ASX: ALA
Arovella Therapeutics Limited
ACN 090 987 250



ASX Release

14 March 2024

SPARK PLUS SINGAPORE HEALTHCARE DAY PRESENTATION

Highlights:

Arovella presents at Spark Plus Singapore Healthcare Day

MELBOURNE, AUSTRALIA 14 March 2024: Arovella Therapeutics Ltd (ASX: ALA), a biotechnology company focused on developing its invariant Natural Killer T (iNKT) cell therapy platform, is pleased to announce that its CEO and MD, Dr Michael Baker, will today present at the Spark Plus Singapore Healthcare Day.

Dr Baker will present key pre-clinical data for Arovella's iNKT cell therapy platform and described how Arovella's technology provides important advantages over existing T-cell therapies and has the potential to be applied to both blood cancers and solid tumours. The presentation is attached to this release and is also available on the Company's website https://www.arovella.com/news-presentations.

Release authorised by the Managing Director and Chief Executive Officer of Arovella Therapeutics Limited.

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NOTES TO EDITORS:

About Arovella Therapeutics Ltd

Arovella Therapeutics Ltd (ASX: ALA) is a biotechnology company focused on developing its invariant natural killer T (iNKT) cell therapy platform from Imperial College London to treat blood cancers and solid tumours. Arovella's lead product is ALA-101. ALA-101 consists of CAR19-iNKT cells that have been modified to produce a Chimeric Antigen Receptor (CAR) that targets CD19. CD19 is an antigen found on the surface of numerous cancer types. Arovella is also expanding into solid tumour treatment through its CLDN18.2-targeting technology licensed from Sparx Group. iNKT cells also contain an invariant T cell receptor (iTCR) that targets α -GalCer bound CD1d, another antigen found on the surface of several cancer types. ALA-101 is being developed as an allogeneic cell therapy, which means it can be given from a healthy donor to a patient.

Glossary: iNKT cell – invariant Natural Killer T cells; CAR – Chimeric Antigen Receptor that can be introduced into immune cells to target cancer cells; TCR – T cell receptors are a group of proteins found on immune cells that recognise fragments of antigens as peptides bound to MHC complexes; B-cell lymphoma – A type of cancer that forms in B cells (a type of immune system cell); CD1d – Cluster of differentiation 1, which is expressed on some immune cells and cancer cells; aGalCer – alpha-galactosylceramide is a specific ligand for human and mouse natural killer T cells. It is a synthetic glycolipid.

For more information, visit www.arovella.com

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Investor Presentation

Singapore Healthcare Day

March 2024





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Arovella's strengths

Off-the-shelf iNKT Cell Platform

Developing off-the-shelf iNKT cell therapies to target blood cancers and solid tumour cancers

Lead Product Advancing to Clinic

ALA-101, a potential treatment for CD19-expressing blood cancers, is progressing to Phase 1 clinical trials, expected to commence in 2024

Addressing Key Unmet Need

Our iNKT cell platform is well positioned to solve key challenges that hamper the cell therapy sector

Strong Leadership Group

Leadership team and Board have proven experience in drug development, particularly cell therapies



Focused on acquiring innovative technologies that strengthen the iNKT cell therapy platform and align with core focus areas

Unique Value Proposition

Arovella is among few companies globally developing an iNKT cell therapy platform



Financial overview

Financial Snapshot

| ASX CODE | ALA |
|------------------------------------|-------------------|
| Market capitalisation ¹ | \$143.4 million |
| Shares on issue | 925.1 million |
| 52-week low / high1 | \$0.033 / \$0.185 |
| Cash Balance (Dec 31 2023) | \$4.76 million |

Major Shareholders

| Shareholder | Ownership (%) ¹ |
|---------------------------------------|----------------------------|
| THE TRUST COMPANY (AUSTRALIA) LIMITED | 56,186,926 (6.12%) |
| RICHARD JOHN MANN | 50,905,657 (5.54%) |
| UBS NOMINEES PTY LTD | 20,620,196 (2.25%) |
| BLACKBURNE CAPITAL PTY LTD | 18,407,456 (2.00%) |
| DYLIDE PTY LTD | 15,666,666 (1.71%) |

^{1.} As of 8 March 2024

ALA Price and Volume - 12 Months¹



Recent cell therapy transactions¹

| Date | Type of deal | Acquirer/Licensee | Target/Licensor | Cell Type | Stage | Upfront (US\$M) | Milestones (US\$M) | Total deal value (US\$M) |
|--------|---|--|---------------------------------|---------------|-------------|--------------------|-------------------------|--------------------------|
| Dec-23 | Acquisition | AstraZeneca | GRACELL | T Cell | Phase 1b | \$1,000 | \$200 | \$1,200 |
| Nov-23 | Collaboration and investment ² | AstraZeneca | cellectis | Not specified | Platform | \$25 | \$70-220 per product | |
| Aug-23 | Licence ³ | IMUGENE Developing Cancer Immunotherapies | PRECISION BIOSCIENCES | T Cell | Phase 1b | \$21 | \$206 | \$227 |
| Aug-23 | Strategic investment (ROFR) ⁴ | **astellas | POSEIDA THERAPEUTICS | T Cell | Phase 1 | \$25 | \$0 | \$25 |
| May-23 | Licence | Janssen T | CBMG Cellular Biomedicine Group | T Cell | Phase 1b | \$245 | undisclosed | |
| Jan-23 | Acquisition | AstraZeneca | neo gene | T Cell | Phase 1 | \$200 | \$120 | \$320 |
| Oct-22 | Development collaboration ⁵ | GILEAD | ARCELLX | T Cell | Phase 2 | \$225 | undisclosed | |
| Sep-22 | Research collaboration | Genentech A Member of the Roche Group | -ArsenalBio | T Cell | Preclinical | \$70 | undisclosed | |
| Aug-22 | Licence & strategic collaboration | Roche | POSEIDA THERAPEUTICS | T Cell | Phase 1 | \$110 | \$110 | \$220 |
| Sep-21 | Development collaboration | Genentech A Member of the Roche Group | % Adaptimmune | T Cell | Preclinical | \$150 | \$150 | \$300 |
| Aug-21 | Research collaboration | GILEAD | APPIA BIO | iNKT Cell | Preclinical | undisclosed | undisclosed | \$875 |
| May-21 | Acquisition | Athenex | »kuur [*] | iNKT Cell | Phase 1 | \$70 | \$115 | \$185 |
| Jun-21 | Acquisition | eterna | X Novellus Therapeutics | Multiple | Preclinical | \$125 | \$0 | \$125 |

^{1.} See final slide for deal references

^{5.} Arcellx also received a US\$100m equity investment from Gilead



^{2.} Cellectis will receive a US\$220m equity investment from Astra Zeneca plus tiered royalties. Milestones are payable for 10 products

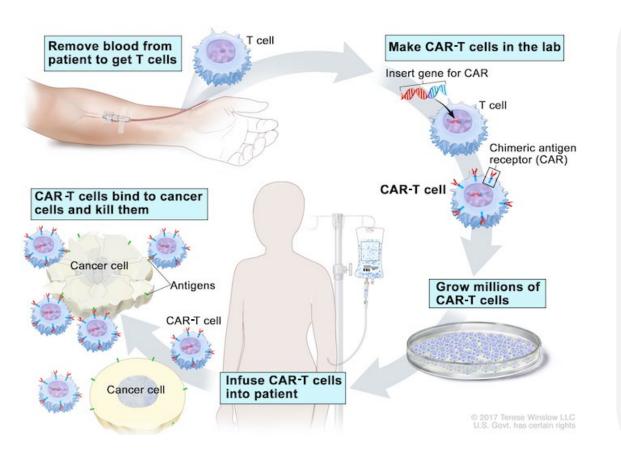
^{3.} Precision is eligible for double digit royalties on net sales and \$145 million in milestone payments and tiered royalties for additional programs

^{4.} Poseida also received a US\$25m equity investment from Astellas

How original CAR-T cell therapies work



CAR-T cell therapy is personalised medicine





T cells = immune cell

T cells are a common type of immune cell that fight infections and can help fight cancer.



T cells from patient 'reprogrammed'

To generate autologous CAR-T cells, T cells are taken from a patient with blood cancer and 'reprogrammed' to produce a Chimeric Antigen Receptor (CAR). The CAR can recognise cancer cells through a target antigen.



CAR-T cells find & kill tumour cells

CAR-T cells are administered to the patient to find and kill the tumour cells. Once the CAR binds to a tumour cell, the CAR-T cell is activated to kill the tumour cell.



Cell Therapy has revolutionised blood cancer treatment



CAR-T cells have demonstrated their curative potential in blood cancers



The Cell Therapy market is expected to reach

\$61.2 billion by 2030¹



Cure

CAR-T cells have demonstrated ability to cure haematological cancers



Strong Sales



40-60%

Patients relapse post-CAR-T therapy²

| Product Ap | proval Year | 2023 Revenue |
|---|-------------|------------------------|
| YESCARTA® (axicabtagene ciloleucel) September | 2017 | US\$1498m ³ |
| KYMRIAH* (tisagenlecleucel) Suspension for ry influsion | 2017 | US\$509m ⁴ |
| Abecma* (idecabtagene vicleucel) REVINITION | 2021 | US\$472m ⁵ |

- https://www.businesswire.com/news/home/20230529005130/e n/Global-Cell-Therapy-Market-Report-2023-Advancements-in-Biotechnology-Drives-Growth---ResearchAndMarkets.com
- 2. Zinzi et al., 2023 Pharmacological Research 10.1016/j.phrs.2023.106742
- https://www.gilead.com/news-and-press/press-room/press-releases/2024/2/gilead-sciences-announces-fourth-quarter-and-full-year-2023-financial-results#:~:text=Yescarta%C2%AE%20(axicabtagene%20cilole ucel)%20sales,%E2%80%9D)%20outside%20the%20United%20States.
- https://www.novartis.com/sites/novartis_com/files/2024-01interim-financial-report-en.pdf
- 5. https://news.bms.com/news/details/2024/Bristol-Myers-Squibb-Reports-Fourth-Quarter-and-Full-Year-Financial-Results-for-2023/default.aspx

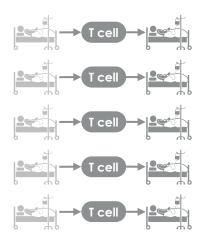




Emily Whitehead - Celebrating 10 years of CAR-T cell therapy

Autologous CAR-T pose challenges

The current manufacturing costs and time are limiting



Each manufacturing batch is patient-specific

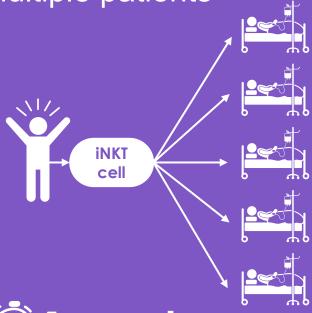
3-4 weeks for therapy



- Manufacturing & supply chain <u>costs are high</u>
- T cells <u>can be</u> <u>compromised</u> due to disease
- can collect and manufacture
- for patients with aggressive disease
- Manufacturing run failures can occur

Allogeneic

A single healthy donor batch = treatment for multiple patients



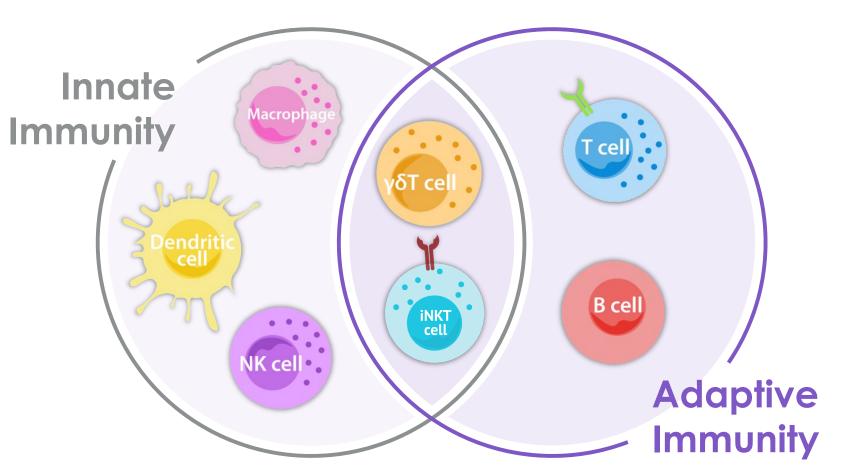


Patients ready to dose within 1 week



Introducing invariant Natural Killer T (iNKT) cells

Bridging the innate and adaptive immune system



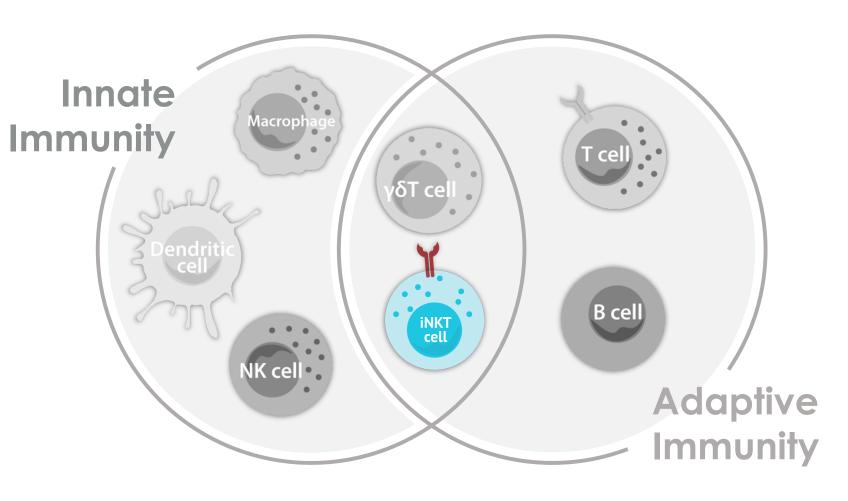




iNKT cells represent a next-generation cell therapy

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Properties make them ideal for use in cell therapy



Strong safety profile

 Don't cause graft versus host disease (GvHD)

Front line of the human immune system

- Bridge innate & adaptive immune responses
- Contain both T cell & NK cell killing mechanisms
- Naturally target & kill cancers that express CD1d

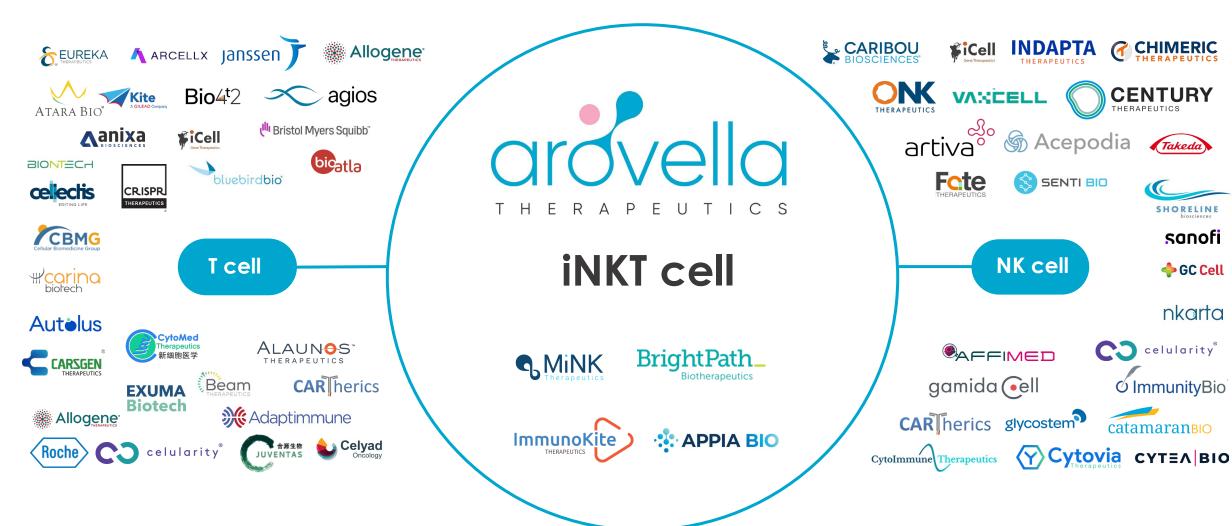
Multiple anti-cancer properties

- Shape the tumour microenvironment by blocking/killing pro tumour cells (TAMs/MDSCs)
- Infiltrate tumours & secrete signaling molecules to activate other immune cells to kill tumour cells



A differentiated position

T cell and NK cell sectors are competitive



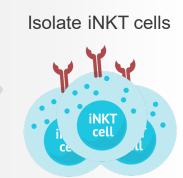


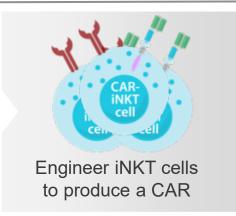
TREATMENT

CAR-iNKT cell therapy production advantages

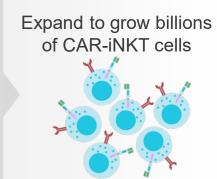
Off-the-shelf manufacturing advantages







MANUFACTURING









Dose eligible patients



Healthier starting material Potentially better efficacy





Scalable manufacturing with reduced costs

Reach more patients



Stored frozen, ready for use



ALA-101 (CAR19-iNKT cells)

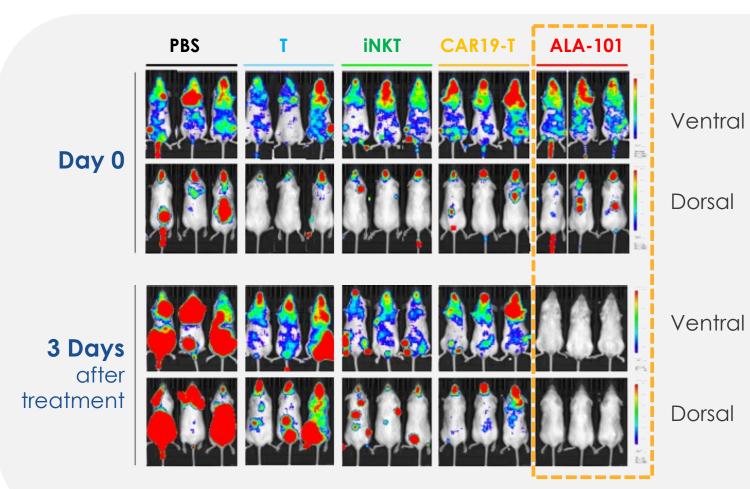
A next generation **off-the-shelf** cell therapy for CD19 expressing cancers

ALA-101: enhanced tumour killing in vivo

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ALA-101 rapidly eradicates tumour cells in mice

- Tumour cells expressing CD19 and CD1d were intravenously delivered into mice
- Mice were treated with:
 - PBS (saline)
 - Unmodified T cells (T)
 - Unmodified iNKT cells (iNKT)
 - CAR19-T cells
 - ALA-101 (CAR19-iNKT cells)
- After three days, ALA-101 resulted in significant regression of tumour cells
- In all other treatments, there was strong tumour cell persistence
- ALA-101 displays swift action



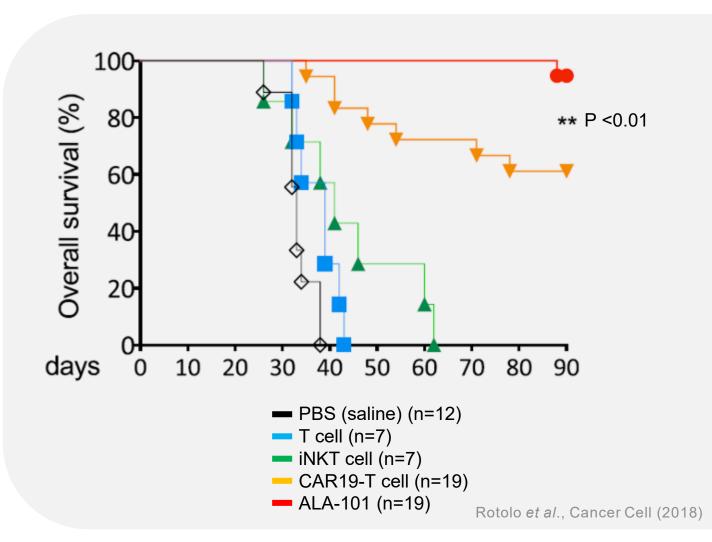
Rotolo et al., Cancer Cell (2018)

ALA-101: next generation cell therapy

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ALA-101 significantly increased survival in mice versus treatment with CAR19-T cells

- Tumour cells expressing CD19 and CD1d were intravenously delivered into mice
- Mice were treated with:
 - PBS (saline)
 - Unmodified T cells (T)
 - Unmodified iNKT cells (iNKT)
 - CAR19-T cells
 - ALA-101 (CAR19-iNKT cells)
- After 90 days, only mice treated with CAR19-T cells or ALA-101 remained alive
- 1.5x more mice treated with ALA-101 remained alive after 90 days relative to CAR19-T cells
- ALA-101 has the potential to be an effective, off-the-shelf cell therapy for the treatment of CD19-expressing cancers

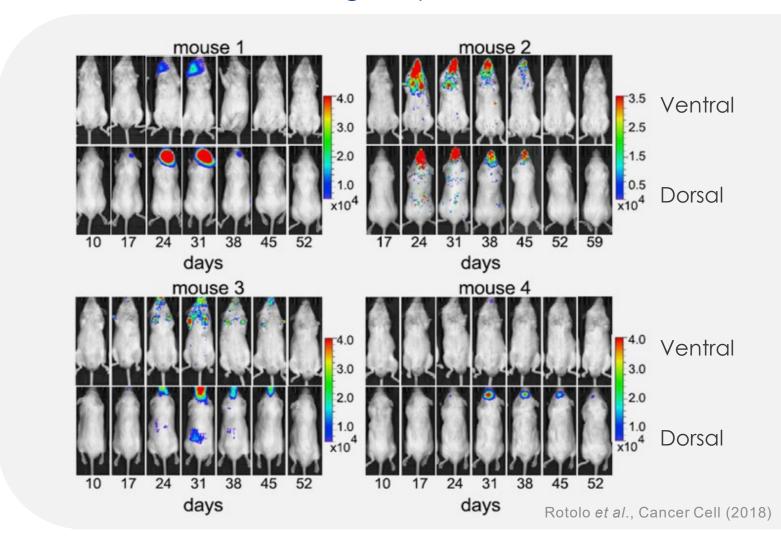


ALA-101: spontaneous secondary remission



ALA-101 activity may persist to eradicate tumour cells following relapse

- Four mice treated with ALA-101 had the cancer return to the brain
- In all four mice, the cancer was eliminated a second time with no additional dosing
- This provides evidence that CAR19-iNKT cells can survive and continue to protect against cancer cells in vivo
- Potential to use ALA-101 to treat central nervous system lymphoma or brain metastases



Progress towards first-in-human clinical trials

ALA-101 data confirms activity and off-the-shelf capability

Potent antitumour activity

Demonstrated efficacy of ALA-101 against CD19+ lymphomas and leukemias. Proof-of-concept data with clinical-designed lentiviral vector in animal models using thawed, "off-the-shelf" ALA-101.

Expected to be safe

iNKT cells have been shown in clinical trials not to cause graft versus host disease (GvHD) and the CD19 targeting CAR (FMC63) is a validated targeting agent in approved cell therapies.

Multiple dose manufacturing

ALA has demonstrated that its manufacturing process can produce a high number of CAR+ cells with potent cell killing properties and has completed production of GMP-grade lentivirus for CD19 CAR expression.

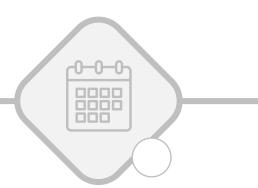
Phase 1 clinical trial anticipated CY 2024















Solid tumours pose challenges to cell therapies





Solid tumours are more

difficult to treat with cell therapies



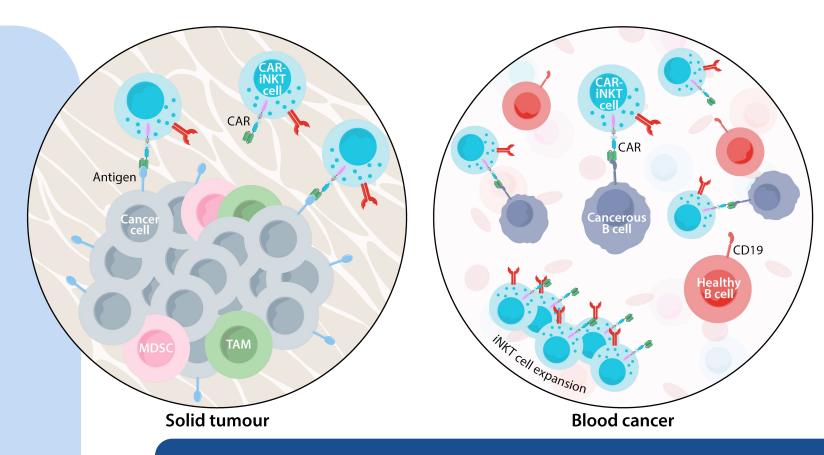
Access to tumour



Antigen specificity and uniformity

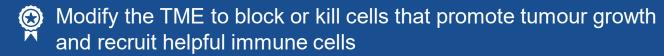


Tumour microenvironment (TME) contains cells that support cancer cell growth



iNKT cells:





Arovella's strategies to combat solid tumours

Arovella is using three approaches to expand the iNKT cell platform into solid tumours



License novel cancer targets





Identify and license new targets that are expressed in multiple cancers to incorporate into Arovella's iNKT cell therapy platform Enhance the performance of iNKT cells by equipping iNKT cells with novel armouring technologies

Create partnerships to use novel combination therapies with synergistic effects

STRATEGY 1

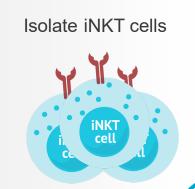
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Add additional CARs for novel targets

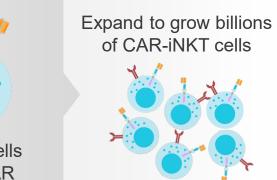
Arovella's manufacturing process can be leveraged for multiple cancer types

MANUFACTURING







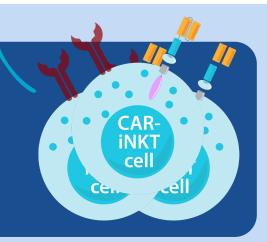


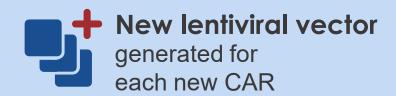


CARs targeting novel antigens specific for solid tumours

can be incorporated into iNKT cells

using the same manufacturing process



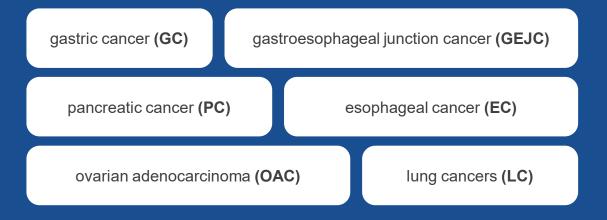


Introducing Claudin 18.2 (CLDN18.2)

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A promising solid tumour target

identified in several types of cancers





Validated target

with first monoclonal antibody expected to be **approved in 2024**



Gastric cancer

market alone expected to reach \$10.7 billion by 20311

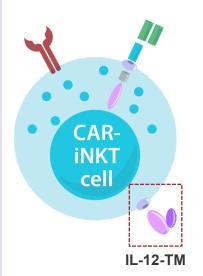
^{1.} https://www.alliedmarketresearch.com/gastric-cancer-market-A74458#:~:text=The%20global%20gastric%20cancer%20market,cells%20lining%20of%20the%20stomach

"Armouring" CAR-iNKT cells

STRATEGY 2

IL-12-TM (cytokine technology) enhances CAR-iNKT cell activity in solid tumours

IL-12-TM



IL-12-TM is a modified version of IL-12

with a membrane anchor that links it to the surface of CAR-iNKT cells. By linking it to the surface of iNKT cells, it can enhance CAR-iNKT cells without being released into the blood stream making it safer.

The IL-12-TM is incorporated into the lentiviral vector system and

does not require changes to the manufacturing process

iNKT cells + IL-12-TM

Expand more and survive for longer

than CAR-iNKT cells lacking the cytokine

10x more circulating **CAR-iNKT cells**

4 weeks after treatment in a mouse model

Superior anti-tumour activity

compared to **CAR-iNKT** cells lacking the cytokine

The technology has been published in the prestigious, peer reviewed journal, Nature Communications

nature > nature communications > articles > article

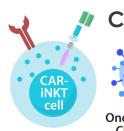
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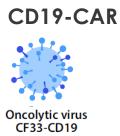
IL-12 reprograms CAR-expressing natural killer T cells to long-lived Th1-polarized cells with potent antitumor activity

Arovella's expanding pipeline











Novel Targets
Introduction of CLDN18.2

ALA-101

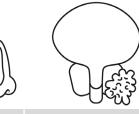
ALA-101 + onCARlytics

CLDN18.2

IL-12-TM





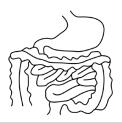












Non-Hodgkin's Lymphoma

Head and Neck Cancer Prostate Cancer

Brain Metastases Triple negative breast cancer

Pancreatic Cancer

Lung Cancer

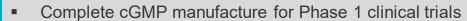
Gastric Cancers

Upcoming milestones for 2024

January **2024**







 Complete preparatory activities for Phase 1 study, including preparation of regulatory dossier, engagement with clinical sites and KOLs





Commence Phase 1 for ALA-101 targeting CD19+ lymphoma and leukemia



- Initiate proof-of-concept testing for CLDN18.2-iNKT cells to expand iNKT platform for treatment of solid tumours
- Optimise the CAR construct for robust efficacy

- Generate animal data for CLDN18.2 targeting CAR-iNKT cells against gastric cancer and/or pancreatic cancer
- Commence activities to manufacture ALA-105 for clinic (e.g. lentiviral vector)

iNKT Cell Therapy Platform

- Integrate IL-12-TM into solid tumour programs and test its efficacy in anti-tumour models
- Enter into a Sponsored Research Agreement (SRA) with Professor Gianpietro Dotti's research group
- Confirm activity of ALA-101 in combination with Imagene's onCARlytics to target solid tumours in animal models



Expect to advance ALA-101 to Phase 1 first-in-human clinical trial during 2024

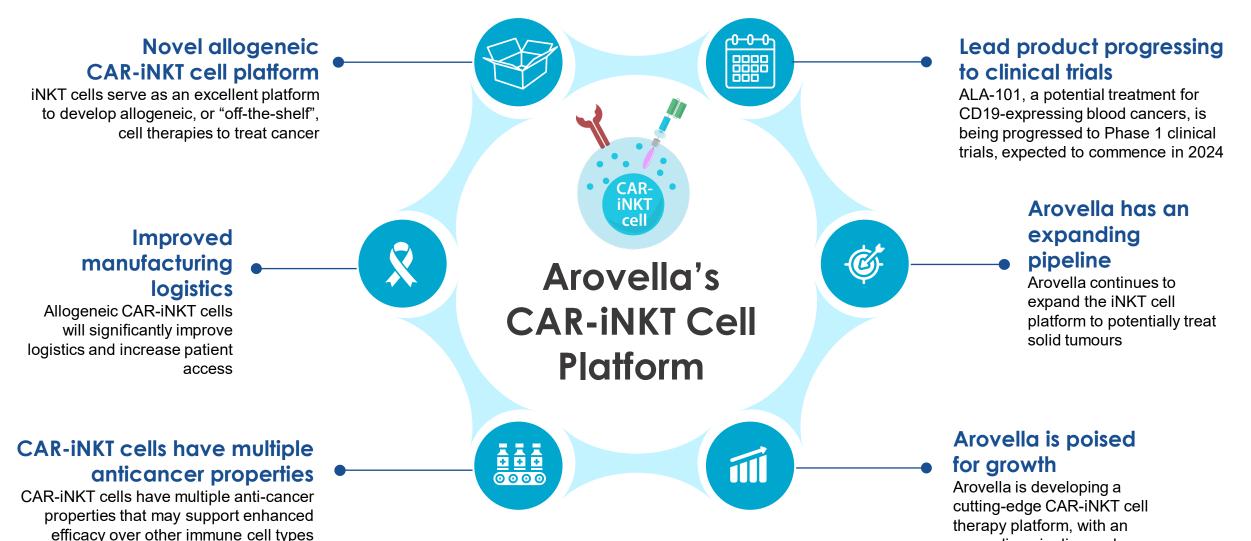
Dose escalation Phase 1 study in patients with CD19+ blood cancers



December

2024

Summary





expanding pipeline and a strong leadership team





Thank You Dr. Michael Baker CEO & Managing Director

Email: investor@arovella.com

Mobile: +61 403 468 187



Cell therapy deal references

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