

15 December 2021

ASX Announcement

CASH POSITION, CARINA NEWS AND CORPORATE PRESENTATION

Key points:

- **Cash position of A\$6.46 million at 30 November 2021 (excluding A\$3.75 million Placement proceeds)**
- **Research plan agreed for first target in Carina collaboration**
- **Corporate presentation attached**

MELBOURNE Australia, 15 December 2021: AdAlta Limited (ASX:1AD), the clinical stage biotechnology company developing novel therapeutic products from its i-body platform is pleased to announce a healthy, replenished cash position, progress on its collaboration with Carina Biotech and its current corporate presentation in addition to a successful institutional placement (Placement) announced separately today.

AdAlta's CEO, Dr Tim Oldham commented,

"AdAlta's strengthened cash balance positions us well to maximise near term development milestones. The progress on AD-214 announced today and last week continue to support the potential efficacy of AD-214 in fibrotic diseases as well as the feasibility of a patient preferred, inhaled new treatment for Idiopathic Pulmonary Fibrosis and Interstitial Lung Disease. We have a number of development milestones planned for AD-214 during the first half of 2022 and the achievement of those is expected to steadily increase the value of AD-214 to partners. We also anticipate making meaningful progress on our two partnered programs with Carina and GE Healthcare during the same period."

Cash position

AdAlta's cash balance at 30 November 2021 was A\$6.46 million (A\$6.77 million at 31 October 2021), reflecting operating expenses for the quarter to date offset by the net A\$0.89 million received from the Company's annual R&D Tax Incentive (RDTI) rebate (announced November 2021). This is in addition to the A\$3.75 million Placement announced separately today.

CAR-T program progress

AdAlta entered a collaboration agreement with Carina Biotech in August 2021 to develop precision engineered, i-body-enabled CAR-T (iCAR-T) cell products against five solid tumour targets. The two companies have now executed a research plan, with Carina Biotech to discover and develop iCAR-T cells against the first target under the collaboration. The iCAR-T cells are expected to be created in the first half of calendar 2022 with *in vitro* cytotoxicity results expected in the second half. The parties aim to finalise the research plan against the second target in the first quarter of calendar 2022.

Corporate presentation

AdAlta's most recent corporate presentation is attached.

Authorised for lodgement by:

Tim Oldham
CEO and Managing Director
15 December 2021

Notes

About AdAlta

AdAlta Limited is a clinical stage drug development company headquartered in Melbourne, Australia. The Company is using its proprietary i-body technology platform to solve challenging drug targeting problems and generate a promising new class of single domain antibody protein therapeutics with the potential to treat some of today's most challenging medical conditions.

The i-body technology mimics the shape and stability of a unique and versatile antigen binding domain that was discovered initially in sharks and then developed as a human protein. The result is a range of unique proteins capable of interacting with high selectivity, specificity and affinity with previously difficult to access targets such as G-protein coupled receptors (GPCRs) that are implicated in many serious diseases. i-bodies are the first fully human single domain antibody scaffold and the first based on the shark motif to reach clinical trials.

AdAlta has completed Phase I clinical studies for its lead i-body candidate, AD-214, that is being developed for the treatment of Idiopathic Pulmonary Fibrosis (IPF) and other human fibrotic diseases for which current therapies are sub-optimal and there is a high unmet medical need.

The Company is also entering collaborative partnerships to advance the development of its i-body platform. It has an agreement with GE Healthcare to co-develop i-bodies as diagnostic imaging agents against Granzyme B, a biomarker of response to immuno-oncology drugs, a program now in preclinical development. It also has a collaboration with Carina Biotech to co-develop precision engineered, i-body enabled CAR-T cell therapies to bring new hope to patients with cancer.

AdAlta's strategy is to maximise the products developed using its next generation i-body platform by internally discovering and developing selected i-body enabled product candidates against GPCRs implicated in fibrosis, inflammation and cancer and partnering with other biopharmaceutical companies to develop product candidates against other classes of receptor, in other indications, and in other product formats.

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that any forward-looking statements will be realised. AdAlta Limited does not make any representation or give any warranty as to the likelihood of achievement or reasonableness of any forward-looking statements.

Further information can be found at: <https://adalta.com.au>

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Corporate overview

December 2021

Disclaimer

Investment in AdAlta is subject to investment risk, including possible loss of income and capital invested. AdAlta does not guarantee any particular rate of return or performance, nor do they guarantee the repayment of capital.

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There is no guarantee that the Company's research and development projects and interests (where applicable) will receive regulatory approvals or prove to be commercially successful in the future. Actual results of further research could differ from those projected or detailed in this presentation. As a result, you are cautioned not to rely on forward-looking statements. Consideration should be given to these and other risks concerning research and development programs referred to in this presentation.

AdAlta's purpose

To use our unique i-body technology to create multiple novel therapeutics for debilitating diseases that have proven difficult to drug with traditional antibodies

AdAlta today

AdAlta is building significant growth momentum while retaining agility to respond and adapt to data and opportunities



- **i-body platform:** can create therapeutics addressing targets underserved by traditional antibodies



- **Fibrosis/inflammation: lead asset AD-214** preparing for Phase II clinical trial
 - US\$3b Idiopathic Pulmonary Fibrosis (IPF) market today,¹ multiple US\$b indication potential
- **Second target in discovery**



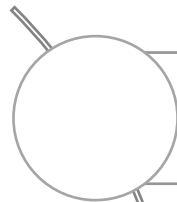
- **Immuno-oncology: two co-development collaborations**
 - GZMB PET imaging agent with **GE Healthcare:** US\$6.4b PET imaging agent market²
 - i-body enabled CAR-T with **Carina Biotech:** US\$20b market by 2028³



- **Continuing to build out pipeline** with additional internal and external programs: targeting 10 by 2023

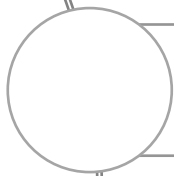
1. GlobalData, Idiopathic Pulmonary Fibrosis Opportunity Analysis and Forecasts to 2029, November 2020
2. 2027 forecast by Global Industry Analysts, Imaging Agents: Global Market Trajectory and Analytics, April 2021
3. 2028 forecast by Grandview Research, "T-cell Therapy Market Size, Share & Trends Analysis" Feb 2021

Four human health needs AdAlta is addressing today



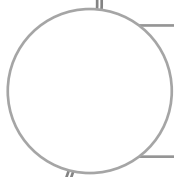
Antibodies cannot do everything!

AdAlta's i-bodies are a new drug discovery platforms for challenging targets



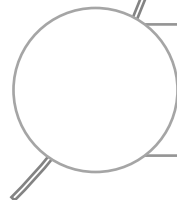
Idiopathic Pulmonary Fibrosis: degenerative, fatal

AdAlta's AD-214 could meet a desperate need for new approaches for a debilitating disease



Immuno-oncology drugs revolutionising cancer treatment ... for some

AdAlta and GE Healthcare's GZMB PET imaging could identify responders early

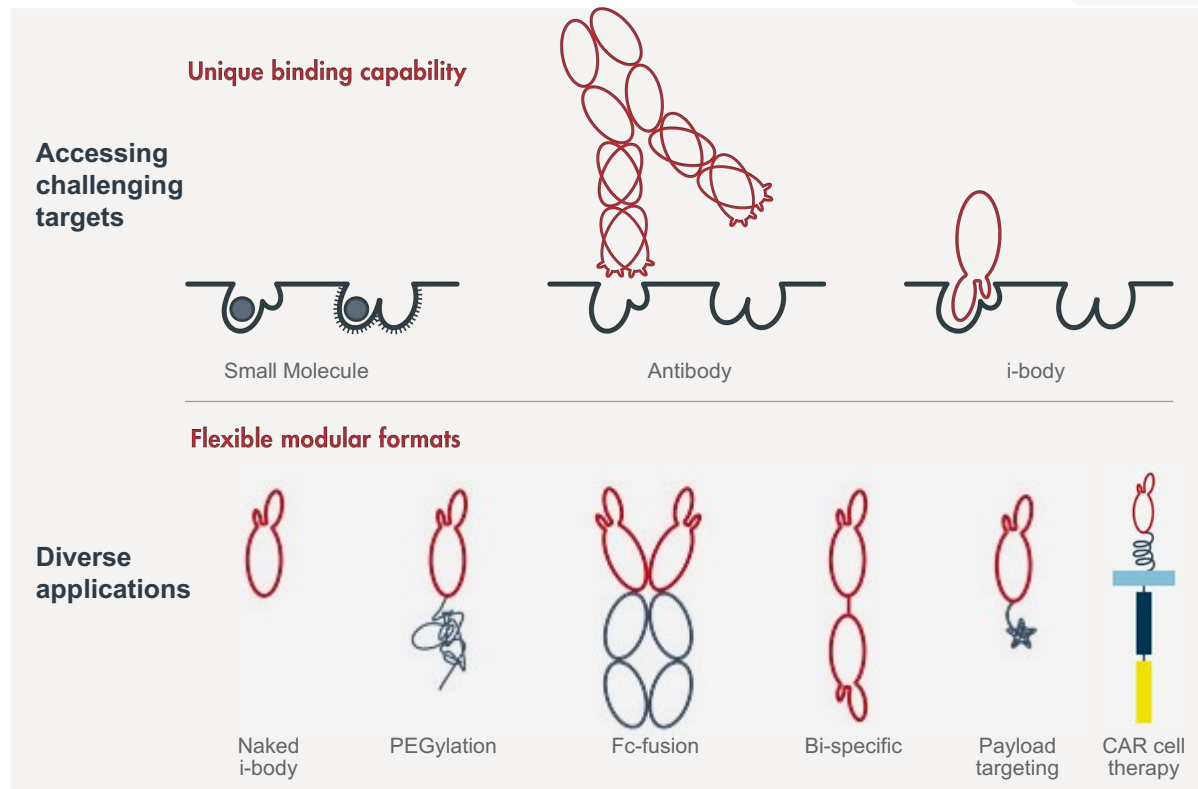


CAR-T cell therapy providing new hope for blood cancer patients

AdAlta and Carina's i-body CAR-T cells could offer same hope for patients with solid tumours

What is the i-body advantage?

All the selectivity and specificity of antibodies with greater versatility and tunability



Small size, flexible binding domain

Confers unique binding capability for targets challenging traditional antibodies; enables modular drug design across diverse applications

Minimising off-target side effects

Unique binding capability potentially allows greater selectivity and specificity, tunable affinity

Multiple drug administration routes

Amenable to multiple administration routes (e.g. injection, inhalation and topical)

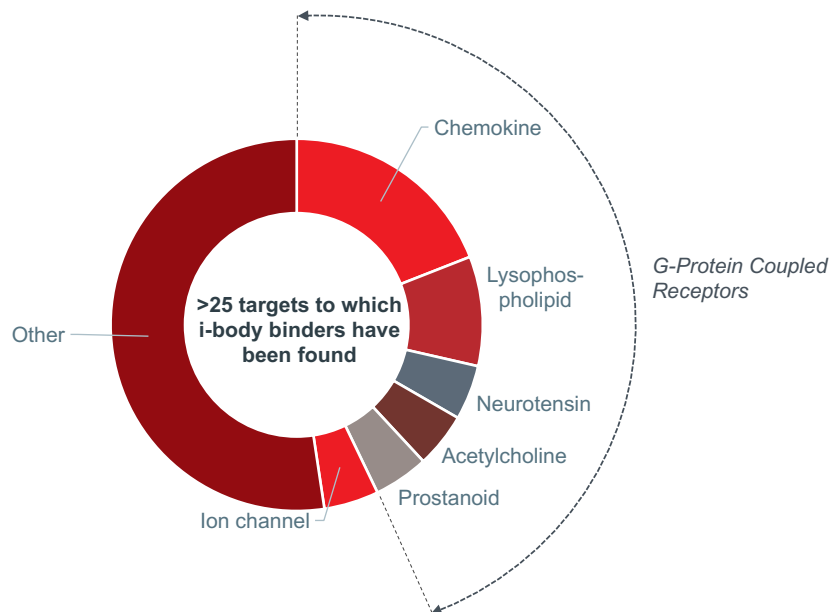
Robust

Resilient to pH and temperature cycling

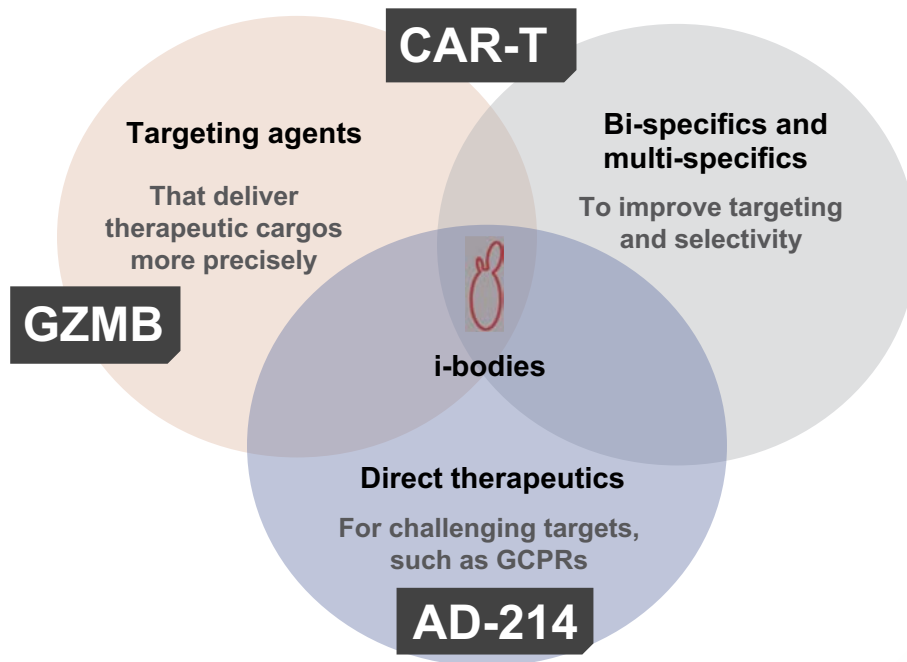
An immensely powerful drug discovery platform

i-body technology can enable a wide range of therapeutic and diagnostic products

Wide range of target classes



Wide range of product formats



AD-214: first in class treatment for fibrosis

AD-214's initial focus is IPF

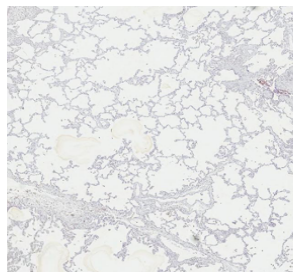
First-in-class (novel mode of action) treatment

Targets a receptor called **CXCR4**

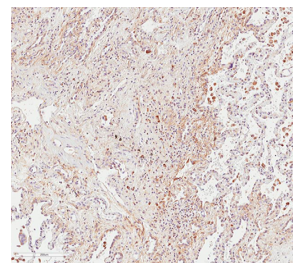
Initial focus is **Idiopathic Pulmonary Fibrosis (IPF)**, one of a group of **Interstitial Lung Diseases (ILDs)**

Blocking CXCR4 reduces fibrosis in animal models

Human Lung Tissue



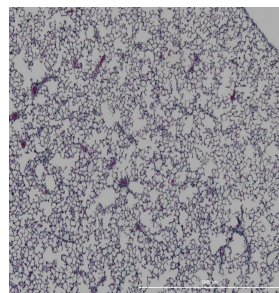
Normal



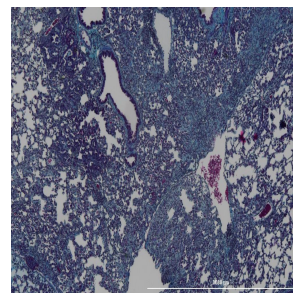
Diseased

Brown stain shows increased amount of CXCR4 in fibrotic lung tissue

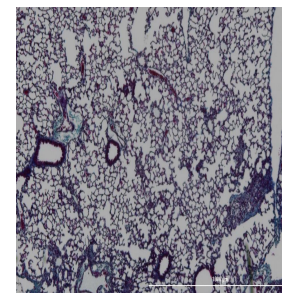
Mouse model of lung fibrosis



Normal mouse lung tissue



IPF mouse lung tissue*



IPF mouse lung tissue + AD-214*

Purple stain shows amount of collagen (fibrosis)

* IPF tissue images taken 21 days after bleomycin (BLM) was administered to induce fibrosis; mouse treated with AD-214 received 10 mg/kg AD-214 every 4 days from day 8 after bleomycin administration.

AD-214: multiple indication extension options

Each additional indication could address multiple markets with US\$ billion potential

Data in tissue and animal models show that AD-214 may improve fibrosis across a range of fibrotic diseases and cancer:

multiple indication extension potential

Indication specific formulations and routes of administration may enhance partnering potential

- **LUNG (lead indication - inhaled):** Idiopathic Pulmonary Fibrosis with natural extension to Interstitial Lung Disease
- **EYE (intravitreal injection):** Wet-Age Related Macular Degeneration
- **CANCER:** 23 different cancers, enhancement of I/O drugs*
- **KIDNEY:** Chronic kidney disease*
- **LIVER:** NASH*
- **SKIN (topical, local injection):** Hypertrophic scars



Lung

IPF/ILD

>US\$3b



Eye

Wet-AMD

>US\$15b



Cancer

23 different cancers, I/O

>US\$1b ea



Kidney

RENAL FIBROSIS

>US\$10b



Liver

NASH & CIRRHOSIS



Skin

SCLERODERMA

* Subject to development of a satisfactory, improved intravenous formulation.

Idiopathic Pulmonary Fibrosis (IPF)

AdAlta's first target, already a \$3b market, is a degenerative, fatal disease in dire need of improved treatment options: i-bodies have been designed to target a novel mode of action to address this medical need



In IPF, scarring and stiffening of the lungs **progressively and irreversibly reduces lung function**

Despite being poorly tolerated and having difficult side effects, the two current therapies sell **\$3b per year**

3.8 years
median survival after diagnosis

>300,000
people living with IPF,
It is irreversible

40,000
people die from IPF every year

**Burden of fibrotic lung disease
following COVID-19 likely to be high.***

**"Long COVID" is a developing issue – potentially further
increasing the need for better anti-fibrotic drugs.**

* PM George, et al, "Pulmonary fibrosis and COVID-19: the potential role for antifibrotic therapy", Lancet published online May 15, 2020.

Phase I clinical and PET imaging inform dosing and route of administration

Intravenous AD-214 is well tolerated in Phase I studies; PET imaging with radiolabelled AD-214 supports early transition to inhaled route of administration

Phase I clinical study successfully completed¹

- Intravenous AD-214 is well tolerated in single and multiple doses
- Target (CXCR4) binding observed with extended duration

Resupply of AD-214 clinical material secured²

- Defines timeline for Phase II clinical study

Pre-clinical intravenous studies inform optimal administration³

- PET imaging shows rapid liver distribution (reduced bioavailability)
- Preclinical animal data supports potential iv safety, efficacy profile

Direct lung delivery (inhalation) of AD-214: a superior format for IPF

Phase II studies in IPF scheduled for 2H 2023 with superior formulation

Improved intravenous formulation for other indications, derisks IPF

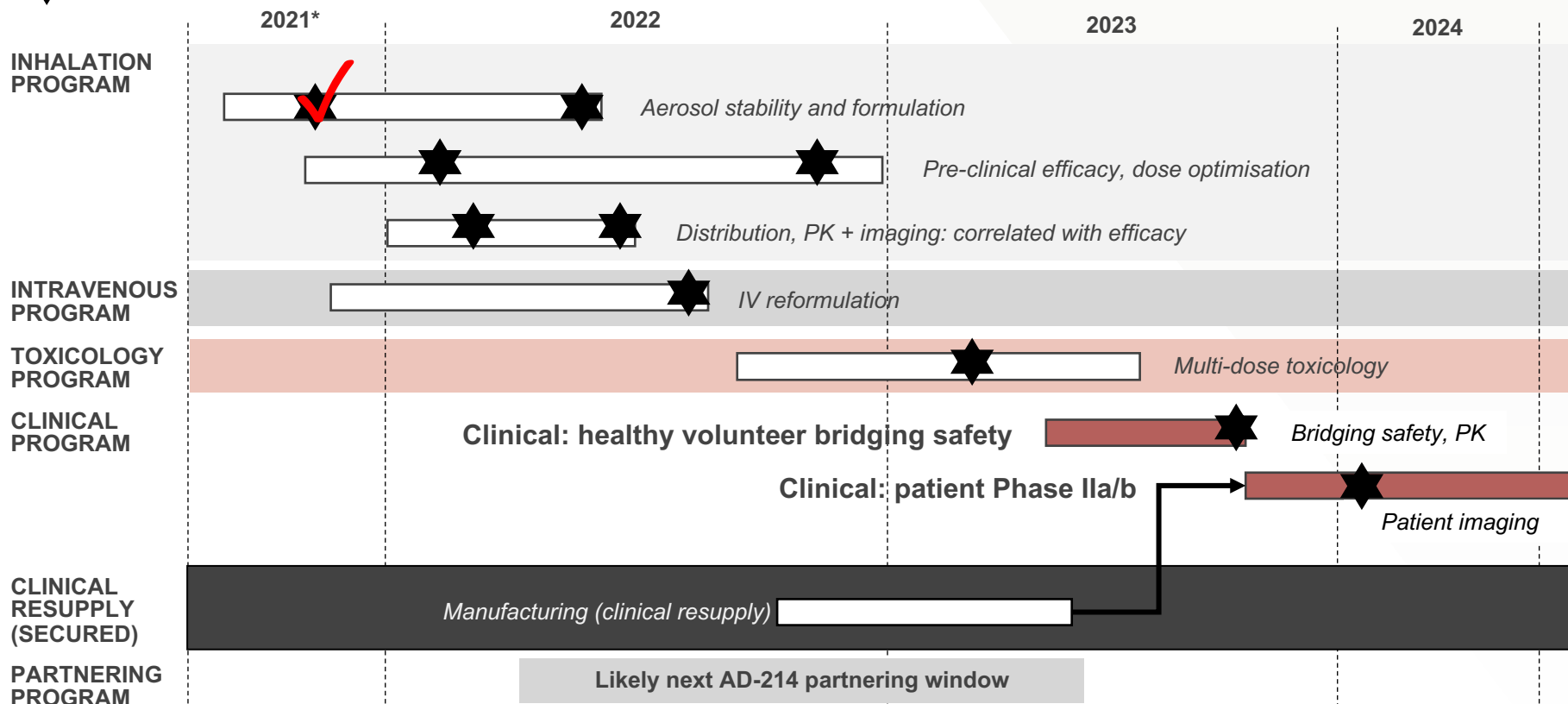


1. ASX Releases 10 Mar 2021 and 19 Jul 2021
 2. ASX Release 1 July 2021
 3. ASX Release 19 July 2021

Key milestones progressively de-risk AD-214 development: IPF Phase II 2023

Quarterly milestones to de-risk formulation; extensive use of pre-clinical imaging; AD-214 partnering window from late 2022

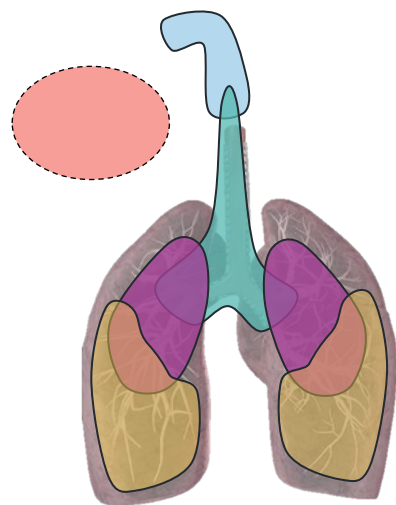
★ Key data readouts



* Calendar years

Predicted regional deposition of AD-214 in human lungs

The ICRP66¹ model predicts that 17-46% of AD-214 delivered from commercial nebulisers will be delivered to the smallest (alveolar/interstitial) airways of the lungs where most IPF is found





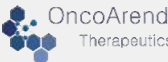
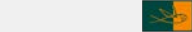








- Exhaled fraction
- Extra thoracic fraction
- Tracheobronchial fraction
- Bronchiolar fraction
- Alveolar/interstitial fraction

	Device A	Device B
Aerosol particle size (volume mean diameter)	4.8 µm	4.4 µm
Fine particle fraction (% particles ≤ 5 µm)	55%	60%
Deposition fraction		
Extra thoracic	17%	23%
Tracheobronchial	8%	11%
Bronchiolar	15%	11%
Alveolar / interstitial	46%	17%
Total lung (BB, bb, AI)	69%	38%
Exhaled	14%	38%

1. International Commission for Radiation Protection

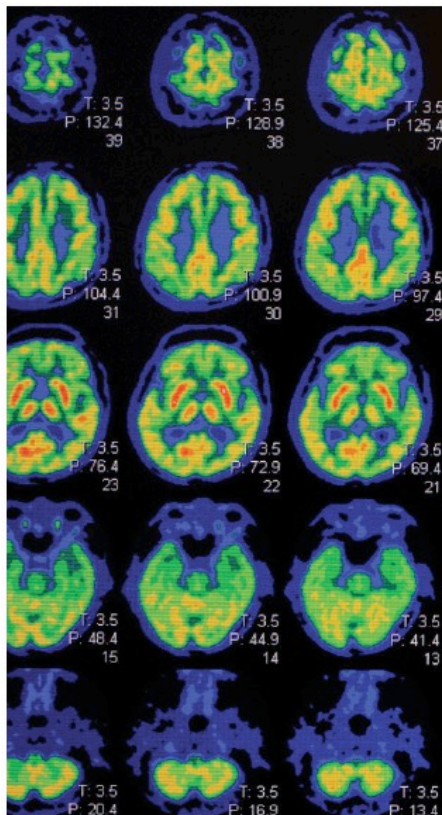
IPF partnering: valuable options as early as Phase I

IPF assets have recently yielded attractive deal terms at early stages of development

Date	Licensee	Licensor	Transaction Terms	Asset/Mode of Action	Clinical Phase	Additional Comments
Nov-21			US\$254m upfront	Cudetaxestat <i>Autotaxin inhibitor</i>	2 (Ready)	SPAC merger; Deal includes cudetaxestat (lead product) + calpain inhibitor products
Nov-21			€320m milestones	OATD-01 <i>Chitotriosidase/acidic mammalian chitinase (CHIT1/AMCase) inhibitor</i>	2 (Ready)	Single product license
Sep-21			US\$152m upfront +US\$602m milestones	Axatilimab <i>CSF-1R inhibitor</i>	2 (Ready)	Lead indication cGVHD
Nov-19			US\$390m upfront +US\$1b milestones	PRM-151 <i>Recombinant form of human pentraxin-2 (PTX-2) protein.</i>	2	Deal includes PRM-151 (IPF lead asset) + multiple assets for fibrotic diseases
Feb-21			US\$517.5m milestones	TDI01 <i>Rho containing protein kinase 2 (ROCK2) inhibitor</i>	1	Single product license
Jul-19			€45m upfront +€1.1b milestones	BBT-877 <i>Autotaxin inhibitor</i>	1	Single product license

Immuno-oncology (I/O) PET imaging

US\$6.4b PET imaging market: could help identify the 20-40% of patients who will respond to revolutionary I/O drugs faster



Immuno-oncology (I/O) drugs
**reactivate the patient's own
immune system** to fight cancer

US\$95 billion I/O market¹

Only **20-40%** of patients respond to I/O drugs²

Granzyme B (GZMB) is produced
by immune cells to kill cancer

Potential biomarker of immune system
activated by I/O drugs

PET imaging GZMB can help
identify responders early

PET imaging agents have
short development time

US\$6.4 billion

PET imaging agent market³
Largest products >US\$400m⁴

1. 2026 forecast by ResearchandMarkets.com, Immuno-Oncology - Market Analysis, Trends, Opportunities and Unmet Needs - Thematic Research, March 2021
2. P Sharma, et al, Cell 168(4) 707 (2017)
3. 2027 forecast by Global Industry Analysts, Imaging Agents: Global Market Trajectory and Analytics, April 2021
4. AD Nunn, J Nucl Med (2007) 169

GZMB i-body asset: GE Healthcare co-development collaboration

Second asset in pre-clinical development; and could generate royalty revenue sooner than a therapeutic due to shorter diagnostic development timelines



Unique i-body platform

- i-body discovery
- Manufacturing process development



GE Healthcare

Leading global supplier of PET imaging equipment and tracers

- ^{18}F chemistry, final product manufacture
- Pre-clinical, clinical proof of concept
- Commercialisation

Pipeline asset generating revenue for AdAlta

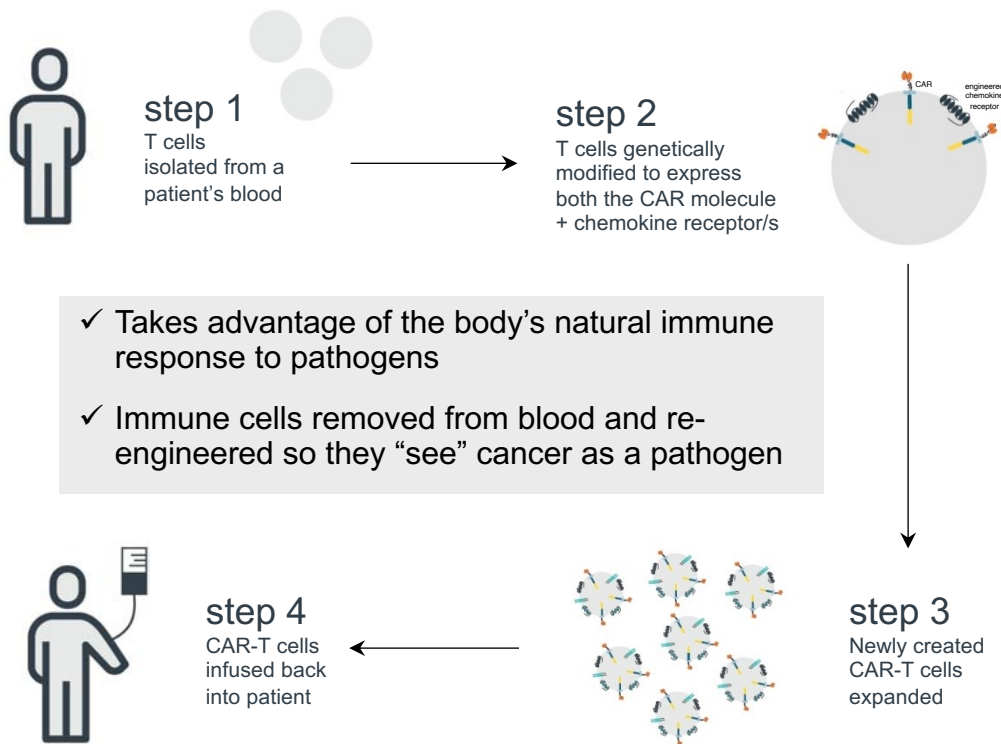
- AdAlta earns research fees, development and sales milestone payments and royalties on product sales
- A\$1.5 million revenue (milestones and research fees) earned to June 2021

October 2021 status

- Panel of GZMB specific i-bodies identified
- Pre-clinical proof of concept studies underway
- Manufacturing development underway

CAR-T therapies are revolutionising cancer treatment

Reprogramming a patient's own immune system to fight cancer is a fast growing market at the cutting edge of medicine



>US\$1b earned by CAR-T therapy products in 2020³

2m addressable patient population within next 10 years¹

US\$20.3b revenue forecast for 2028¹

50% solid tumour share of revenues by 2030²

1. Grandview Research, "T-cell Therapy Market Size, Share & Trends Analysis" Feb 2021

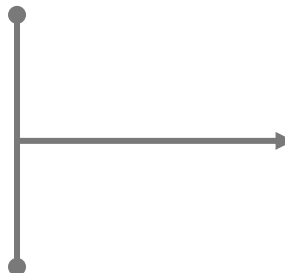
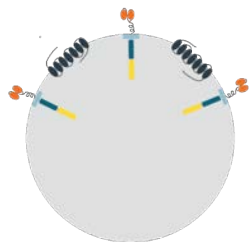
2. Polaris Market Research, "CAR-T Cell Therapy Market Share, Size Trends, Industry Analysis Report", June 2021

3. Yescarta and Kymriah market size estimates calculated from various publicly available sources. Estimates vary and different analyses may give different results.

i-body enabled CAR-T assets: Carina collaboration

Third program entering discovery to generate precision engineered CAR-T products, providing new hope for patients with cancer

World-leading
proprietary **CAR-T**
technologies for superior
access, potency and
persistence



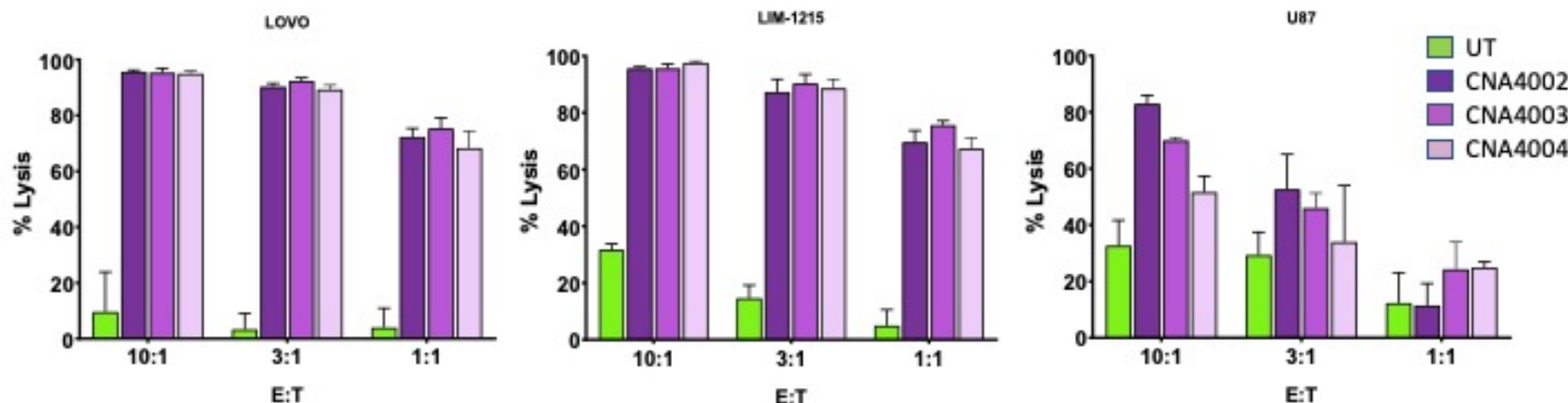
To develop precision engineered, i-body enabled, CAR-T therapies, including bi-specific and dual CAR-T products, that provide new hope for patients with cancer

Unique i-body platform
for exceptional **reach and**
targeting capability



Building the first iCAR-T cell therapy: proof of principle results

i-body enabled CAR-T (iCAR-T) cells have been successfully generated by Carina and demonstrate *in vitro* cell killing (lysis)¹



Experimental details

- LOVO and LIM1215 are colorectal cancer cell lines; U87 is a glioblastoma cell line
- 3 different Carina CAR-T constructs incorporating i-body against a single target “X” (CNA4002/CNA4003/CNA4004)
- UT is an unmodified T-cell that does not result in significant killing (lysis) of these cell lines
- i-CAR-T cells manufactured with 97% transduction (i-body CAR insertion) efficiency
- i-CAR-T cells included 60-70% CD4+ (helper) and 20-30% CD8+ (cytotoxic – killer) T cells

1. 210921 Carina iBody Datapack SB (2021) – previously unpublished data

Carina collaboration details

AdAlta and Carina will jointly develop up to 5 targets to create CAR-T, bi-specific CAR-T and dual CAR-T cell therapy products

Up to 5 targets

- **Proof of principle already achieved** (*in vitro*)
- Targets not yet disclosed
- **Combine targets for bi-specific and dual-targeted CARs**



Significant new, shared IP

- Share costs, research to *in vivo* proof of concept
- AdAlta + Carina will **jointly own collaboration IP**



Post proof of concept commercialisation options

- Can continue to develop products together, progress independently or out license
- **Products** emerge from the collaboration at proof of concept



Attractive deal space

- Biotech and immuno-oncology segment: very attractive deal space
- **Large biotech and pharma companies are actively sourcing CAR-T products**



AdAlta assets and business model

AdAlta's pipeline is expanding to plan. The i-body platform is creating wholly owned or co-developed assets. Our team is building skills in fibrosis/inflammation and immuno-oncology.

Co-developed assets



Granzyme B i-body enabled **PET imaging** agents for use in immuno-oncology

Pre-clinical



Precision engineered, i-body enabled **CAR-T** cells potentially providing new hope for patients with cancer

Discovery

Immuno-oncology theme

One more target to be added in early 2022

Wholly owned assets



Lead candidate: AD-214
First in class anti-fibrotic targeting CXCR4

Phase I
Orphan Drug Designation for IPF



Undisclosed target: GPCR for fibrotic disease
Discovery

Fibrosis and inflammation theme

Platform



Patented, diverse i-body discovery platform:
20 billion different i-bodies for drugging undruggable targets

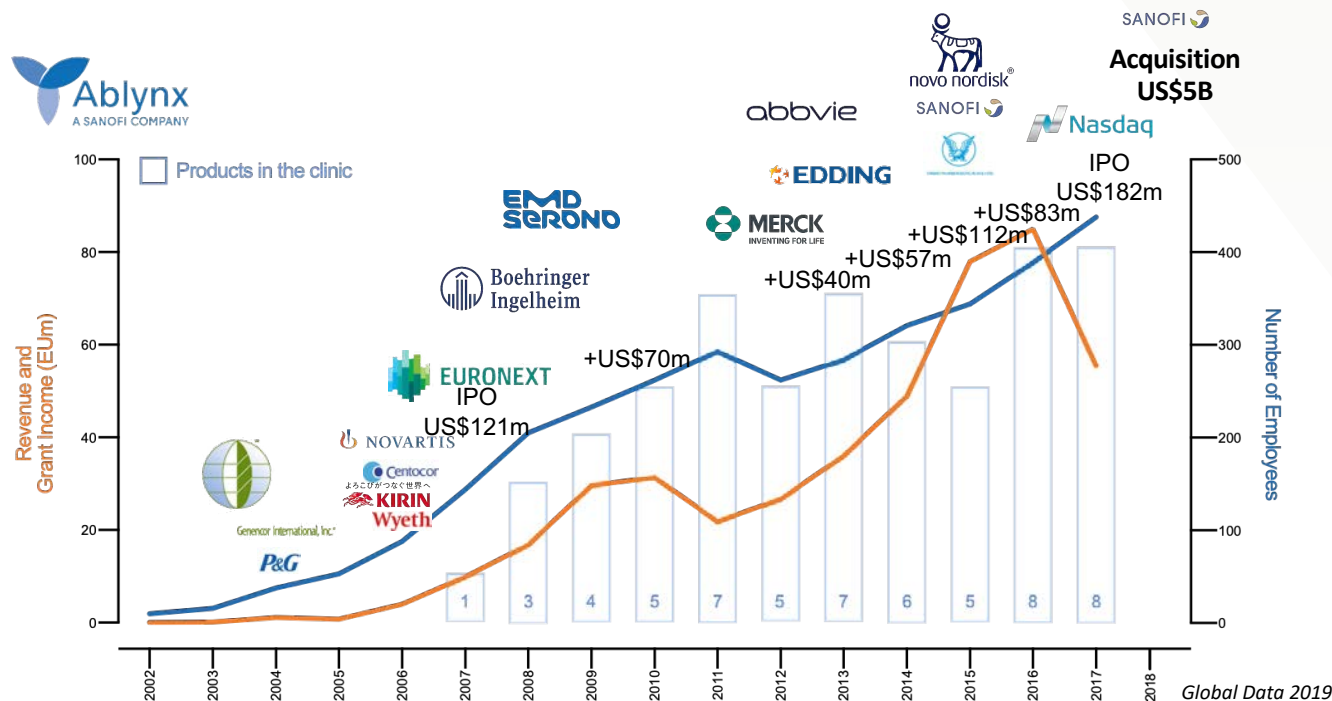
An expanding pipeline of i-body enabled products



* Target #3 may be replaced by second Carina target, delivering shorter time to proof of concept

The potential of our strategy: Ablynx case study

Multiple internal and external assets drive value, attract partners



GPCR platform exits

HEPTARES
therapeutics

Feb-15 acquired by Sosei
Phase Ib + 7 preclinical leads
US\$400m

receptos

Jul-15 acquired by Celgene
Ph II/III + GPCR platform

US\$7.8b

Ablynx
A SANOFI COMPANY

Feb-18 acquired by Sanofi
8 clinical, 37 preclinical candidates
€3.9b

Calendar 2022 goals

Significant progress anticipated on both existing core programs and further pipeline expansion



AD-214 – first in class anti-fibrotic

- Inhaled formulation development: nebulisation feasibility, efficacy in animal model of IPF (Q1); lung distribution imaging in healthy and disease model animals (Q1); dose finding and clinical formulation (Q2)
- Intravenous formulation development (Q3)
- GLP toxicology with inhaled formulation (commences 2H22)
- Continuing partnering discussions (Q1); selection of next indication



GE Healthcare – GZMB PET imaging

- Pre-clinical proof of concept – milestone payment (mid-22)



Carina Biotech – i-body enabled CAR-T cells

- 1st experimental results on Target #1
- Commence i-body discovery on Target #2



Internal pipeline and platform development

- Initial functional data on i-body binders against internal Target #2 (2H22)
- i-body2.0: new intellectual property filed (end'22)
- 7 programs in pipeline (end'22)
- Additional patent filings, grants on individual i-body enabled products

Industry experienced leadership and advisors

Team with experience from discovery through manufacturing, clinical and commercialisation

Board	Executive	Scientific Advisory Board
 <p>Dr Paul MacLeman <i>Chair</i></p>  	 <p>Tim Oldham, PhD <i>CEO & Managing Director</i></p>  	 <p>Brian Richardson <i>Drug discovery and development expert</i></p> 
 <p>Liddy McCall <i>Director (alt: Dr James Williams)</i></p>  	 <p>Dallas Hartman, PhD <i>Chief Operating Officer</i></p>  	 <p>Steve Felstead <i>Clinical development</i></p> 
 <p>Tim Oldham, PhD <i>CEO & Managing Director</i></p>  	 <p>Claudia Gregorio-King, PhD <i>VP Clinical Product Development</i></p>  	 <p>John Westwick <i>Pulmonary drug discovery and development</i></p> 
 <p>Dr Robert Peach <i>Independent Director</i></p> 	 <p>Mick Foley, PhD <i>Founding Chief Scientist</i></p>  	<p>Development team</p> <p>10 staff (9 PhD's)</p> <p>Skills in protein chemistry, i-body discovery, product development, pre-clinical development, clinical development</p>
 <p>Dr David Fuller <i>Independent Director</i></p>  	 <p>Michael Rasmussen <i>Consultant Medical Expert</i></p>  	

Corporate snapshot

Key financial details (15 Dec 2021 – proforma*)

ASX code	1AD
Market capitalisation	A\$23.65m
Share price (12 month closing range)	A\$0.081 (\$0.074 - 0.195)
12 month return	(38)%
Ordinary Shares (daily volume)	296,549,441 (426,207)
Unlisted Options	13,804,595
Cash (30 Nov 2021)	A\$6.46m
Proceeds of placement (14 Dec 2021)	A\$3.75m

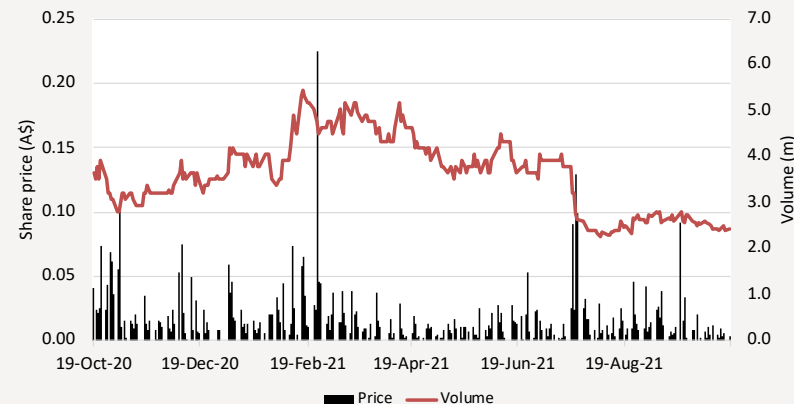
Major shareholders (15 Dec 2021 – proforma*)

	%
Yuuwa Capital LP	18.2
Platinum Asset Management	16.6
Meurs Holdings Pty Ltd	6.0
Radiata Super Pty Ltd	3.7
Sacavic Pty Ltd	2.5
Other (~1,600 total holders)	53.0
Total	100%

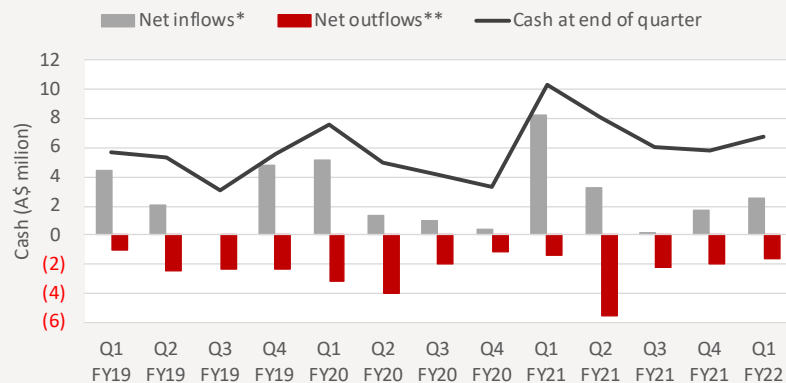
Analyst Coverage

Pitt Street Research
Lodge Partners

Share price performance (last 12 months)



Quarterly cash flows (A\$ million)



*Proforma details including 15 December 2021 placement commitments: market capitalization = closing market capitalization + placement commitments; issued shares and major shareholdings include shares subscribed in placement

Investment proposition



i-body platform to create value



Fibrosis/inflammation
Lead asset advancing to Phase II
>\$3b market potential in first indication¹

Discovery initiated on 2nd target



Immuno-oncology
2 x co-development collaborations to leverage platform

- ✓ GE Healthcare: \$6b PET market²
- ✓ Carina Biotech: \$20b CAR-T market³



Clear vision for growth



Leading expertise



Regular near-term news flow

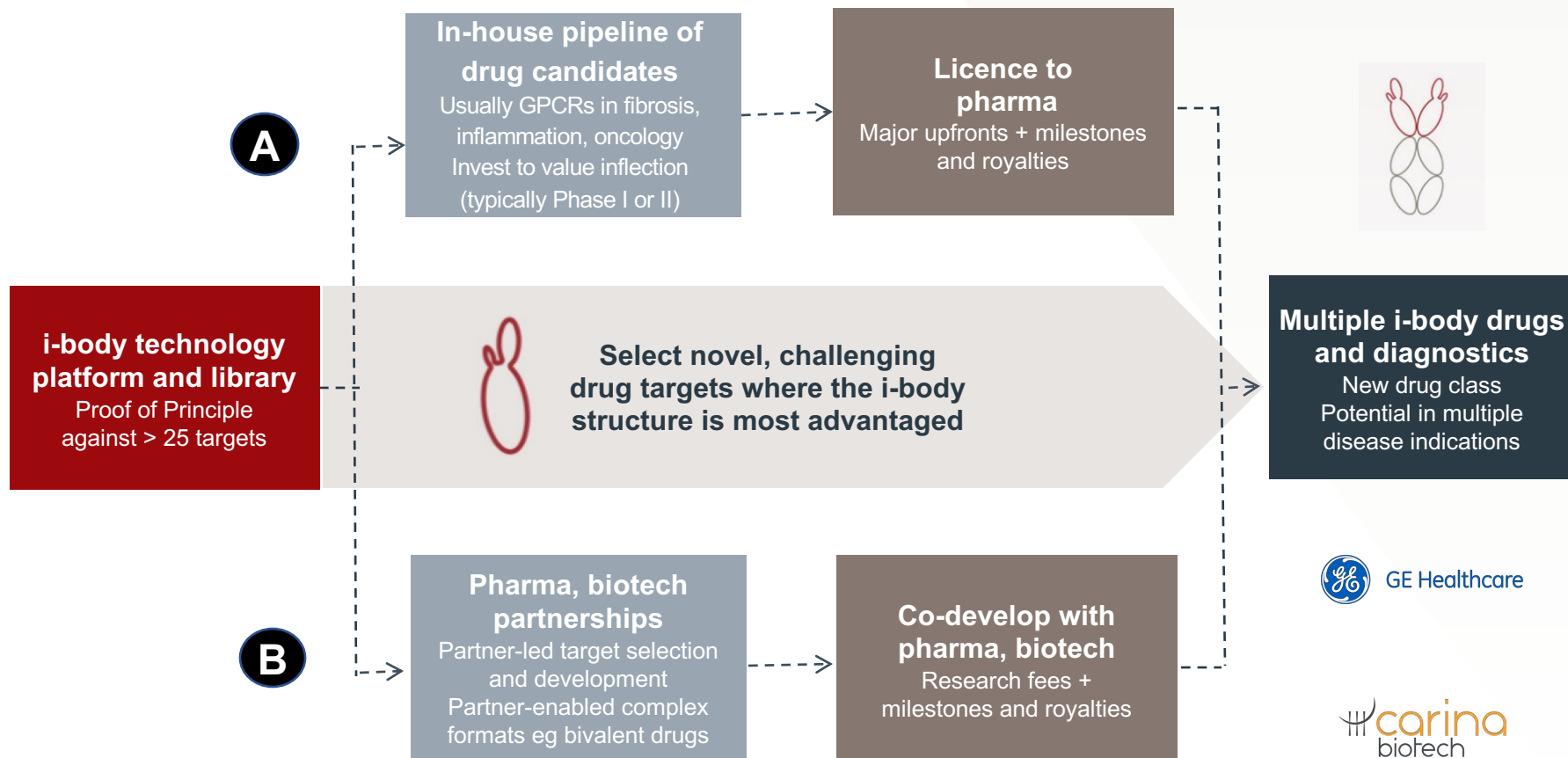
1. GlobalData, Idiopathic Pulmonary Fibrosis Opportunity Analysis and Forecasts to 2029, November 2020
 2. 2027 forecast by Global Industry Analysts, Imaging Agents: Global Market Trajectory and Analytics, April 2021
 3. 2028 forecast by Grandview Research, "T-cell Therapy Market Size, Share & Trends Analysis" Feb 2021

Contact:

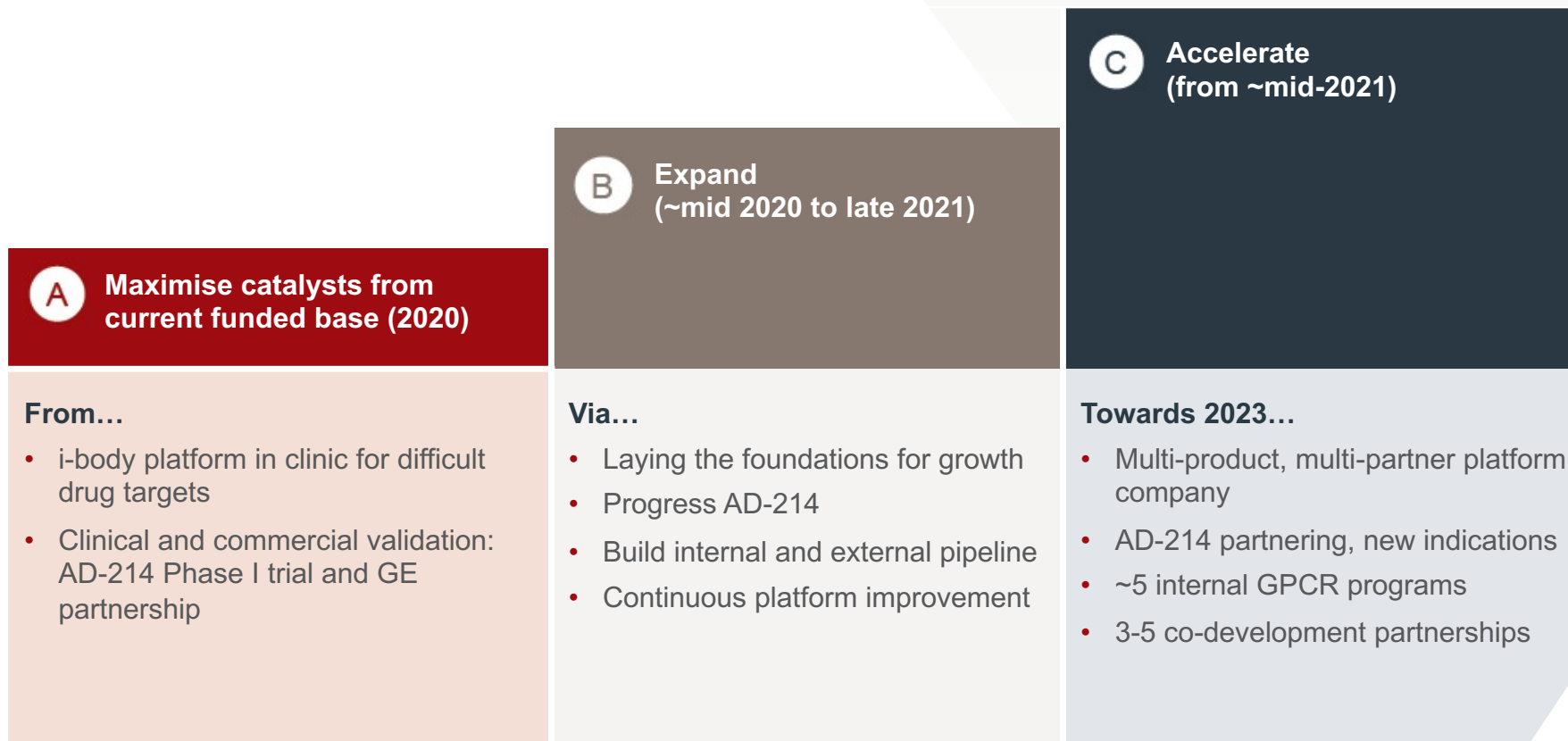
Tim Oldham, CEO and Managing Director
enquiries@adalta.com.au
www.adalta.com.au

Appendix: Strategy

Our strategy



AdAlta has successfully transitioned to the expansion phase of our growth plan



Appendix: i-bodies

i-bodies: next generation protein therapeutics

i-bodies are built on human protein scaffolds to mimic the properties of single domain antibodies

Generation of the i-body

1



Shark antibody binding domain with unique long loop

2

Two binding loops are engineered onto the human protein. These enable tight binding to the drug target and have a therapeutic effect



A **human** protein that is structurally equivalent to the shark single domain antibody is the backbone or scaffold protein of the i-body

3



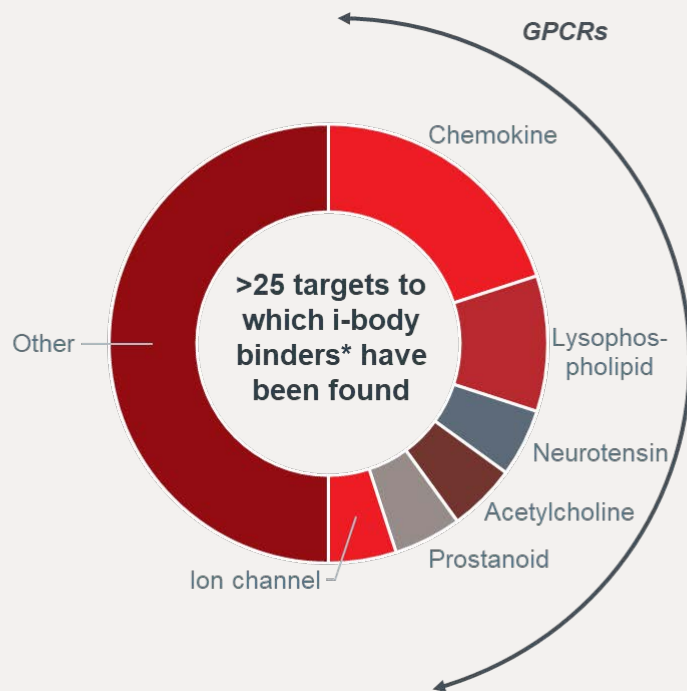
Each unique i-body has different binding loops. AdAlta's i-body library has 10^{10} unique i-bodies

AdAlta i-body is the combination of a human protein that mimics the structural features of the shark antibody with unique long loop binding sites

The long CDR3 loop of the i-body confers exceptional targeting and binding properties, providing therapeutic access to drug targets that have evaded traditional monoclonal antibodies

Drug targets include G-protein-coupled receptors (GPCRs), currently the most heavily investigated class of drug targets in the body

An immensely powerful drug development platform



Demonstrated i-body platform capability

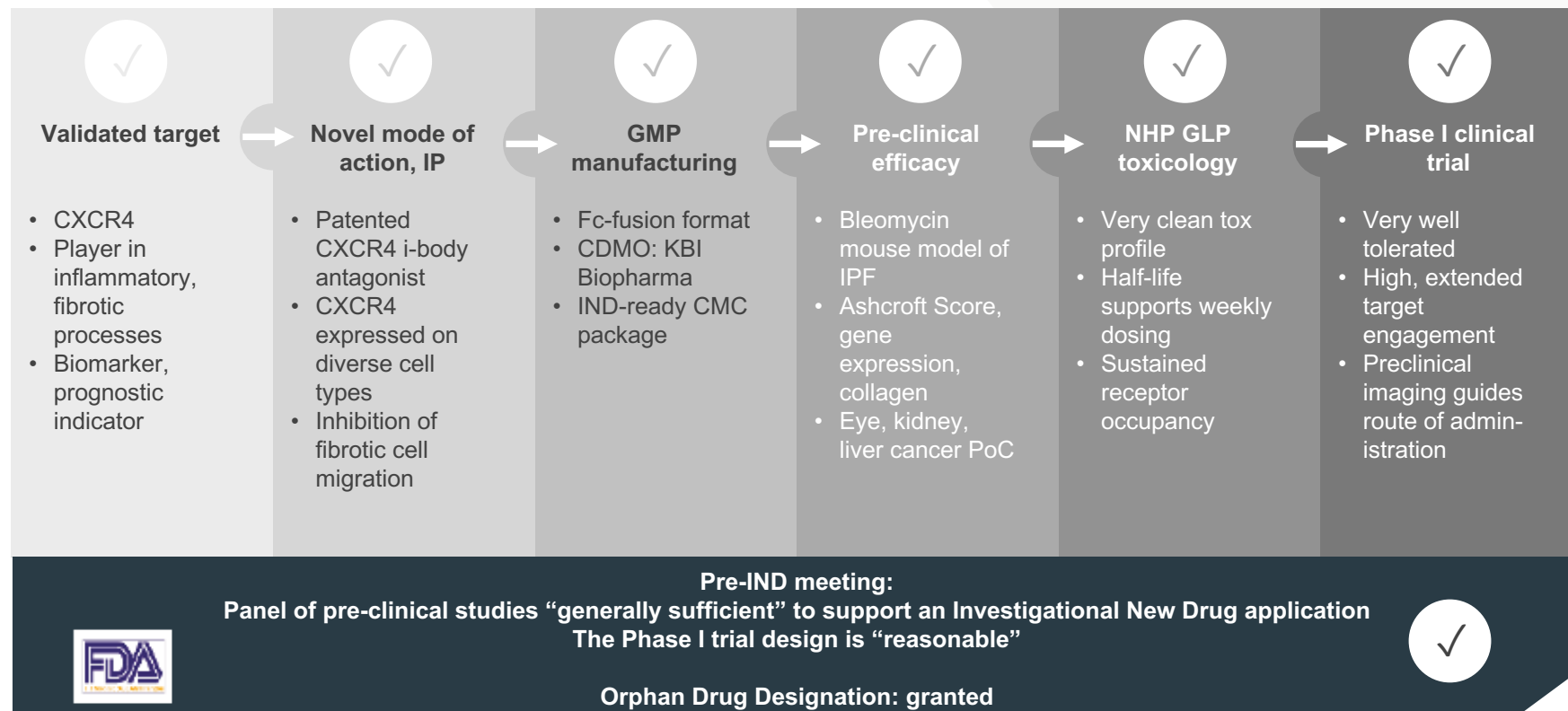
- G-protein coupled receptors (GPCRs)
 - Fibrosis, inflammation, oncology
- Diagnostics (PET tracers; cancer imaging)
 - Chimeric antigen receptor (CAR) cell therapy

GPCRs are the most heavily investigated class of drug today and 80% of GPCR targets are yet to be effectively exploited

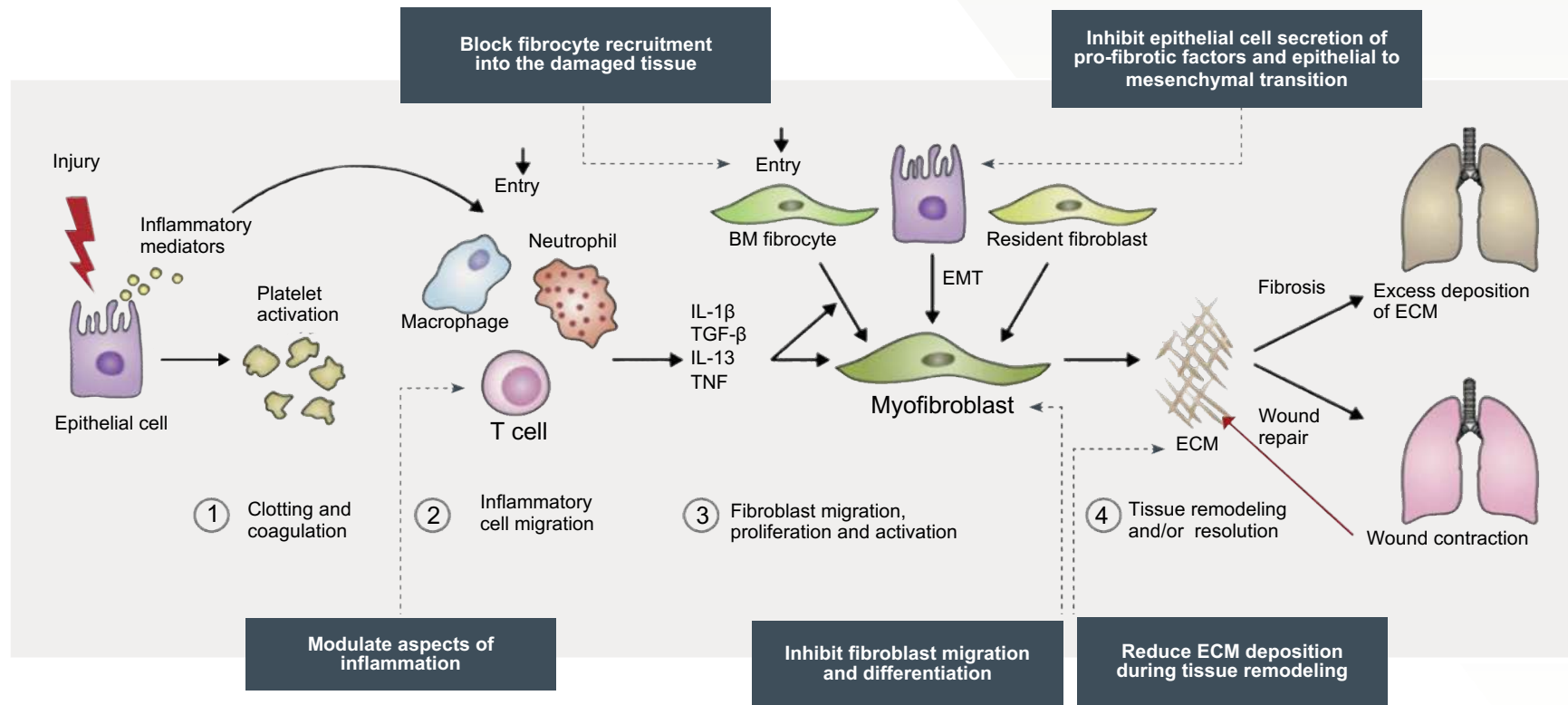
*Includes both i-body and VNAR/IgNAR formats

Appendix: AD-214

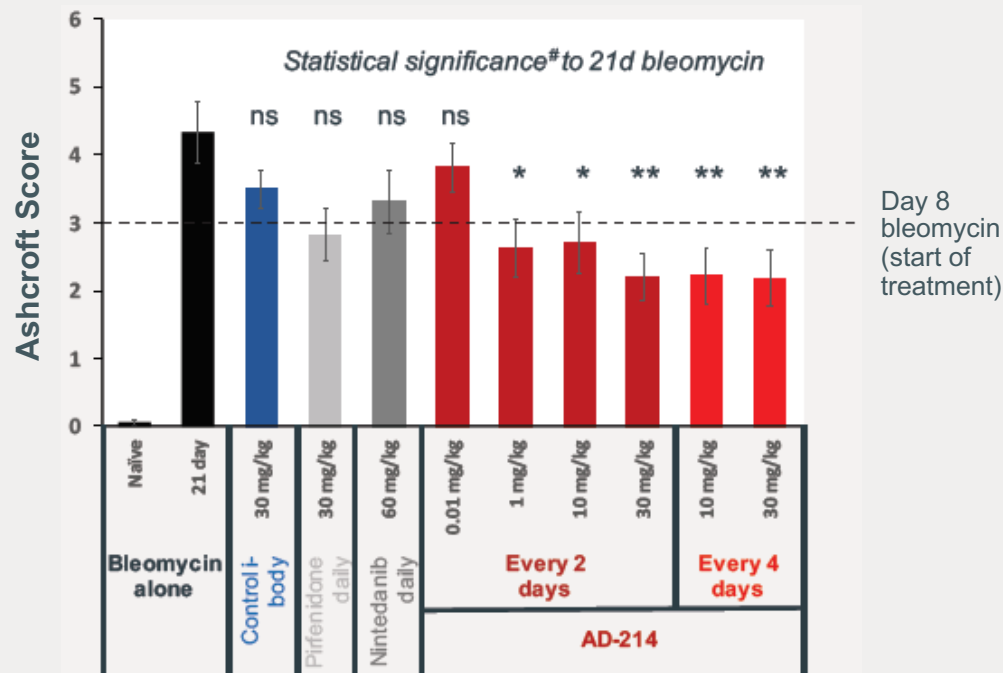
AD-214: development summary



AD-214 inhibits key features of the fibrogenic pathway with novel MOA



AD-214 induced reduction in progression of fibrosis in mouse bleomycin model



AD-214 reduced Ashcroft Score with statistical significance compared to bleomycin treated mice at:

- 1-30mg/kg every second day
- 10-30mg/kg every fourth day

Wide range of dosing regimens can be used to test efficacy

- 10mg/kg every second day exhibited effectiveness by most study parameters
- Human equivalent dose: 1mg/kg (estimated)

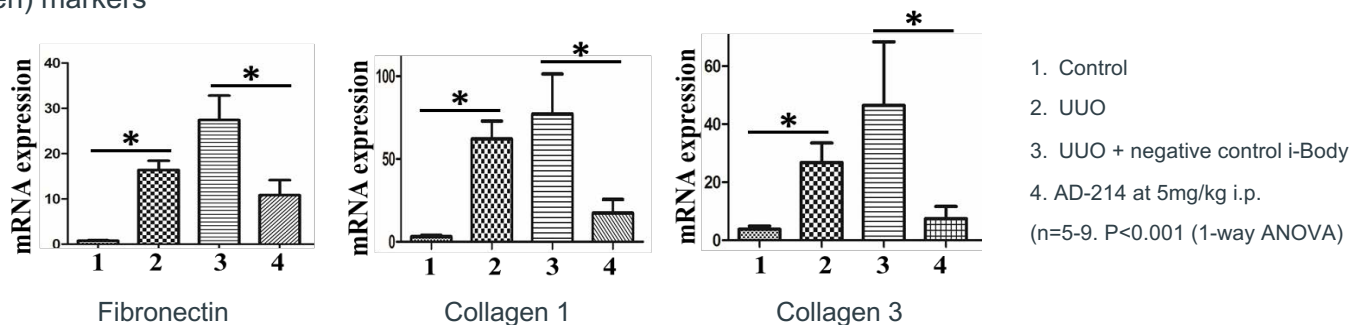
AD-214 efficacy demonstrated in gold standard IPF disease model

Supportive of potential human therapeutic window beginning as low as 1mg/kg

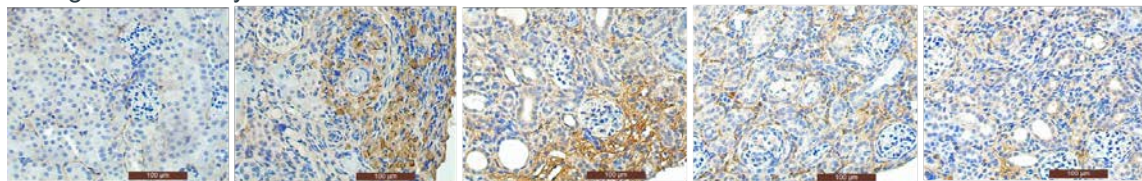
AD-214 attenuates renal damage induced by unilateral ureteral obstruction

UUO induces an increase in Fibronectin, Col1 and Col3 gene expression and protein deposition in murine kidneys.

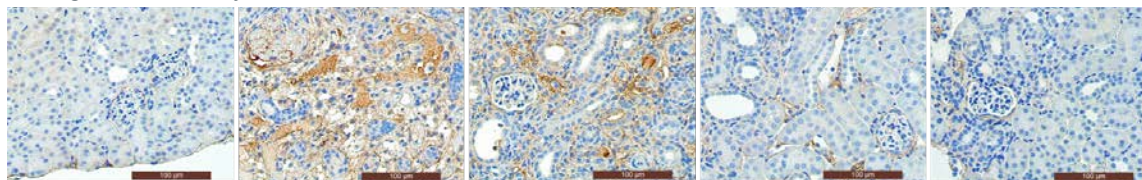
1 and 5mg/kg AD-214 by intraperitoneal injection every two days for 14 days to mice with UUO decreases gene expression of key extracellular matrix (collagen) markers



Collagen 1 in kidneys



Collagen 4 in kidneys



Con

UUO

UUO+Negative i-body

UUO+AD-214 (1mg/kg)

UUO+AD-214 (5mg/kg)

NHP GLP toxicology: AD-214 safe

3 non-human primate studies completed Good Laboratory Practice (GLP) study to evaluate safety and toxicology

10mg/kg, 30mg/kg
and 100mg/kg
multiple doses over
four weeks plus
recovery (human
equivalent dose
32mg/kg)

AD-214 well tolerated with no deaths, no AD-214-related
clinical signs, no changes in a panel of clinical observations:

- body weight
- ophthalmoscopy
- blood pressure
- electrocardiography
- respiratory function
- neurological function
- coagulation
- urinalysis
- organ weight
- macroscopic and microscopic findings

Minor, transient,
completely reversible
increase in total white
cell and circulating
CD34+ cells

Small, transient,
completely reversible
decrease in serum total
protein and albumin at
highest dose only (100
mg/kg)

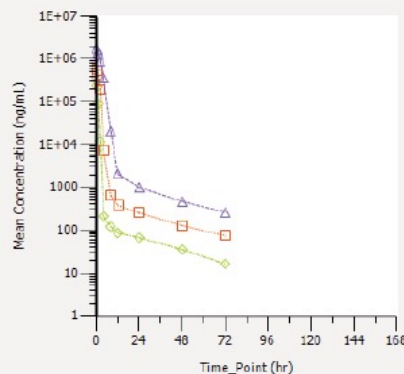
Tox study results were in line with expectations and in keeping with previous studies

**No major organ toxicity has been observed on repeat dosing at high doses
No suggestion of off-target toxicities**

Non-human primate GLP toxicology: Phase I dose justification

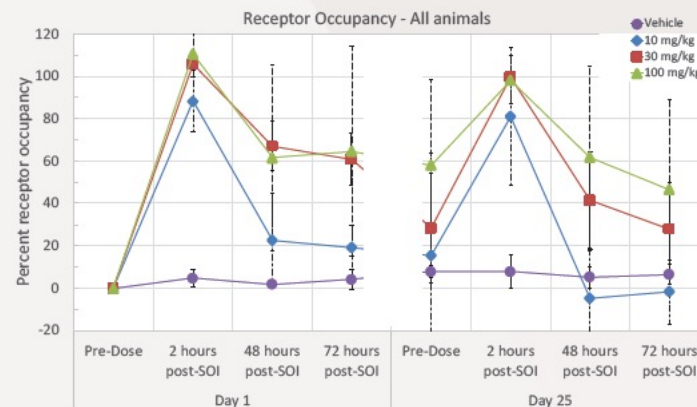
Pharmacokinetics

- Elimination half-life 22-29h
- Human equivalent: ~71h (estimate)
- AD-214 available for >3 days



Pharmacodynamics

- >60% receptor occupancy* for 72h at >30mg/kg
- Human equivalent: ~10mg/kg (estimate)
- High receptor binding for >3 days



Supportive of human therapeutic dose window including 10mg/kg intravenously, weekly or every second week

Intravenous AD-214 Phase 1 clinical and pre-clinical imaging programs

The Phase 1 program has demonstrated the safety and target engagement of intravenous AD-214 in healthy volunteers

Phase 1 protocol in healthy volunteers - COMPLETE

Part A

**Single iv dose,
healthy volunteers (HV SAD)**

42 participants, 7 cohorts
0.01-20 mg/kg dose



Part B

**Multiple ascending iv dose,
healthy volunteers (HV MAD)**

8 participants
3 x 5 mg/kg (every 2 weeks)



Objectives of Phase 1 Part A and B:

- Top-line safety data
- Explore optimal dosing intervals
- Support FDA IND applications for further studies in all CXCR4 indications

PET imaging*

Pre-clinical

**Development of RL-AD-214 for PET
imaging – complete**

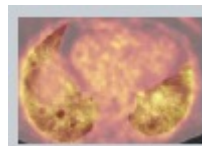
Distribution and efficacy studies

Intravenous and inhaled administration
Healthy and IPF disease models (mouse and
large animal)

Clinical (future)

**Single and multi-dose in fibrotic
diseases**

Open label with standard of care**



Objectives of PET imaging program:

- Effect of elevated lung CXCR4 on distribution of AD-214
- Correlation of AD-214 distribution with efficacy
- Explore CXCR4 expression as potential biomarker
- Safety of AD-214 in combination with standard of care**

* Supported by a Biomedical Translational Bridge grant from Medical Research Future Fund and MTPConnect

** Includes pirfenidone, nintedanib or non-pharmacologic intervention.

Intravenous AD-214 Phase I healthy volunteer results

Intravenous AD-214 is well tolerated in single doses to 20 mg/kg and multiple doses to 5 mg/kg*

AD-214 molecule is well tolerated in single and multiple iv doses (see Appendix for more detail)*

- No dose limiting toxicities or adverse events of clinical concern in single doses to 20 mg/kg
- Moderate infusion related reactions (IRRs) in 3 participants (2 drug, 1 placebo) receiving multiple 5mg/kg doses
 - Rapidly resolved at end of infusion
 - *Appear formulation related*
- No concerning clinical laboratory results, no adverse liver or other organ function detected
- *HREC approved progressing to 10 mg/kg*

AD-214 clearly engages the target CXCR4 receptor *in vivo**

- Dose dependent changes in biomarkers of CXCR4 engagement observed
- High and extended duration of receptor occupancy on circulating T cells
- *Biomarker response consistent across multiple doses at 5 mg/kg – no evidence of tolerance*

AD-214 iv pharmacokinetics are dose proportionate*

- Peak and total AD-214 exposure increases in a dose proportionate or more manner to 20 mg/kg, consistent across multiple doses at 5 mg/kg
- Elimination half-life 44 ± 15 hours at 20 mg/kg
- *No evidence of tolerance or drug induced clearance*
- *Rapid distribution from plasma observed at all doses, consistent with rapid increase/saturation of receptor occupancy and preclinical imaging*

* Multiple dose data subject to database lock and full statistical analysis; receptor occupancy data only available to 4 hours after end of third infusion; antidrug antibody data only available to 14 days after second infusion (pre third infusion)

Intravenous AD-214 Phase I healthy volunteer study: safety findings

Single iv doses to 20 mg/kg (42 participants)

- **No dose limiting adverse events**
- **No serious adverse events**
- **No concerning clinical laboratory results**
- **Dose escalation steps completed without concern**
- **Adverse events (AEs) were non-concerning**
 - Predominantly mild
 - Three Grade 2 (moderate) AEs

Multiple iv doses 5 mg/kg (8 participants)

- **No dose limiting adverse events**
 - Safety Management Committee and Human Research Ethics Committee approved progression to 10 mg/kg
- **No serious adverse events**
- **No concerning clinical laboratory results**
- **Adverse events (AEs) profile supports safety of AD-214 molecule**
 - Predominantly mild
 - Three Grade 2 (moderate) treatment related AEs
 - Infusion related reactions (IRRs) reported in three participants – resolved rapidly when infusion ended
- **IRRs linked to formulation**
 - Observed in participants receiving both AD-214 (2) and placebo (1)
 - Trended to increasing intensity and frequency with subsequent doses
 - Not associated with changes in vital signs, clinical, physical or cytokines
 - Protocol amended to include standard antihistamine and corticosteroid treatment options

Intravenous AD-214 Phase I healthy volunteer study: immune response findings

Single iv doses to 20 mg/kg (42 participants)

- **Isolated instances of minor cytokine elevation**
 - Transient and primarily low level of elevation of IL-6 and IL-8 in some participants (including placebos)
- **No clinically significant cytokine release**
- **Antidrug antibodies: detected in 11 participants**
 - Predominantly low titre
 - Characterisation pending
- **No clinical symptoms related to immune response observed**

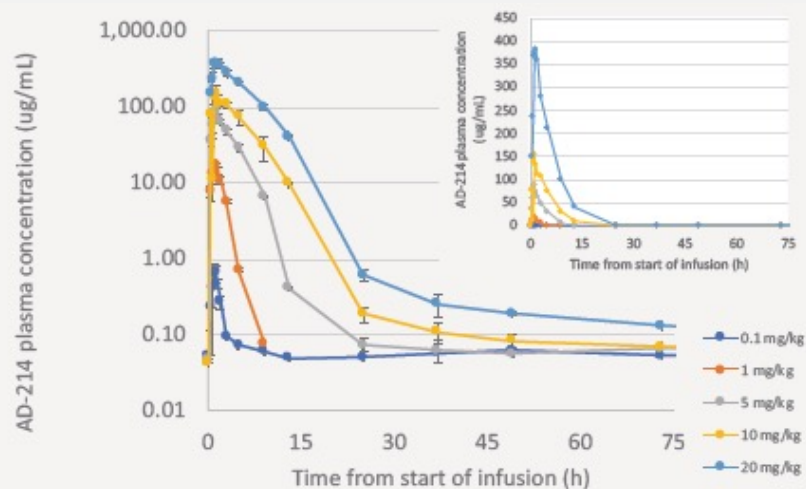
Multiple iv doses 5 mg/kg (8 participants)

- **Sporadic and primarily low level elevation of cytokines IL-6 and IL-8, sporadic increases in TNF- α and IFN- γ**
 - No clear association with IRRs or antidrug antibodies
 - Low level increases in IL-6 in many participants 24-48h post infusion
- **No clinically significant cytokine response and no link to IRRs or ADAs**
- **Antidrug antibodies: detected in three participants after second dose**
 - All low titre
 - One also reported IRR (association unlikely)
 - Characterisation pending
 - Third dose data pending

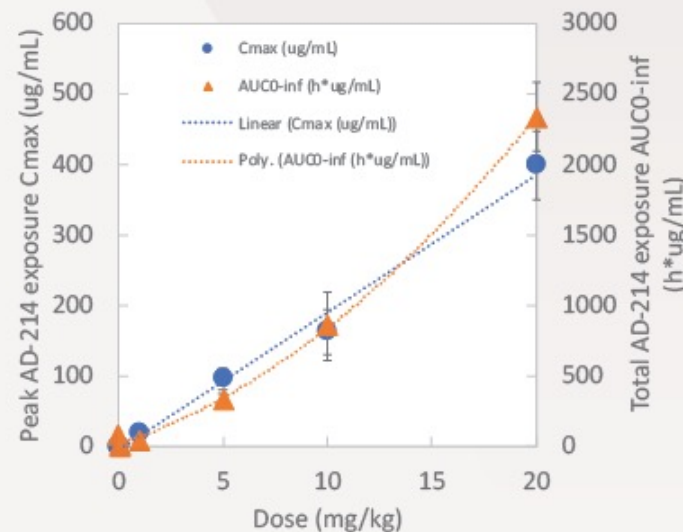
Intravenous AD-214 pharmacokinetics increase proportionally with dose (single doses)

- Maximum exposure, C_{max}, increases in a dose proportional manner
- Total exposure, AUC_{0-inf}, increases in a more than dose proportional manner
- Elimination half-life t_{1/2} ~40h

AD-214 plasma concentrations (log and linear scale)



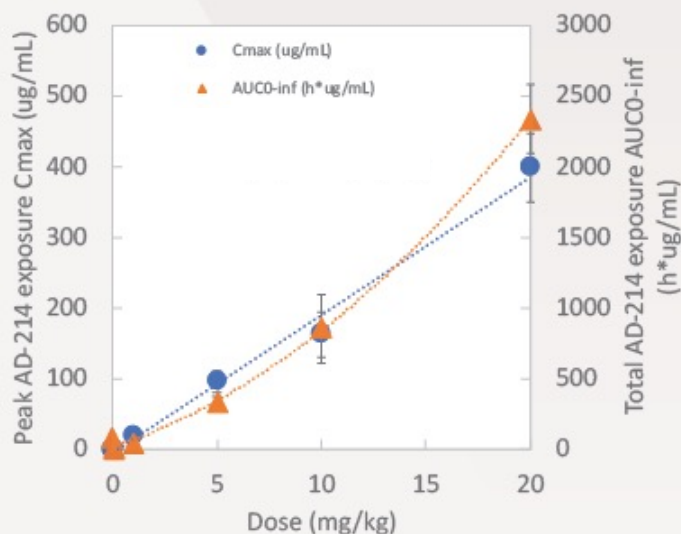
Maximum and total plasma exposure



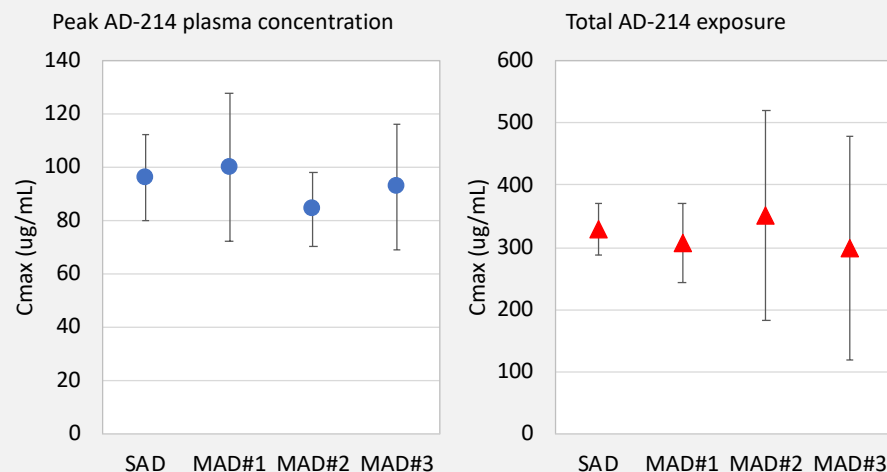
Intravenous AD-214 pharmacokinetics

Maximum exposure, C_{\max} , and total exposure, $AUC_{0-\infty}$, increase in a dose proportionate manner and are consistent across multiple doses of AD-214 at 5 mg/kg, supporting absence of drug induced tolerance or clearance

Maximum and total plasma exposure - SAD



Maximum and total plasma exposure – 5 mg/kg



Pharmacokinetic profile

- Rapid distribution from plasma (consistent with rapid and high CXCR4 receptor occupancy and PET imaging distribution studies)
- Elimination half-life 44 ± 15 h at 20 mg/kg

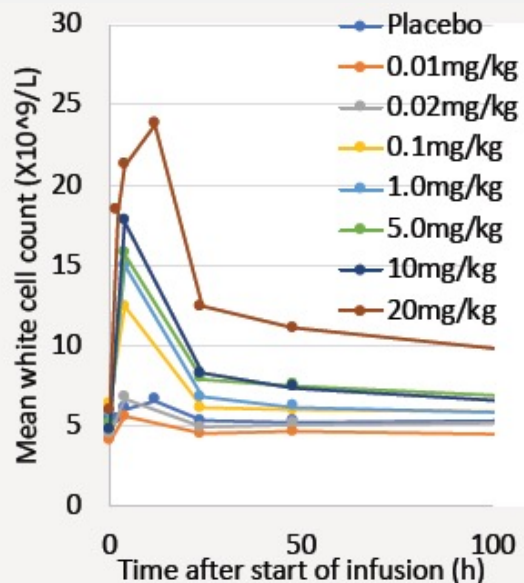
* SAD = single dose at 5mg/kg; MAD#1/MAD#2/MAD#3 are first, second and third multiple doses at 5 mg/kg; data presented as mean \pm std dev

Transient white blood cell and blood stem cell increases indicate CXCR4 engagement

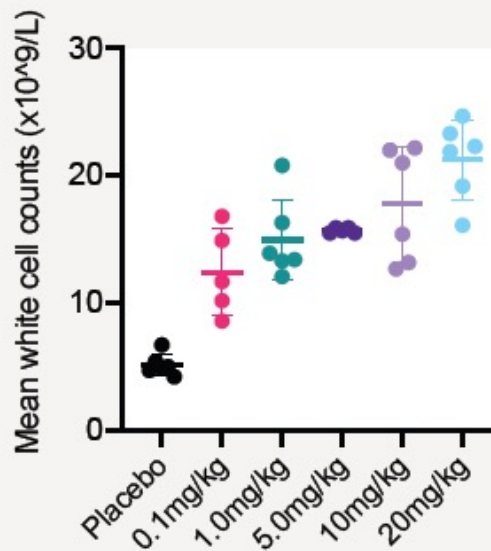
Observed in Phase I HV SAD*

Transient, dose dependent, increase in WCC and CD34+ counts at 4-12 hours consistent with CXCR4 blockade

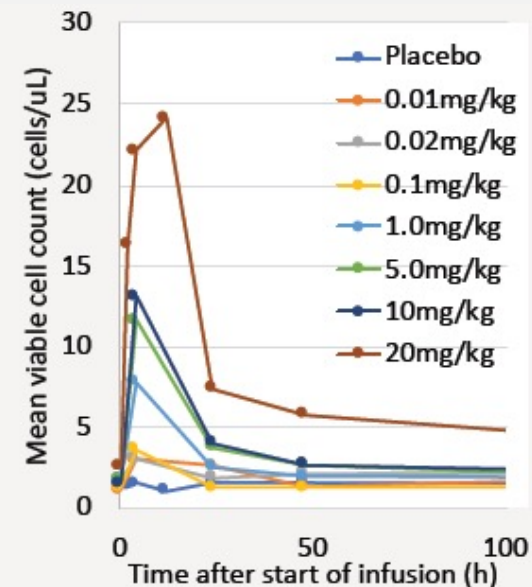
WCC counts



WCC counts at 4h



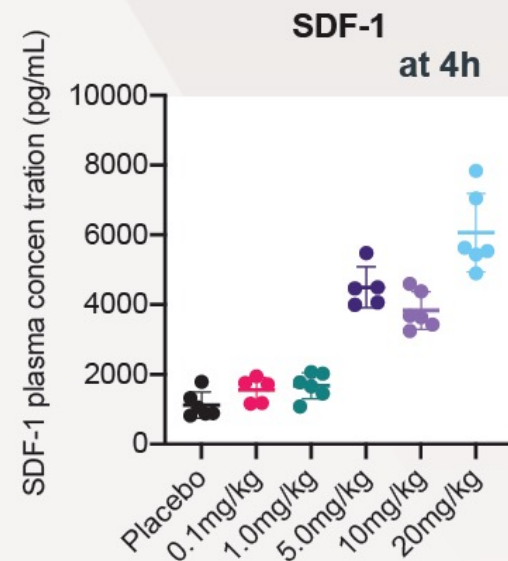
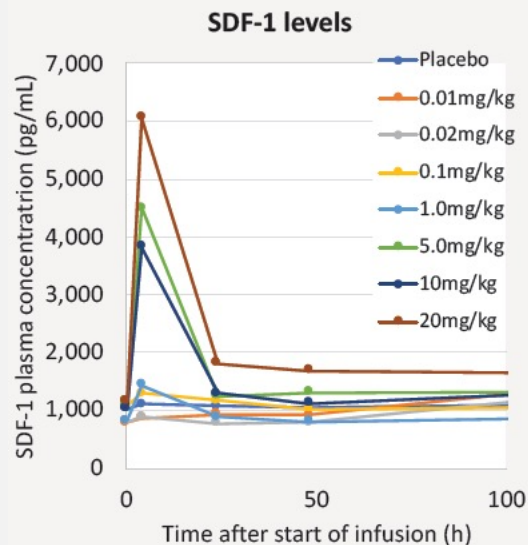
CD34+ cell counts



* Single ascending dose data presented as mean \pm std dev

Transient increase in SDF-1 (natural ligand of CXCR4) consistent with CXCR4 engagement

Transient increases in SDF-1 levels at 4 hours in some participants, returning to baseline at 24h consistent with CXCR4 blockade



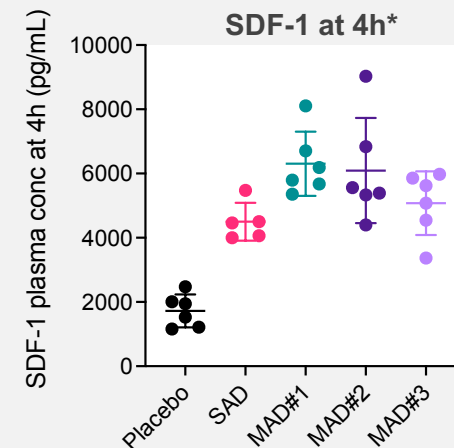
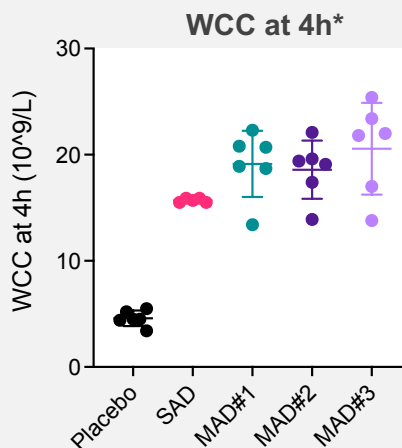
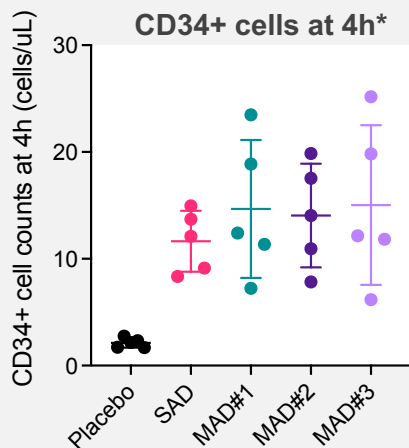
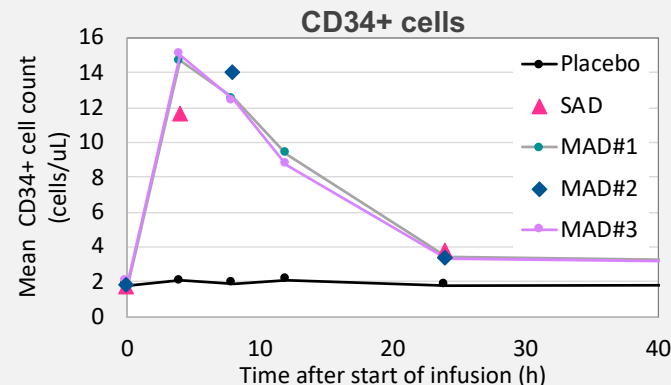
* Single ascending dose data presented as mean \pm std dev

Biomarkers of CXCR4 receptor engagement at 5 mg/kg

Transient increases in blood biomarkers demonstrate consistent engagement of the target receptor, CXCR4 across multiple AD-214 doses

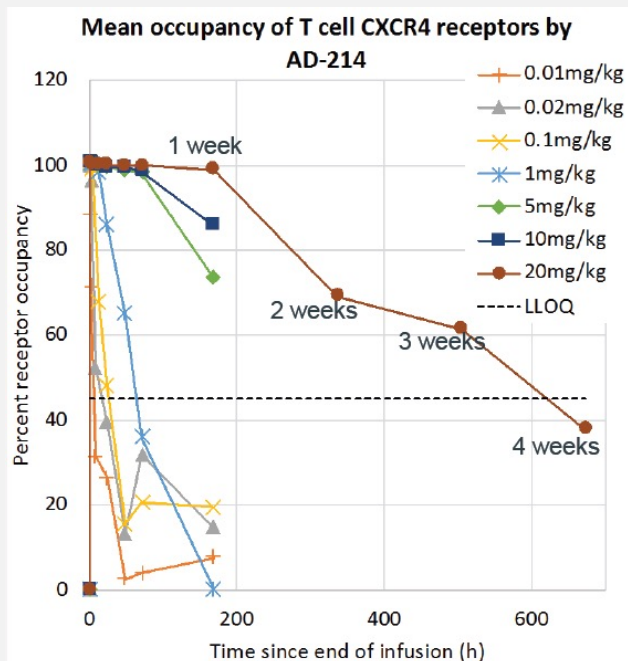
Biomarker data confirm single dose findings, consistent across multiple doses: no drug induced tolerance or accumulation

- ▶ White blood cell counts (WCC), haematopoietic stem cell (CD34+) counts and concentration of SDF-1 are biomarkers of CXCR4 engagement by AD-214
- ▶ Profile of biomarkers is consistent across multiple doses at 5 mg/kg*
- ▶ 100% T cell CXCR4 receptor occupancy achieved for at least 24h (data not shown, maximum duration analysis pending)



* SAD = single dose at 5mg/kg; MAD#1/MAD#2/MAD#3 are first, second and third multiple doses at 5 mg/kg; CD34+ and WCC data is shown at 8h for MAD#2

Sustained high levels of CXCR4 receptor occupancy on T cells



White blood cells naturally express CXCR4 in healthy individuals, providing an accessible surrogate for AD-214 target engagement or receptor occupancy (RO)

Understanding duration of RO is critical to inform dosing

Primary

- >70% CXCR4 RO at 7 days after 5-10 mg/kg infusion
- >60% CXCR4 RO at 21 days after 20 mg/kg infusion*
- **Duration of RO is considerably longer than PK profile**

If replicated on CXCR4 receptors in fibrotic tissues, result supports extended dosing intervals despite relatively rapid clearance from circulation

* Receptor occupancy was monitored for one week at all dose levels except 20 mg/kg (4 weeks)

PET imaging studies inform dosing and route of administration

PET imaging with radiolabelled AD-214 supports early transition to inhaled route of administration

Rapid liver distribution and clearance reduces bioavailability

- ▶ Consistent with pharmacokinetic profile and a first pass clearance mechanism
- ▶ More than half administered dose not available to target site of action

CXCR4 binding capability retained, supportive of potential efficacy

- ▶ Consistent with observed biomarker, receptor occupancy and bleomycin mouse efficacy data

Liver distribution does not appear to affect safety profile

- ▶ No localization in hepatocytes (responsible for metabolic activity in liver)
- ▶ Consistent with lack of observed changes in liver function or toxicity in toxicology and clinical studies


Direct lung delivery of AD-214 could achieve a therapeutic dose at lower levels than intravenous delivery



Radiolabelled AD-214 will continue to be a useful development tool
Alternate intravenous formulations to be evaluated to improve bioavailability

Phase II planned with inhaled formulation

Delivery of AD-214 by inhalation has potential to improve bioavailability, be more convenient for patients, be more cost effective, and improve partnering flexibility



Improved bioavailability	<ul style="list-style-type: none"> • AD-214 delivered direct to fibrotic areas • First pass liver clearance avoided • Dosing schedule flexibility to optimise receptor coverage
Greater patient convenience	<ul style="list-style-type: none"> • Self administration (no scheduled clinic visits; freedom of movement) • Less invasive
Enhanced cost effectiveness	<ul style="list-style-type: none"> • Lower drug dose means lower cost of goods • Lower healthcare costs for administration
Diversified partnering options	<ul style="list-style-type: none"> • Potential to partner AD-214 by indication using different routes of administration - broadens potential long term options

Inhalation in IPF

Numerous drugs have been formulated for inhalation in IPF and respiratory disease, a substantial number of biologics are in development for inhalation and off-the-shelf devices are available for rapid translation from intravenous route

Inhalation used regularly in IPF and other respiratory diseases

4 inhaled IPF therapeutics in development



(Phase III)



(Phase IIb)



(Phase I/II)



(Pre-clinical, biologic)

- IPF patients routinely inhale salbutamol and steroids for symptom relief
- Inhaled therapeutics also marketed for asthma, COPD, cystic fibrosis

Substantial number of biologics in development for inhalation*

- 2 marketed inhaled biologics
- 19 clinical stage inhaled biologics including
 - Several fragment antibodies
 - 1 single domain antibody (nanobody)
- Majority sized between 15-80 kDa (AD-214 73 kDa, single i-bodies 15 kDa)
- Majority via solution for inhalation

Off-the-shelf devices for nebulization of liquid formulations

OMRON

PHILIPS



- Smart mesh nebulisers assist compliance, accuracy, drug efficiency
- Low shear forces designed for biologics
- Liquid formulations: potential to utilize AD-214 intravenous formulation with minimal modification



* W Liang *et al*, Pulmonary delivery of biological drugs, *Pharmaceuticals* 2020, 12, 1025

A clinician's perspective on AD-214 results so far

- **Un-met need in IPF/ILD remains – need to progress new therapies**
- **Research at The Alfred suggests if targeting CXCR4 works in IPF it may work in other ILD's**
- **AD-214 is well tolerated and ready to move forward into multi-dose studies in healthy volunteers and patients**
- **The data is supportive of extending dosing interval to two weekly at least**
- **AdAlta approach is methodical and appropriate**
 - PET imaging strategy is particularly important as an innovative way to explore target engagement and mode of action in diseased tissue
- **Key insights anticipated from multidose and early patient studies (in addition to safety):**
 - CXCR4 receptor engagement in tissue
 - Nature of the anti-drug antibodies that are expected with a biologic
 - Further characterisation of biomarker responses: CD34+, white cells, SDF-1a







Prof Glen Westall
leading respiratory and
lung fibrosis specialist

AdAlta Investor Briefing
10 March 2021












IPF late-stage clinical landscape: a narrow development field

AdAlta's novel mode of action and Orphan Drug Designation expected to be attractive to partners as an alternative to, and in combination with other therapies

Company	Drug	Mode of action	Phase	Orphan Drug Designation
	PRM-151	Endogenous human protein that directs the immune cells called macrophages to turn off and reverse fibrotic processes	Phase 3 (Mono or combination therapy)	YES
	Pamrevlumab	Human monoclonal antibody (mAb) that inhibits the activity of connective tissue growth factor (CTGF) to inhibit myofibroblast activation, collagen deposition and other pro-fibrotic factors	Phase 3 (Monotherapy)	YES
	Inhaled Treprostinil	Small molecule analogue of prostacyclin that reduces pulmonary artery pressure through direct vasodilation of the pulmonary and systemic arterial vascular beds	Phase 3 (Supportive care/ symptom reduction)	YES
	AD-214	<i>i-body-Fc fusion protein blocking CXCR4 to inhibit inflammatory cell migration, epithelial to mesenchymal transition and fibrotic growth factor production, and deposition of collagen</i>	Phase I	YES







IPF clinical development landscape: narrow and narrowing development field

AdAlta's novel mode of action expected to be attractive to partners

COMPANY	DRUG	MODE OF ACTION	PHASE	ORPHAN DRUG DESIGNATION
	Inhaled Treprostinil	Reduction in pulmonary artery pressure through direct vasodilation of the pulmonary and systemic arterial vascular beds	Phase 3	Yes
	PRM-151	Endogenous human protein that directs the immune system to naturally turn off and reverse the process of fibrosis	Phase 3	Yes
	Pamrevlumab	Human monoclonal antibody (mAb) that inhibits the activity of connective tissue growth factor (CTGF)	Phase 3	Yes
	Lebrikizumab	Monoclonal antibody (mAb) that binds soluble IL-13 to reduce inflammation	Phase 2	Yes
	Ianalumab	anti-B-cell activating factor (BAFF) receptor fully human monoclonal antibody	Phase 2	No
	GB0139	Galectin-3 inhibitor administered by dry powder inhalation	Phase 2	Yes
	CC-90001	Interferes with JNK (c-Jun N-terminal kinase), a protein that the body produces in various situations, with some evidence of participation in IPF	Phase 2	No
	BI 1015550	A small molecule phosphodiesterase 4b inhibitor shown to have an anti-fibrotic effect in animal models	Phase 2	No
	ND-L02-s0201	Oligonucleotide drug using HSP47 (Heat Shock Protein 47) siRNA, which moderates collagen synthesis and secretion that causes fibrosis	Phase 2	No
	PLN-74809	Inhibits integrins to block TGF-β1 activation, thereby preventing the growth of fibrotic tissue within the lung	Phase 2	Yes
	Jaktinib	Jaktinib is a JAK inhibitors interfere with the JAK-STAT signaling pathway	Phase 2	No

IPF partnering: pre-clinical assets have attracted partnerships

IPF assets have recently yielded attractive deal terms at early stages of development

Date	Licensee	Licensor	Transaction Terms	Asset/Mode of Action	Clinical Phase	Additional Comments
Aug-20	 Redx	AstraZeneca 	US\$17m upfront +US\$360m milestones	RXC006 <i>Porcupine inhibitor</i>	Preclinical	Single product license
Jan-20	 ENLEOFEN	 Boehringer Ingelheim	Upfront undisclosed +US\$1b milestones	Multi-asset platform <i>Interleukin-11 inhibitor for fibro-inflammatory disease</i>	Preclinical	Platform for multiple fibrotic disorders
Jul-19	 Recursion	 BAYER	US\$30m upfront +\$US1.03b milestones	<i>AI drug discovery platform for fibrotic disease</i>	Preclinical	

Appendix: CAR-T

Advantages of CAR-T therapy

For patients, CAR-T therapies offer a potentially curative, single shot therapy that is precision engineered to find and kill cancer



Can be curative

Even in patients whose cancers have returned after multiple prior standard therapies



Long lasting

Living therapy: a single treatment can attack cancer over months and then remain in the immune system long term to fight cancer cells that return



Highly targeted

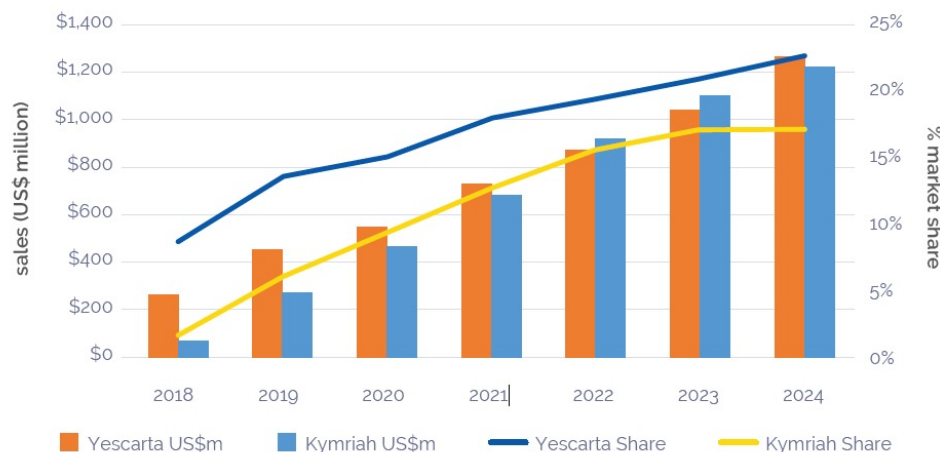
Precision engineered to engage with tumour cells and to minimise healthy tissue damage

CAR-T market opportunity

The CAR-T market formed in 2017, has already reached US\$1b and is forecast to reach US\$20b by 2028

- ✓ >\$US1 billion earned by CAR-T therapy products in 2020
- ✓ Revenue of \$US20.3 billion¹ forecast for 2028 as more CAR-T cell products are commercialised and science evolves
- ✓ New CAR-T product approvals to expand addressable patient population to 2 million within next 10 years¹
- ✓ Solid tumours to account for >50% of CAR-T revenues by 2030²

Sales and market share growth for CAR-T products³



Yescarta – US\$373,000³ | Kymriah – US\$475,000³

1. Grandview Research, "T-cell Therapy Market Size, Share & Trends Analysis" Feb 2021
2. Polaris Market Research, "CAR-T Cell Therapy Market Share, Size Trends, Industry Analysis Report", June 2021
3. Yescarta and Kymriah market size estimates calculated from various publicly available sources. Estimates vary and different analyses may give different results. Estimated cost of goods US\$58,200 (range \$40,000-\$106,000, 2018) with pricing outcomes/value based.

Current approved CAR-T products

Five FDA approved CAR-T products for blood cancers generate strong revenues and are in high demand

Manufacturer					
Product					
Notable CAR-T transactions	UPenn and Novartis Alliance Aug 2012 ²	Gilead acquired Kite Aug 2017 US\$11.9b ¹	Gilead acquired Kite Aug 2017 US\$11.9b ¹	Celgene acquired Juno Jan 2018 US\$9b; BMS acquired Celgene Jan 2019 US\$74b ³	Celgene acquired Juno Jan 2018 US\$9b; BMS acquired Celgene Jan 2019 US\$74b ³
FDA approval	August 2017 (acute lymphoblastic leukemia, large B cell lymphoma)	October 2017 (large B cell lymphoma)	July 2020 (mantle cell lymphoma)	February 2021 (large B cell lymphoma)	March 2021 (multiple myeloma)
Revenue 2020 ⁴	US\$474m	US\$563m	US\$44m	N/A	N/A

1. <https://www.businesswire.com/news/home/20210204006011/en/Gilead-Sciences-Announces-Fourth-Quarter-and-Full-Year-2020-Financial-Results>

2. <https://www.novartis.com/>

3. <https://www.celgene.com/newsroom/cellular-immunotherapies/celgene-corporation-to-acquire-juno-therapeutics-inc/>

4. [businesswire.com/news/home/20210204006011/en/Gilead-Sciences-Announces-Fourth-Quarter-and-Full-Year-2020-Financial-Results](https://www.businesswire.com/news/home/20210204006011/en/Gilead-Sciences-Announces-Fourth-Quarter-and-Full-Year-2020-Financial-Results), [novartis.com](https://www.novartis.com/), [celgene.com/newsroom/cellular-immunotherapies/celgene-corporation-to-acquire-juno-therapeutics-inc/](https://www.celgene.com/newsroom/cellular-immunotherapies/celgene-corporation-to-acquire-juno-therapeutics-inc/)

Collaboration synergies

By joining forces, AdAlta and Carina access complimentary expertise to create a toolbox to address three main challenges facing solid tumour CAR-T therapies. AdAlta expands its pipeline and further validates the i-body platform



Precision

Limited tumour-specific antigens – healthy tissue can be damaged

Incomplete expression of tumour-antigens – tumour can escape



i-bodies specifically designed to enable access to new, difficult antigens

Small size confers greater design flexibility, enabling bi-specific and dual CARs to enhance specificity



Performance

Tumour mass hard to penetrate for immune cells



Engineered Chemokine Receptor Platform directs CAR-T cells to and into solid tumours



Persistence

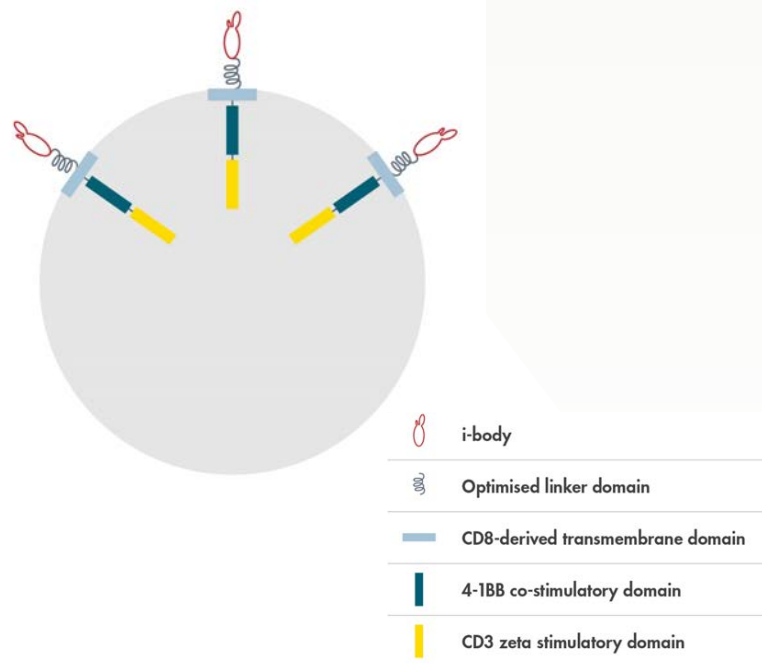
Tumour secretes molecules that suppress immune cell activity



Best practice manufacturing process (9 days, 90% efficiency) and Chemokine Receptor Platform make more robust, resilient CAR-T cells

i-bodies in CAR-T format

- **i-bodies are approximately half the size of the traditional CAR binding domain**
 - Enables greater flexibility in CAR design
 - Ideally suited to bispecific CARs
- **i-bodies are specifically designed to target antigens considered difficult or intractable for traditional antibodies and CAR constructs**
- ***In vitro* proof of principle established for i-bodies in a CAR-T platform (in collaboration with Carina Biotech)**



Advantages of i-body enabled CAR-T

i-body enabled CAR-T cells may demonstrate improved precision, performance and persistence, particularly in bi-specific and dual CAR-T cells

Delivering precision to difficult to treat cancers: bi-specific and dual-specific CAR-T cells

- ✓ Targets 2 antigens on cancer cells
- ✓ Reduces opportunity for tumour cells to be missed
- ✓ Reduces chance of damaging healthy tissue

