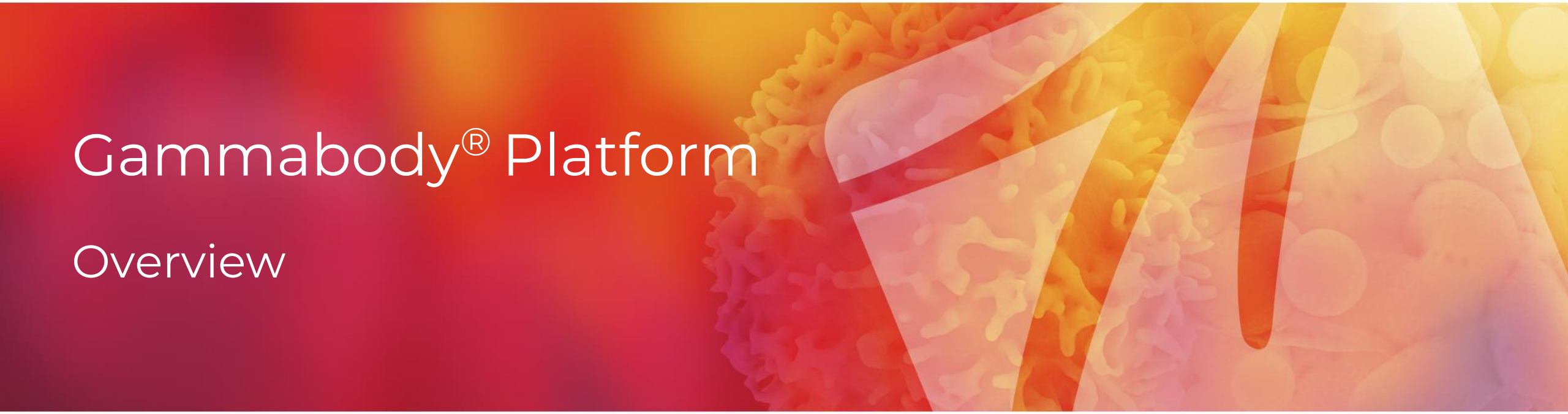
Gammabody® Pipeline: Potential in Hematologic Malignancies and Solid Tumor Indications



1. As of December 14, 2023, Pfizer completed its acquisition of Seagen. PSMA: prostate-specific membrane antigen; EGFR: epidermal growth factor receptor; mCRPC: metastatic castration-resistant prostate cancer

Gammabody® Platform

Overview



Proprietary Gammabody® Platform Induces Potent Killing of Tumor Cells

Targeting Vδ2 T-cells

Activated Vδ2 T-cells have a natural ability to recognize and selectively kill tumor cells and trigger a cascade of anti-cancer immune responses. Positively associated with patient outcomes

Bispecific antibodies designed to engage Vδ2 T-cells and widen the therapeutic window

Gammabody® platform selectively and conditionally activates Vδ2 T-cells upon cross-linking with a tumor-associated antigen. Anticipated reduced risk of high-grade CRS with preferential tumor recognition expected to limit on-target/off-tumor toxicities.

Designed for efficient performance

Humanized single-domain antibodies (VHHs) linked to a silent Fc for half-life extension

Safety profile could support combination therapy

Supported by strong IP

Potential patent coverage ranging from 2035 to 2041

Platform coverage as well as product-specific coverage for assets

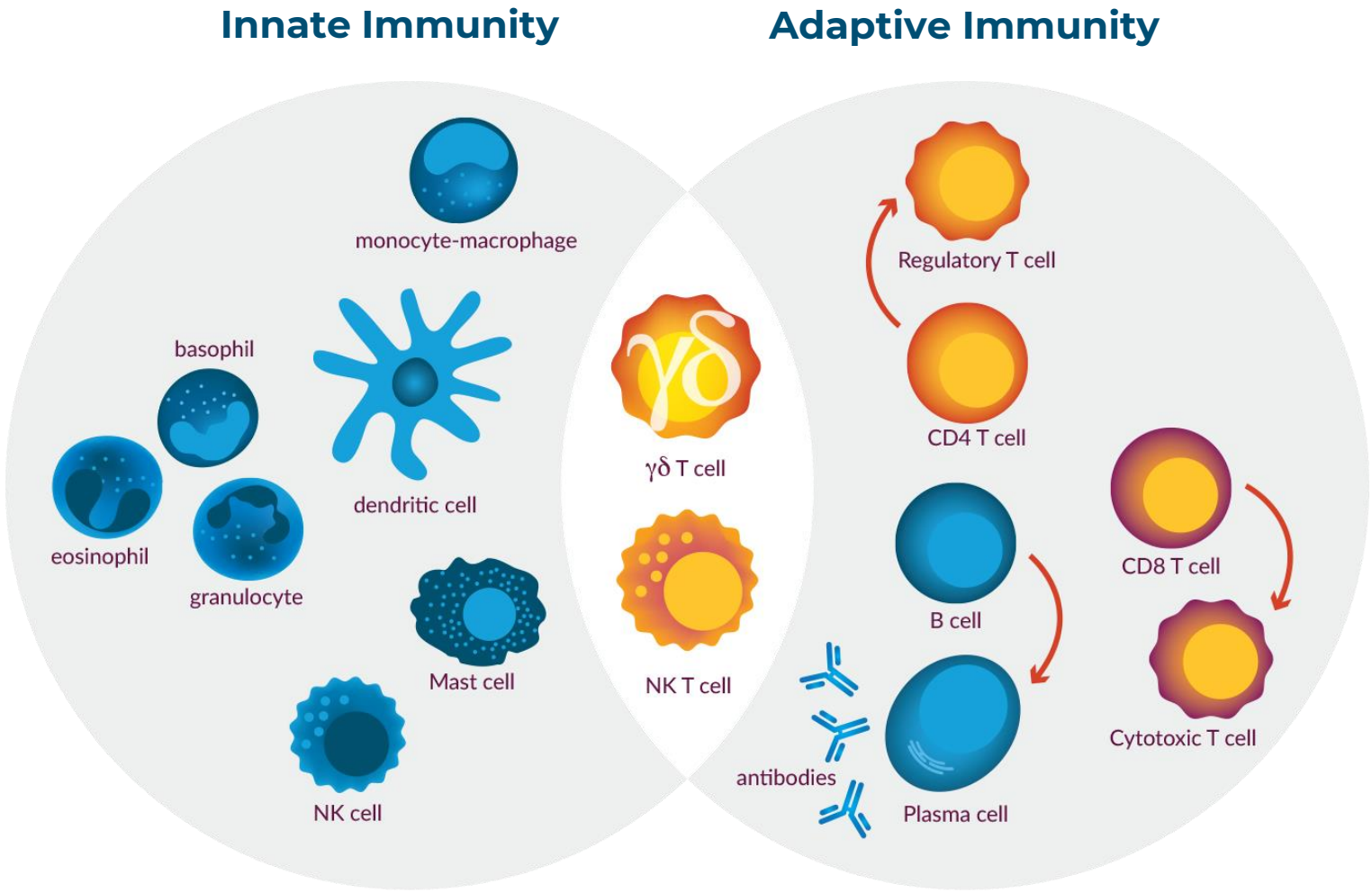
Broad opportunity in solid tumors, hematologic malignancies

T-cell engagers represent a growing therapeutic class

Analysis of Vδ2 T-cell distribution outlines a road map of target indications

Vδ2 T-Cells

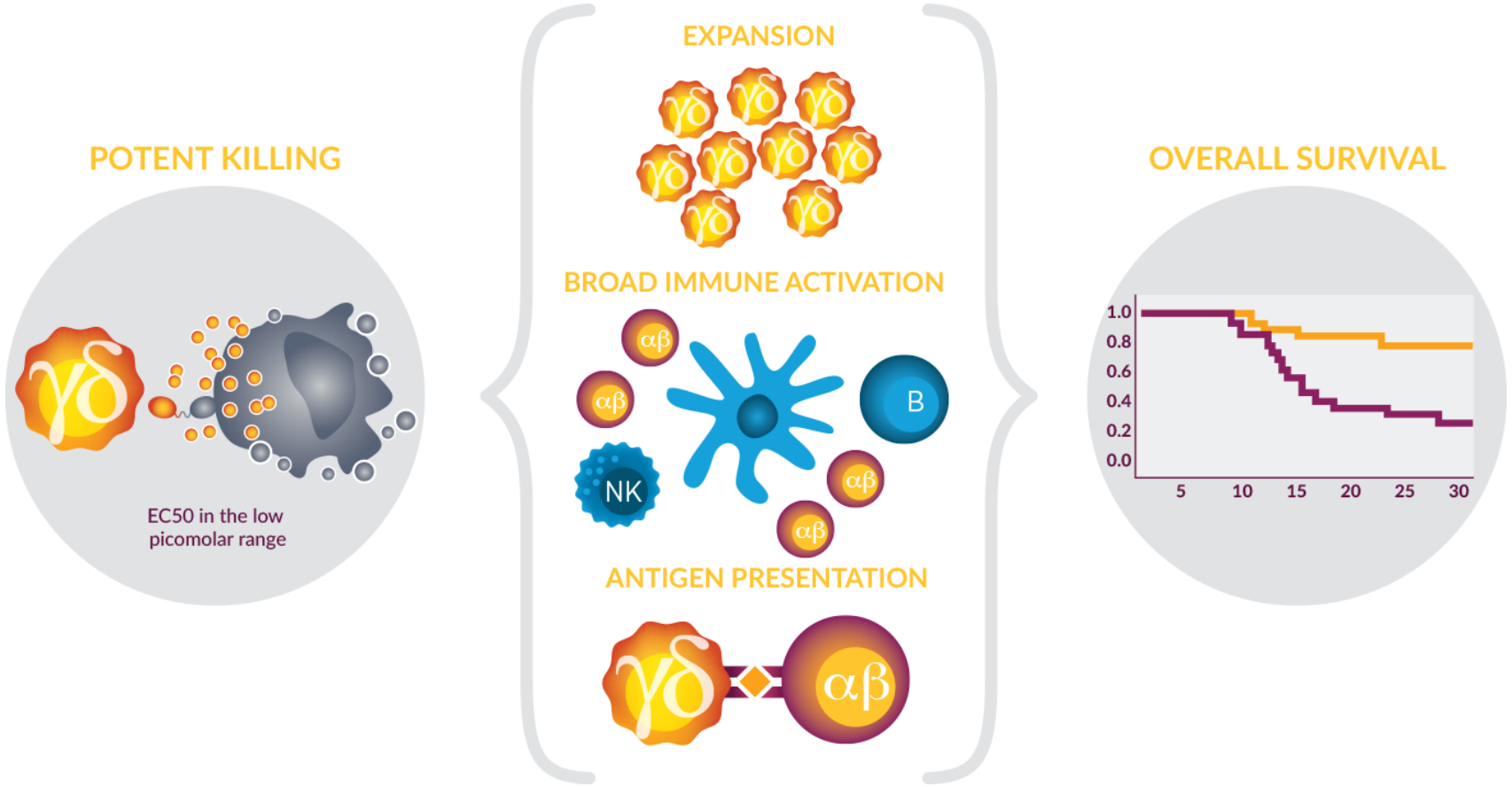
Positioned at the interface between innate and adaptive immunity



- Largest γδ T-cell subset in blood: (~90-95% of total γδ T- cells)
- Natural ability to recognize and kill tumor cells
- Presence of γδ T-cells associated with improved outcomes in cancer patients
- Recognize tumors through phosphoantigen-BTN2A1/3A1 complex
- Consistent pro-inflammatory cytotoxic effector T-cell population

 Adapted from Dranoff G, Nature Rev Cancer 2004; 4: 11-22 Kabelitz D et al., Cell Mol Immunol 2020; 17: 925–939

Selective Activation of Vδ2 T-Cells has the Potential to Induce Durable Tumor Responses and Improve Patient Survival



Selective activation of Vδ2 T-cells has the potential to yield potent tumor killing and durable responses through a cascade of mechanisms that may include Vδ2 T-cell expansion, broader immune activation and antigen presentation

 Adapted from Dranoff G, Nature Rev Cancer 2004; 4: 11-22 Kabelitz D et al., Cell Mol Immunol 2020; 17: 925–939

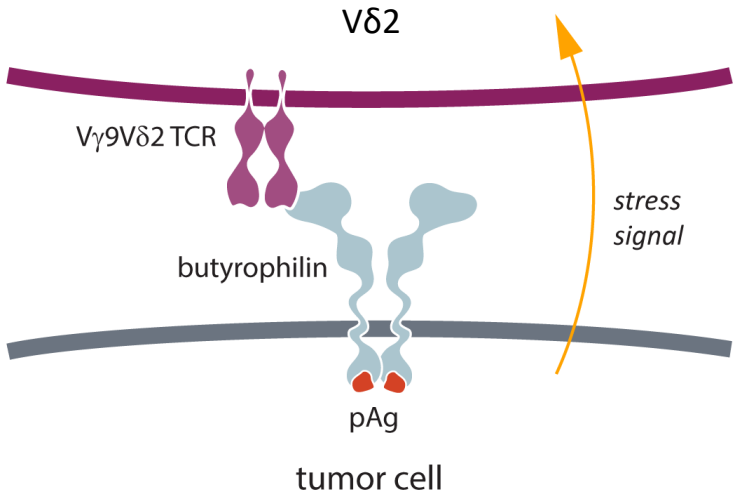
Gammabody® Platform: Specifically Directs Vδ2 T-Cells to Tumors

Highly selective platform designed to induce potent tumor killing with limited on-target off tumor toxicity

Natural Activation Mechanism[1]

Vδ2 T-cells recognize stress signals

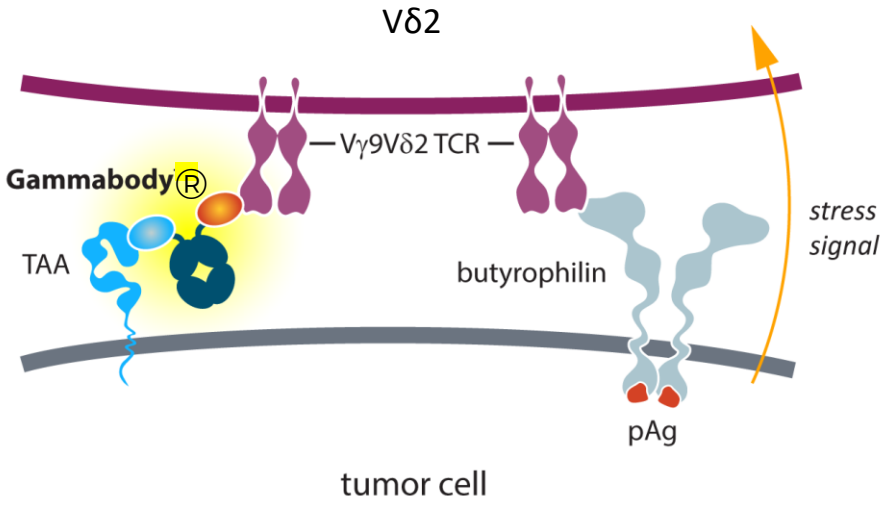
TCR interacts with pAg-butyrophilin complex



Gammabody® Provides Tumor Recognition to Trigger Vδ2 T-Cell-Mediated Immunity

Conditionally activate Vδ2 T-cells upon crosslinking with tumor associated antigen (TAA)

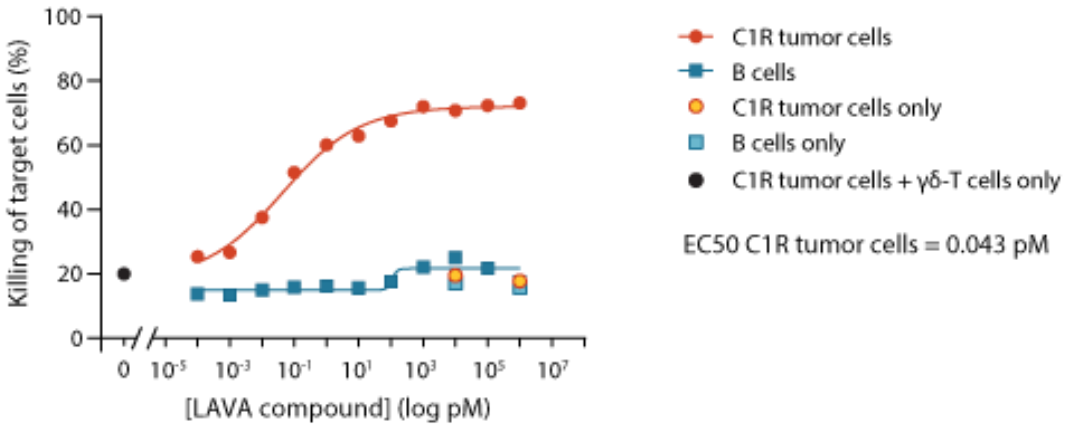
Natural recognition of stress signals continues



1. Mechanism of action illustrations: LAVA Therapeutics; pAg - phosphoantigen

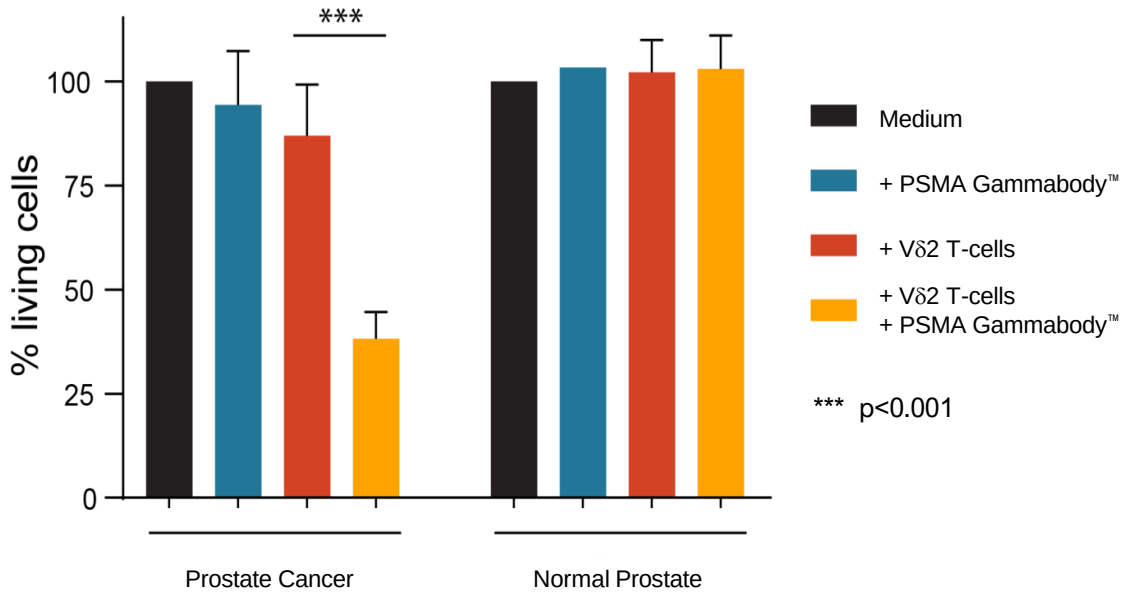
Key Features of the Gammabody® Platform

CD20 Gammabody® Mediated Killing[1]



- 2:1 ratio (γδ T-cells : Target cells)
- Similar CD20 expression levels on C1R neo and B-cells

PSMA Gammabody® Mediated Killing[1]



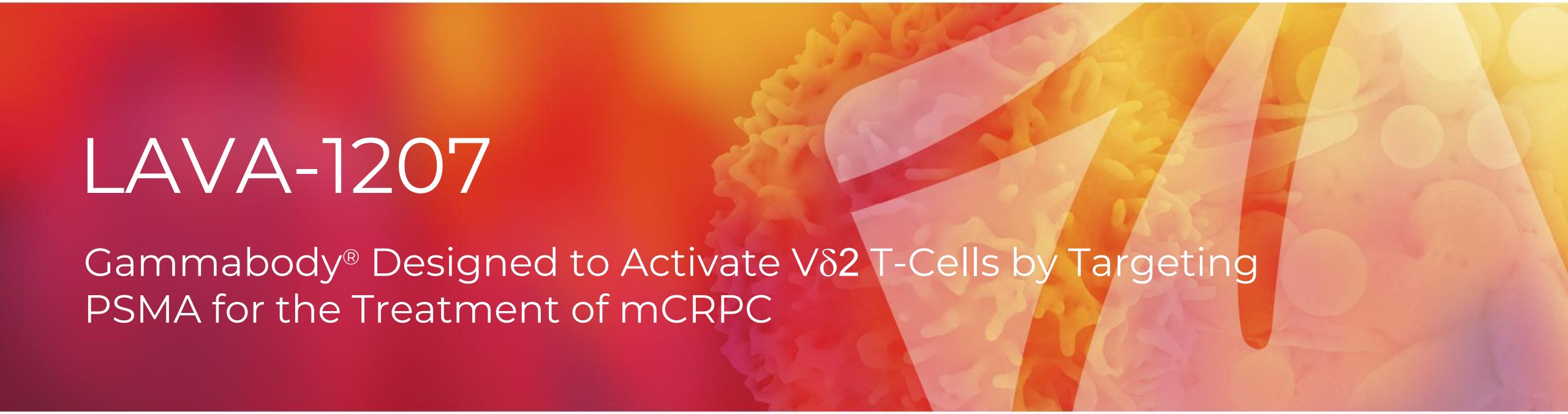
- Larger therapeutic window
- Preferential killing of cancer versus healthy cells demonstrated *in vitro* and *ex vivo*
- May prevent on-target/off-tumor mediated toxicity

- Allow for targeting of widely expressed tumor-associated antigens
- Facilitates higher dosing potential in monotherapy
- Opportunities for combination work

1. In preclinical models, LAVA Therapeutics, data on file

LAVA-1207

Gammabody® Designed to Activate Vδ2 T-Cells by Targeting PSMA for the Treatment of mCRPC



LAVA-1207 Targets PSMA: Enrolling in Phase 1/2a Study

Update expected Q3 2024

PSMA is a clinically validated target

Highly-expressed in >90% prostate cancers[1]. Higher levels negatively correlated with survival[2]

FDA approval of Pluvicto, a PSMA-targeted radiopharmaceutical, provides clinical validation

High unmet need

While early-stage outcomes are good, mCRPC prevalence is 50,000 in the U.S.[3]

With ~35,000 prostate-cancer related deaths annually in the U.S.[4], 5-year survival for mCRPC is ~30%[5]

mCRPC is a sensible Gammabody target

Relative abundance of Vδ2s makes metastatic castration-resistant prostate cancer (mCRPC) an attractive Gammabody target

Phase 1 enrollment

Enrollment is ongoing in the U.S. and Europe (NCT05369000)

Dosing regimen includes therapy with IL-2

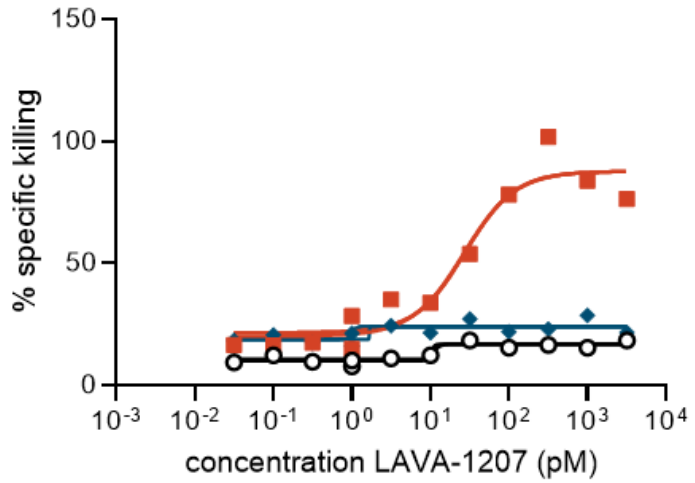
Study update

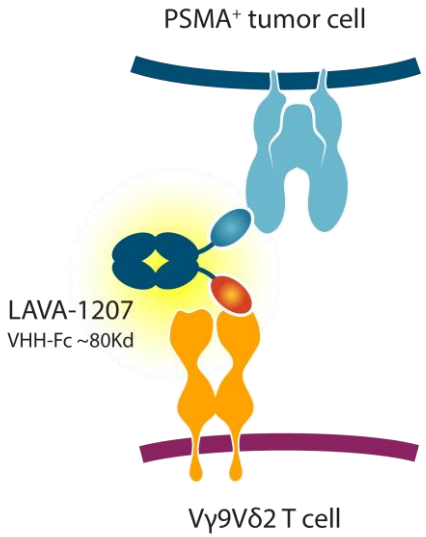
Preliminary signs of clinical activity observed with disease stabilization and PSA reduction during dose escalation

Next update planned for Q3 2024

Sources: Items 1-5: based on information from Cancer.Net® and FMI (Future Market Insights); IL-2 = Interleukin-2

LAVA-1207: Designed to Mediate Potent Killing of PSMA-Positive Tumor Cells





Format

- Contains a Fc domain for extended plasma half-life; silenced to avoid off-target T-cell activation
- Small size (compared to regular IgG antibodies) to facilitate tumor penetration

Mechanism of Action

- Specifically directs Vδ2 T-cells to PSMA-expressing tumor cells. PSMA is a well-validated tumor target
- Mediates potent killing of PSMA-positive tumor cells
- Pre-clinical data support mechanism of action, anti-cancer activity & selectivity

Status

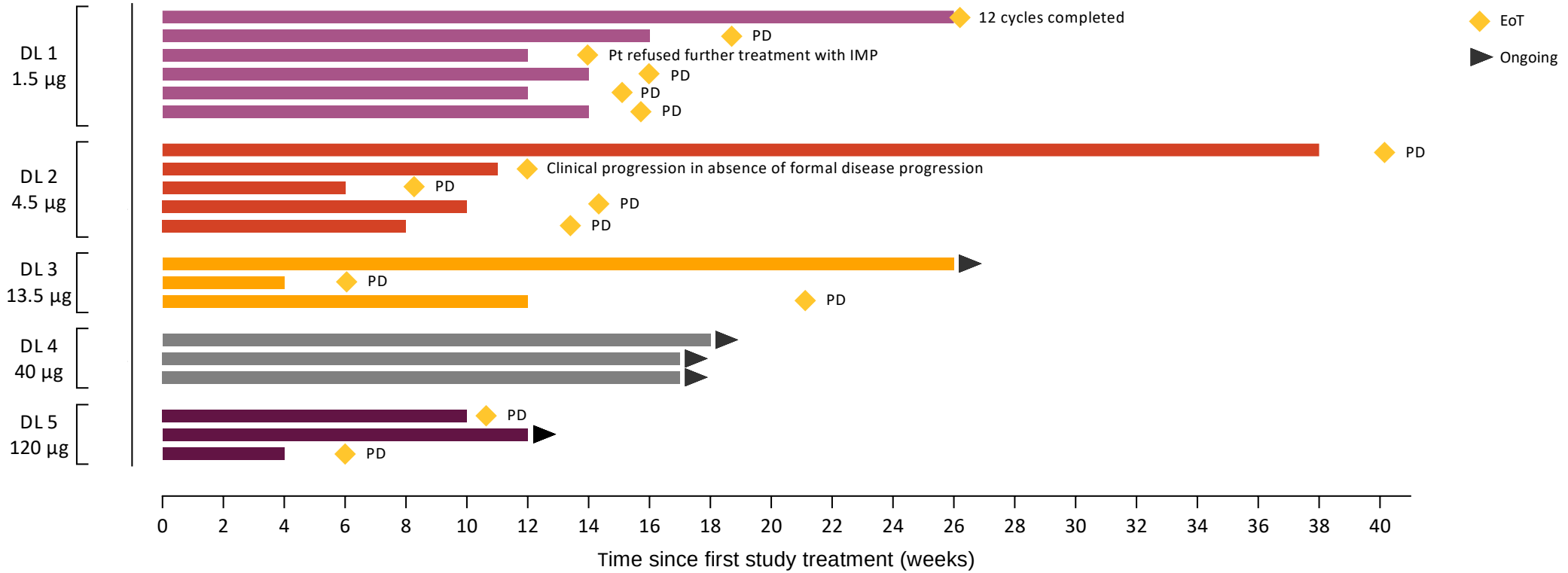
- Phase 1/2a trial in mCRPC; patient recruitment ongoing (NCT05369000)
- Phase 1/2a trial patient recruitment ongoing for monotherapy and IL-2 arms

Phase 1/2a Snapshot from ASCO GU 2023, from Dosing Groups 1-5[1]

First 20-patients	Median patient was 68 years old, had received 4 rounds of prior therapy and was treated for 9 years Metastasis were primarily located in bone, lymph nodes and visceral tissues
Encouraging safety profile[2]	No occurrence of high-grade CRS (>2). No increase in severity/frequency of TEAEs with increasing doses, or treatment discontinuations due to adverse events.
Attractive early data on pharmacokinetics	Observed linear pharmacokinetics (PK)
Attractive early data on pharmacodynamics	Pharmacodynamics (PD) reflects changes per MoA Vδ2 receptor occupancy continues to increase with increasing dose
Activity and treatment duration	PSA reductions observed. Stable disease observed in 8 of 14 evaluable patients, as of ASCO GU 2023 data cut-off (12/8/2022)

1. All data on this slide are based on the ASCO GU 2023; TEAE = treatment-emergent adverse events; MOA = mechanism of action.

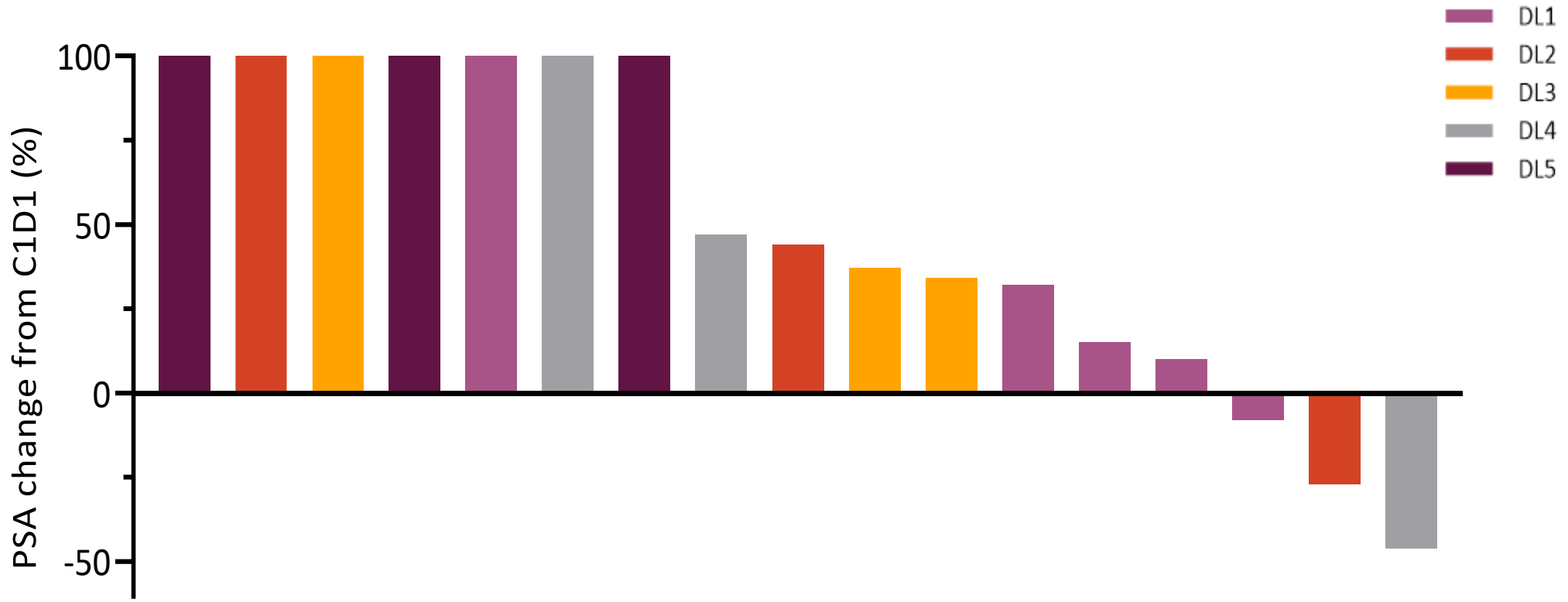
ASCO GU 2023: Time on Treatment Shows Preliminary Signs of Antitumor Activity



 Data cutoff: December 8, 2022, ASCO GU 2023

ASCO GU 2023: Best PSA Response

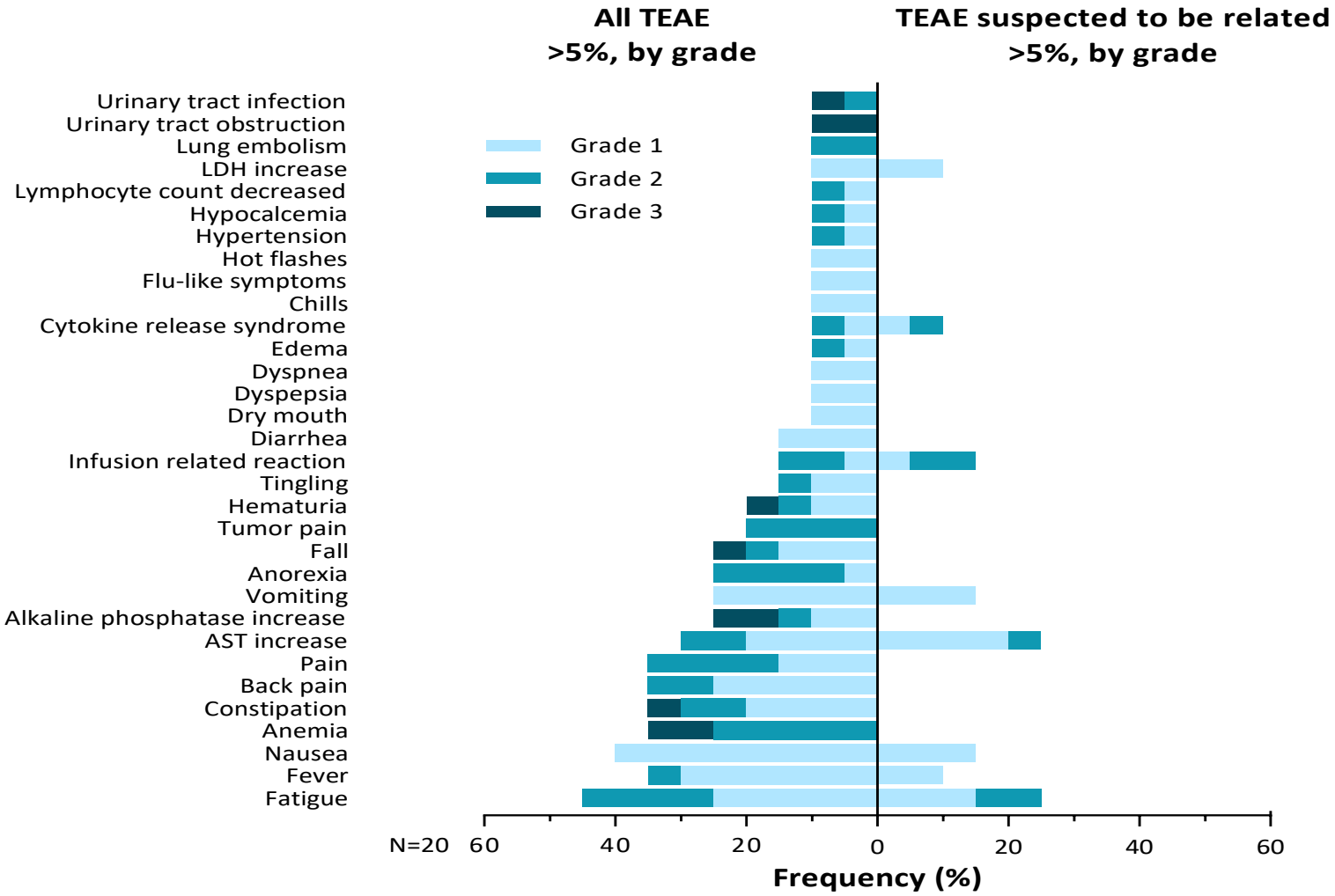
Continue to observe PSA reductions



 Data cutoff: December 8, 2022, ASCO GU 2023

ASCO GU 2023: Initial Phase 1 Safety Data

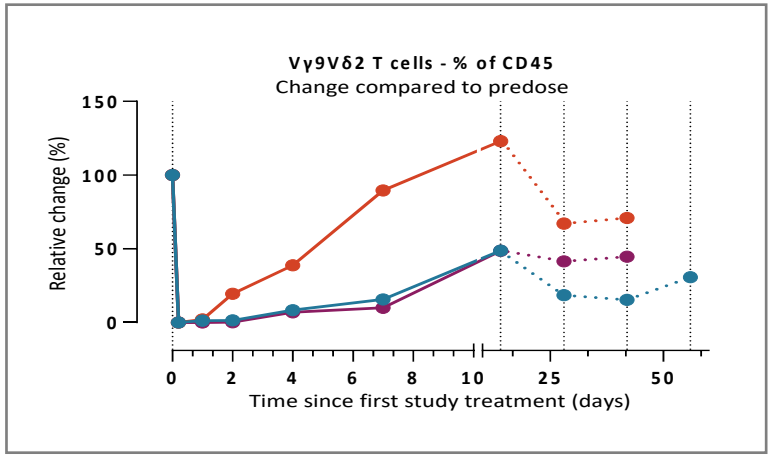
- Favorable safety profile with no occurrence of high-grade (>2) CRS
- TEAEs that were suspected to be related were grade 1 or 2
- No increase in severity or frequency of TEAEs with increasing doses
- One grade 4 AE occurred (spinal cord compression, DL 5), which was non-related

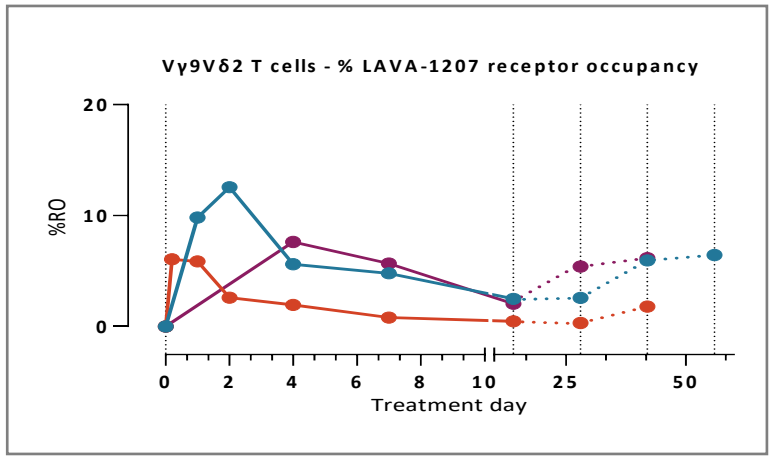


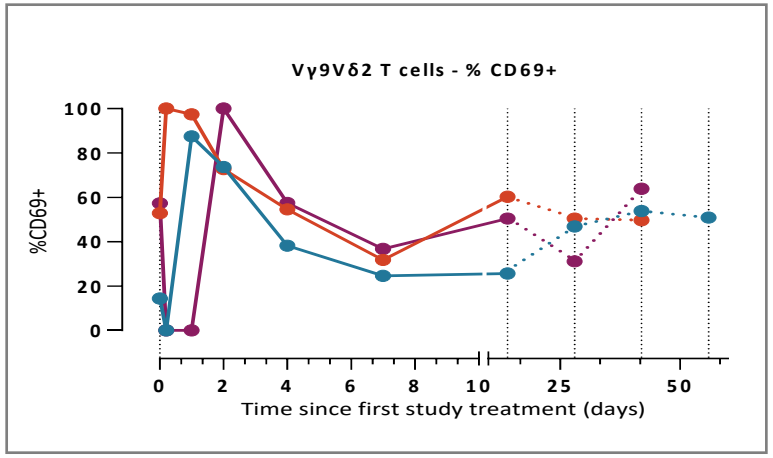
 Data cutoff: December 8, 2022, ASCO GU 2023

ASCO GU 2023: Pharmacokinetics and Pharmacodynamics:

Continuing to see Vδ2 T-cell receptor occupancy with increasing doses







Sbj 3
Sbj 4
Sbj 5

PK, PD Data in Keeping with MOA

- PK appears to be linear
- Pronounced drop in Vδ2 T-cell frequency 2 hr after dosing, suggesting Vδ2 T-cell re-distribution, with subsequent recovery
- Vδ2 T-cell activation markers (CD25 and CD69) upregulated following dosing
- Receptor occupancy detectable up to day 14 after EOI, with peak levels ranging from 6.1% to 12.6%

 Data cutoff: December 8, 2022, ASCO GU 2023; EOI = end of infusion; Sbj = subject

LAVA-1266

CD123 Targeting Gammabody® for the Treatment of Hematologic Malignancies

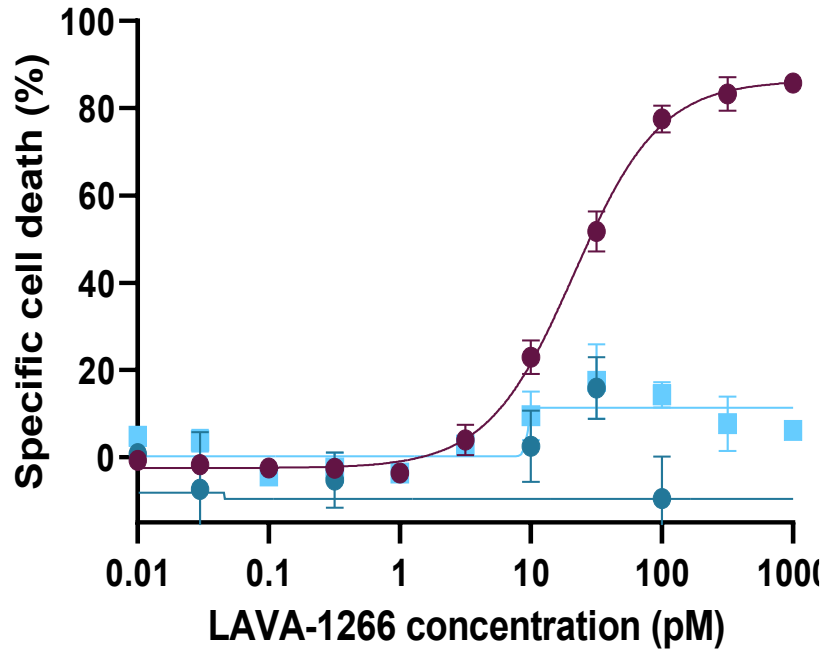
LAVA-1266 Targets CD123 for AML: IND/CTA Filing Expected in H1 2024

CD123 is a clinically validated target	Over-expressed in a wide range of hematologic malignancies
Promising preclinical data	LAVA-1266 induced preferential lysis of CD123-expressing tumor cells while relatively sparing CD123-expressing normal cells
High unmet need	74,000 people living with AML in the U.S. (2020)[1] ~30% 5-year mortality (adults)[1]
AML is a sensible Gammabody target	Relative abundance of Vδ2s cells in AML suggests this disease could be an attractive target for Gammabody therapies
Next update expected H1 2024	Clinical-trial enabling activities are underway, in support of an expected H1 2024 IND/CTA filing

1. Source: https://seer.cancer.gov/statfacts/html/amyl.html

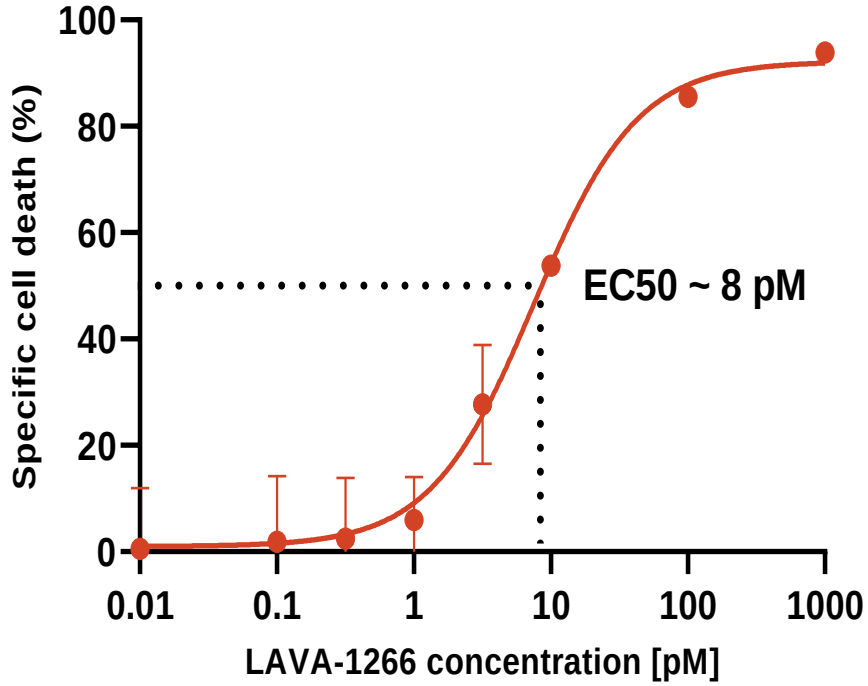
LAVA-1266: CD123-Targeting Gammabody®

Preferential lysis of tumor cells



CD123+ tumor cell line CD123+ healthy cells (donor 1) CD123+ healthy cells (donor 2)

Potent lysis of primary AML cells



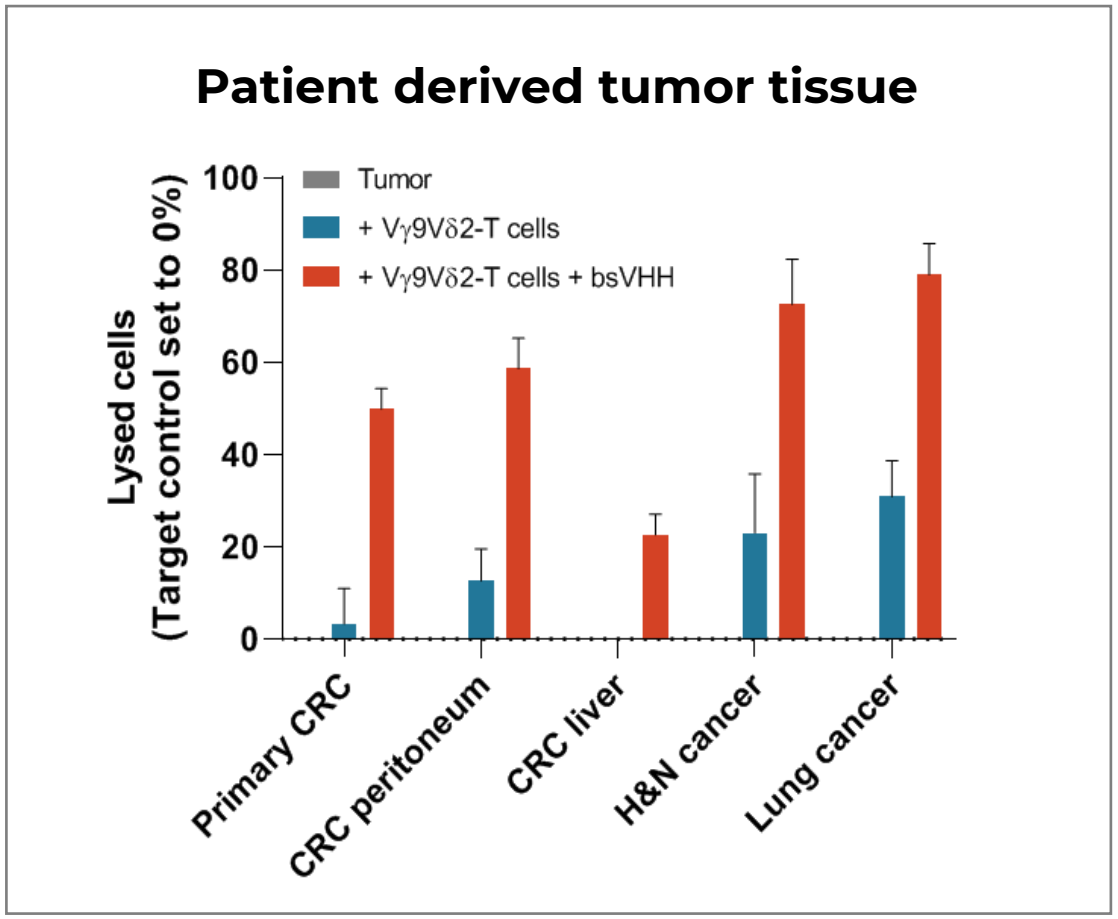
Strategic Partnerships

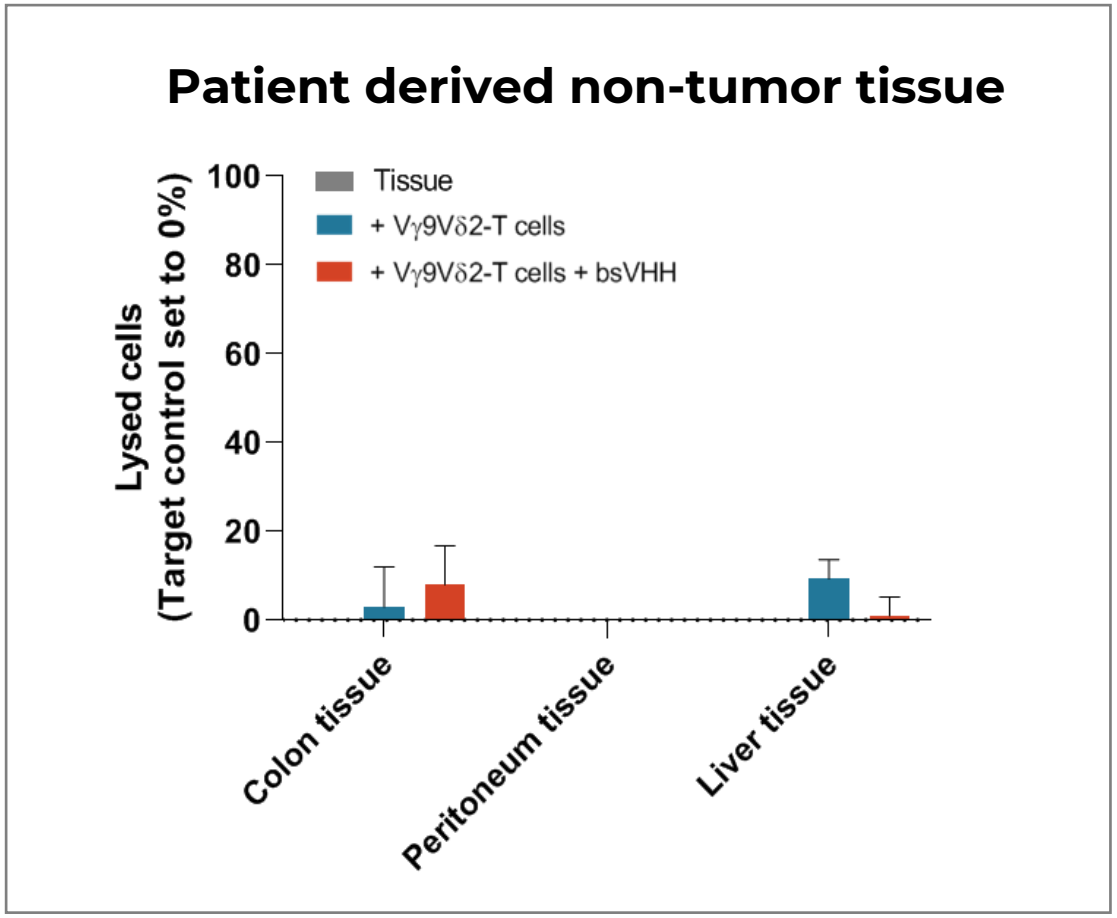
LAVA-1223/SGN-EGFRd2 for Solid Tumors[1]: Phase 1 Underway

Mechanism of action	Designed to induce preferential lysis of EGFR-expressing tumor cells while relatively sparing EGFR-expressing normal cells
Strategic partner	SeaGen Pfizer[2]
Agreement	Exclusive worldwide license agreement with Seagen Inc. entered into Q3 2022 Seagen to develop and commercialize SGN-EGFRd2 (LAVA-1223). Potential for milestones of up to approximately $650 million and royalties
Payments to date	$50MM upfront received with the signing, Sept 2022 Received licensing milestone in Q4 2023
Program status	Phase 1 Clinical Trial (NCT05983133) initiated in Q4 2023

1. Information as outlined in LVTX 6K filing as of Nov 16, 2023, 2. As of December 14, 2023, Pfizer completed its acquisition of Seagen.

SGN-EGFRd2 (LAVA-1223) – EGFR-Targeting Gammabody®





 King L, et al. Cancer Immunol Res 2023 LAVA Therapeutics, data on file

Janssen Collaboration[1]: Lead Candidate Selected

Mechanism of action	Undisclosed tumor associated antigen
Strategic partner	Janssen Pharmaceutical Companies of Johnson & Johnson
Agreement	LAVA entered into a research collaboration and license agreement with Janssen (May 2020) for the discovery and development of a novel bispecific gamma-delta T-cell engager for the treatment of cancer. Janssen is responsible for the future clinical development, manufacture, and commercialization of the candidate at Janssen's sole cost and expense
Payments	Upfront payment (undisclosed). LAVA is eligible to receive development, regulatory and commercialization milestone payments and royalties
Program status	Product candidate onboarded June 2023

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