ASX: ALA Arovella Therapeutics Limited ACN 090 987 250



**ASX Release** 

18 September 2024

#### **INVESTOR WEBINAR PRESENTATION**

**MELBOURNE, AUSTRALIA 18 September 2024:** Arovella Therapeutics Ltd (ASX: ALA), a biotechnology company focused on developing its invariant Natural Killer T (iNKT) cell therapy platform, will today hold an investor webinar for shareholders and interested parties.

Following completion of process development and scale-up for the CAR-iNKT manufacturing process and a positive pre-IND meeting with the FDA for a first-in-human study of ALA-101 in CD19-positive blood cancers, the webinar will discuss the next steps for Arovella and its opportunities in developing the iNKT cell platform.

Presenting on the webinar will be CEO and MD, Dr Michael Baker.

Details of the Investor Webinar are below:

Time: 11:00 AM (AEST)

Date: Today: Wednesday, 18 September 2024

Registration: https://us02web.zoom.us/webinar/register/WN\_9iSJCmJQSfelOcuEDNsQAQ

Further details on how to attend will be provided by email following registration.

A webinar recording will be made available via the Company's website and social media channels following the event.

Questions can be submitted during the webinar or sent in advance to investor@arovella.com.

Release authorised by the Chief Executive Officer and Managing Director of Arovella Therapeutics Limited, Dr Michael Baker.

#### CONTACT

#### Investors

Chief Executive Officer & Managing Director Arovella Therapeutics Ltd Tel +61 (0) 403 468 187 investor@arovella.com

*Media* Matthew Wright NWR Communications Tel +61 451 896 420 matt@nwrcommunications.com.au



#### **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. iNKT cells also contain an invariant T cell receptor (iTCR) that targets glycolipid 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. Arovella is also expanding into solid tumour treatment through its CLDN18.2-targeting technology licensed from Sparx Group. Arovella will also incorporate its IL-12-TM technology into its solid tumour programs.

**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

This announcement contains certain statements which may constitute forward-looking statements or information ("forward-looking statements"), including statements regarding negotiations with third parties and regulatory approvals. These forward-looking statements are based on certain key expectations and assumptions, including assumptions regarding the actions of third parties and financial terms. These factors and assumptions are based upon currently available information, and the forward-looking statements herein speak only of the date hereof. Although the expectations and assumptions reflected in the forward-looking statements are reasonable in the view of the Company's directors and management, reliance should not be placed on such statements as there is no assurance that they will prove correct. This is because forwardlooking statements are subject to known and unknown risks, uncertainties and other factors that could influence actual results or events and cause actual results or events to differ materially from those stated, anticipated or implied in the forward-looking statements. These risks include but are not limited to: uncertainties and other factors that are beyond the control of the Company; global economic conditions; the risk associated with foreign currencies; and risk associated with securities market volatility. The Company assumes no obligation to update any forward-looking statements or to update the reasons why actual results could differ from those reflected in the forward-looking statements, except as required by Australian securities laws and ASX Listing Rules.





# **Investor Webinar**

## ALA-101 clinical development

September 2024



## Disclaimer

- 1. The information in this presentation does not constitute personal investment advice. The presentation is not intended to be comprehensive or provide all information required by investors to make an informed decision on any investment in Arovella Therapeutics Limited (Company). In preparing this presentation, the Company did not take into account the investment objectives, financial situation and particular needs of any particular investor.
- 2. Further advice should be obtained from a professional investment adviser before taking any action on any information dealt with in the presentation. Those acting upon any information without advice do so entirely at their own risk.
- 3. Past performance information given in this presentation is given for illustrative purposes only and should not be relied upon as (and is not) an indication of future performance. The presentation includes forward-looking statements regarding future events and the future financial performance of Arovella. Forward looking words such as "expect", "should", "could", "may", "predict", "plan", "will", "believe", "forecast", "estimate", "target" or other similar expressions are intended to identify forward-looking statements. Any forward-looking statements included in this document involve subjective judgment and analysis and are subject to significant uncertainties, risks and contingencies, many of which are outside the control of, and are unknown to, Arovella and its officers, employees, agents or associates. In particular, factors such as outcomes of clinical trials and regulatory decisions and processes may affect the future operating and financial performance of Arovella. This may cause actual results to be materially different from any future results, performance or achievements expressed or implied by such statements. The information also assumes the success of Arovella's business strategies. The success of the strategies is subject to uncertainties and contingencies beyond control, and no assurance can be given that the anticipated benefits from the strategies will be realised in the periods for which forecasts have been prepared or otherwise. Given these uncertainties, you are cautioned to not place undue reliance on any such forward looking statements. Arovella is providing this information as of the date of this presentation and does not assume any obligation to update any forward-looking statements contained in this document as a result of new information, future events or developments or otherwise.
- 4. Whilst this presentation is based on information from sources which are considered reliable, no representation or warranty, express or implied, is made or given by or on behalf of the Company, any of its directors, or any other person about the accuracy, completeness or fairness of the information or opinions contained in this presentation. No responsibility or liability is accepted by any of them for that information or those opinions or for any errors, omissions, misstatements (negligent or otherwise) or for any communication written or otherwise, contained or referred to in this presentation.
- 5. Neither the Company nor any of its directors, officers, employees, advisers, associated persons or subsidiaries are liable for any direct, indirect or consequential loss or damage suffered by any person as a result of relying upon any statement in this presentation or any document supplied with this presentation, or by any future communications in connection with those documents and all of those losses and damages are expressly disclaimed.
- 6. Any opinions expressed reflect the Company's position at the date of this presentation and are subject to change.
- 7. This document does not constitute an offer to sell, or a solicitation of an offer to buy, securities in the United States or any other jurisdiction in which it would be unlawful. The distribution of this presentation in jurisdictions outside Australia may be restricted by law and any such restrictions should be observed.

## Arovella's strengths

#### Off-the-Shelf iNKT Cell Platform

Proprietary manufacturing process that can be used for a range of target indications and products

#### Lead Product Advancing to Clinic

ALA-101, potential treatment for CD19-positive blood cancers, progressing to phase 1 clinical trials, expected to commence in FY2025

#### Addressing Key Unmet Need

Our iNKT cell platform is well positioned to solve key challenges that hamper the cell therapy sector for blood cancers and solid tumours

#### Strategic Acquisitions

Focused on acquiring innovative technologies that strengthen its cell therapy platform and align with its focus areas

#### Strong Leadership Group

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

#### Unique Value Proposition

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

# Arovella's path to patient



- IL-12-TM will be incorporated into Arovella's solid tumour programs
- Armouring using IL-12-TM can be incorporated using the same manufacturing platform



# About CAR-T cells

# How original CAR-T cell therapies work

0

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 2030<sup>1</sup>



Cure CAR-T cells have demonstrated ability to cure haematological cancers



# **Strong Sales**



Patients relapse post-CAR-T therapy<sup>2</sup>

Product Ap	oproval Year	2023 Revenue		
(axicabtagene ciloleucel)	2017	US\$1498m <sup>3</sup>		
(tisagenlecleucel)	2017	US\$509m⁴		
Abecma   (idecabtagene vicleucel) NEWWARK	2021	US\$472m⁵		

- 1. 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
- 3. https://www.gilead.com/news-and-press/press-room/pressreleases/2024/2/gilead-sciences-announces-fourth-quarterand-full-year-2023-financial-

results#:~:text=Yescarta%C2%AE%20(axicabtagene%20cilole ucel)%20sales,%E2%80%9D)%20outside%20the%20United% 20States.

- 4. 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

# **Current CAR-T technology challenges**

One CAR-T product **only** treats the patient who supplied the T cells



Each manufacturing batch is **patient-specific** 

Patient must wait **3-4 weeks** for therapy









Limited centres can collect and manufacture



Time is an issue for patients with aggressive disease



ALA's solution:

One CAR-iNKT batch from a healthy donor treats 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

#### 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



Source: Company analysis based on public information

# Clinic-ready manufacturing process developed

#### Semi-automated process suitable for large-scale and late-phase clinical development



ASX:ALA

## Arovella's iNKT cell strategy

Incorporating world class IP to target a range of tumour types

0

Foundation IP Unique process to transduce iNKT cells with a CAR and expand CAR-iNKT cells (licenced from Imperial College London) Armouring technology Complementary technologies that improve the activity or persistence of iNKT cells (eg cytokine technology from UNC) Novel CARs Unique CARs for targeting different cancers (eg CLDN18.2 mAb licenced from Sparx) **Regulatory** strategy 12-year marketing exclusivity as a novel biologic drug, Orphan Drug Designation, Fast Track Designation, Paediatric Extension **Know-How** Process-specific know-how and Trade Secrets



# ALA-101 (CAR19-iNKT cells)

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

# ALA-101: enhanced tumour killing in vivo

# 0

#### ALA-101 rapidly eradicates tumour cells in mice

- Tumour cells positive for 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)

ASX:**ALA** 

#### ASX:**ALA**

# ALA-101: next generation cell therapy

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

- Tumour cells positive for 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-positive 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



# Successful preIND meeting with FDA

ALA is progressing towards its phase 1 study for ALA-101

## First formal interaction with FDA

Included a review of:

- Chemistry, Manufacturing and Controls (CMC) data
- Plan for non-clinical safety and efficacy studies
- Proposed phase 1 trial design

- **Positive feedback** and clear path forward to submitting an IND for a phase 1 first-in-human clinical trial for ALA-101
- No major changes to the development plan proposed by ALA





ASX:ALA

# ALA-101-001: phase 1 first-in-human study



Dose escalation and dose expansion study in patients with CD19+ blood cancers

Patients with relapsed or refractory CD19+ non-Hodgkin's lymphoma (NHL, including DLBCL, FL, MCL, MZL) and CD19+ leukemias (including B-ALL, CLL and HCL).

- Primary objectives
  - To evaluate the safety and tolerability of ALA-101 in adult patients with CD19+ NHL or leukemia
- Secondary objectives
  - To determine the most appropriate dose of ALA-101 for phase 2 clinical trials for adult patients with CD19+ NHL or leukemia
  - To evaluate the preliminary efficacy of ALA-101
  - To characterise the pharmacokinetic (PK) profile of ALA-101

#### Part 1: Dose Escalation

- 4 dose levels
- ~9-12 patients total
- CD19+ NHL and leukemias

#### Part 2 (phase 1b): Dose Expansion

- Dose level selected from Part 1
- ~20 patients total
- Sub-indications selected from Part 1



# ALA-101-001: phase 1 first-in-human study

#### Anticipated study design



# iNKT cells to target solid tumours

Arovella is implementing its strategy to target and kill solid tumours – 90% of newly diagnosed cancer Cases<sup>1</sup>

# Solid tumours pose challenges to cell therapies

iNKT cells have features that may make them useful for treating solid tumours



Solid tumours are more difficult to treat with cell therapies



Access to tumour



Lack of antigen specificity and uniformity



Tumour microenvironment contains cells that support cancer cell growth



# Add additional CARs for novel targets

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



New CARs

# Arovella's expanding pipeline



PRODUCT	INDICATION	DISCOVERY PRECLINICAL PHASE 1
ALA-101 (CAR19-iNKT)	CD19-positive cancers	CD19-positive Lymphoma
ALA-105 (CLDN18.2-iNKT)	CLDN18.2 positive solid tumours	Gastric & Pancreatic Cancers
IL-12-TM	Solid Tumours	Solid Tumours

# **Upcoming milestones for FY2025**



Date	Type of deal	Acquirer/Licensee	Target/Licensor	Cell Type	Stage	Upfront (US\$M)	Milestones (US\$M)	Total deal value (US\$M)
May-24	Research collaboration	🔺 XYPHOS	THERAPEUTICS	T cell	TBD	\$50	\$550	\$600
Dec-23	Acquisition	AstraZeneca	GRACELL	T Cell	Phase 1b	\$1,000	\$200	\$1,200
Nov-23	Collaboration and investment <sup>2</sup>	AstraZeneca	cellectis	Not specified	Platform	\$25	\$70-220 per product	
Aug-23	Licence <sup>3</sup>	Eveloping Cancer Immunotherapies	PRECISION BIOSCIENCES	T Cell	Phase 1b	\$21	\$206	\$227
Aug-23	Strategic investment (ROFR) <sup>4</sup>	<b>X</b> astellas	THERAPEUTICS	T Cell	Phase 1	\$25	\$0	\$25
May-23	Licence	Janssen		T Cell	Phase 1b	\$245	undisclosed	
Jan-23	Acquisition	AstraZeneca	neogene	T Cell	Phase 1	\$200	\$120	\$320
Oct-22	Development collaboration <sup>5</sup>	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	THERAPEUTICS	T Cell	Phase 1	\$110	\$110	\$220
Sep-21	Development collaboration	<b>Genentech</b> A Member of the Roche Group	<b>%</b> Adaptimmune	T Cell	Preclinical	\$150	\$150	\$300
Aug-21	Research collaboration	GILEAD		iNKT Cell	Preclinical	undisclosed	undisclosed	\$875
May-21	Acquisition	Athenex	>kuur THERAPEUTICS	iNKT Cell	Phase 1	\$70	\$115	\$185
Jun-21	Acquisition	eterna	X Novellus	Multiple	Preclinical	\$125	\$0	\$125

# **Recent cell therapy transactions**<sup>1</sup>

1. See the last slide for deal references; 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; 5. Arcellx also received a US\$100m equity investment from Gilead

# **Financial overview**

0



1. As of 16 September 2024

## Summary





# THERAPEUTICS

# Thank You

#### Dr. Michael Baker CEO & Managing Director

Email: investor@arovella.com Mobile: +61 403 468 187



# **Cell therapy deal references**

0

- 1. https://www.astellas.com/en/news/28271
- 2. https://www.astrazeneca.com/media-centre/press-releases/2023/astrazeneca-to-acquire-gracell-furthering-cell-therapy-ambition-across-oncology-andautoimmune-diseases.html
- 3. https://www.astrazeneca.com/media-centre/press-releases/2023/astrazeneca-cell-and-gene-therapy-deal-w-cellectis.html
- 4. https://www.businesswire.com/news/home/20230815091930/en/Precision-BioSciences-Completes-Strategic-Transaction-with-Imugene-for-Azer-Cel-in-Cancer
- 5. https://www.astellas.com/en/news/28271
- 6. https://www.jnj.com/janssen-enters-worldwide-collaboration-and-license-agreement-with-cellular-biomedicine-group-to-develop-next-generation-car-t-therapies
- 7. https://www.astrazeneca.com/media-centre/press-releases/2023/acquisition-of-neogene-therapeutics-completed.html
- 8. https://www.gilead.com/news-and-press/press-room/press-releases/2022/12/kite-and-arcellx-announce-strategic-collaboration-to-co-develop-and-cocommercialize-late-stage-clinical-cart-ddbcma-in-multiple-myeloma
- 9. https://www.fiercebiotech.com/biotech/genentech-pays-70m-access-arsenals-armoury-t-cell-tools-quest-solid-tumor-car-t
- 10. https://www.prnewswire.com/news-releases/poseida-therapeutics-announces-strategic-global-collaboration-with-roche-focused-on-allogeneic-car-t-celltherapies-for-hematologic-malignancies-301598555.html
- 11. https://www.adaptimmune.com/investors-and-media/news-center/press-releases/detail/197/adaptimmune-enters-into-a-strategic-collaboration-with
- 12. https://www.gilead.com/news-and-press/press-room/press-releases/2021/8/kite-and-appia-bio-announce-collaboration-to-research-and-develop-allogeneic-celltherapies-for-cancer
- 13. https://www.nasdaq.com/articles/athenex-snaps-up-kuur-therapeutics-for-\$185m-street-sees-133.7-upside-2021-05-05
- 14. https://eternatx.com/news/brooklyn-immunotherapeutics-completes-acquisition-of-eterna-therapeutics/