AdAlta

next generation protein therapeutics

i-bodies – a new class of protein therapeutics to treat human disease

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Corporate and investment summary

- **AdAlta:** A drug discovery and development company focused on using its proprietary technology platform to generate a new class of protein therapeutics, known as i-bodies, for treating a wide range of human diseases
- **Investment highlights**
  - Initial focus on treating fibrosis – high unmet medical need
  - Advanced lead drug candidate AD-114 with significant pre-clinical validation
  - Early commercialisation potential
  - Team with extensive experience, track record of drug development and ability to deliver
- **IPO August 2016**
  - Raised $10M with Offer oversubscribed
  - Pre-money valuation of $15M (more than $11M of funds applied to development to date)
  - IPO investment from Yuuwa Capital ($3.1M) and institutional investors ($3.0M)
  - IPO to fund phase I development of lead fibrosis drug and i-body pipeline

Corporate Snapshot: 22nd August

- **ASX CODE**: 1AD
- **Market Cap (at IPO price)**: $25M
- **Cash**: ~$11M
- **Shares on issue**: 100,000,016
- **Escrow**:
  - 83% of pre-IPO shares on issue
  - 27% 6 months from listing
  - 23% 24 months from listing
- **ESOP**:
  - 2,144,423 options on issue (1.4M escrowed 24 months)
  - ESOP capped at 5% of issued capital

Major Shareholders	%
Yuuwa Capital LP	54.06
HSBC Custody Nominees (Australia) Ltd	8.59
Citycastle Pty Ltd	5.31
La Trobe University	3.04
Robin Beaumont	1.84
Other shareholders	27.16
Total	100%

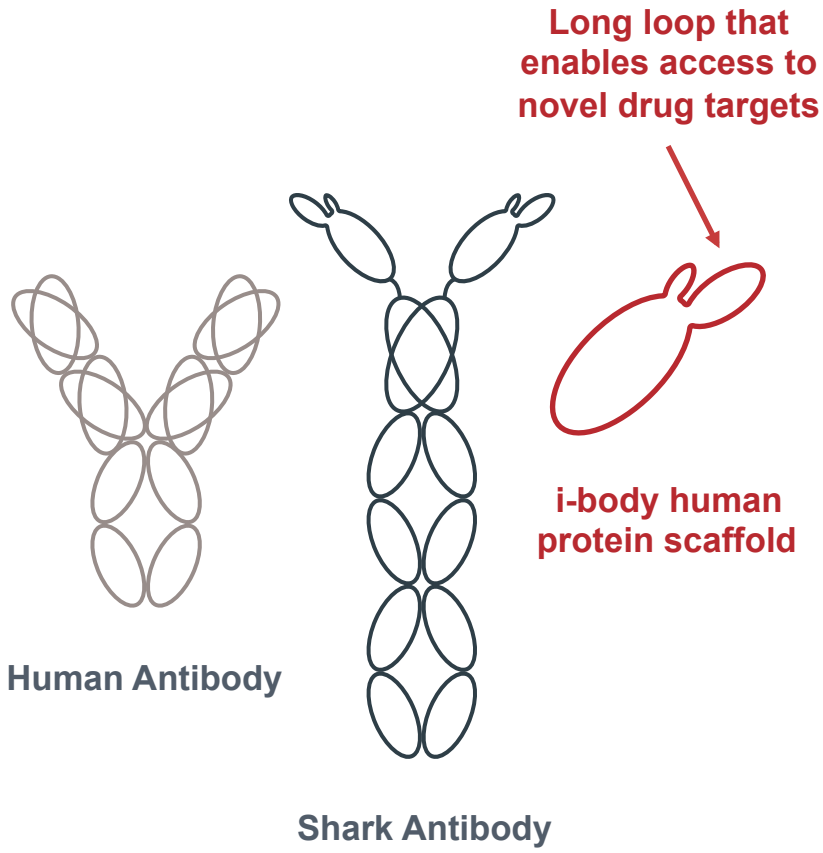
i-body technology

AdAlta is developing a new technology platform that produces unique proteins known as i-bodies, that mimic the shape of shark antibody binding domain and engineers their key stability features into a human protein, for therapeutic intervention in disease.

The single domain antigen binding region of shark antibodies is extremely stable and has a long binding loop not present in either human or next generation antibodies.

Advantages of i-bodies

- High target specificity and high affinity for their target
- Small proteins; 10% the size of a typical human antibody
- Highly stable to proteases, high temperatures and low pH
- Long loop that can bind to a diverse range of therapeutically relevant targets including those that are difficult for current antibody therapies
- **Human protein** – reduced risk of immune response



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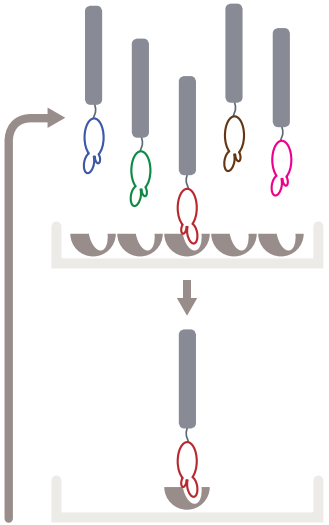
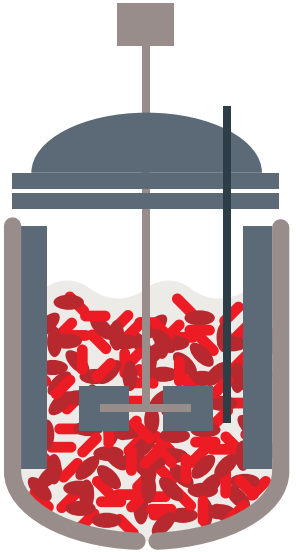
i-body drug discovery and manufacture

Large diverse synthetic library of 2 billion i-body protein compounds that can bind to a broad range of therapeutically relevant targets



i-body identified by rapid screening

i-body affinity matured to enhance target binding and generate lead i-body candidate



Manufactured in microbial systems; more cost-effective and easier than conventional monoclonal antibodies. Potential for direct peptide synthesis

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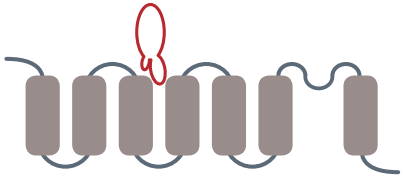
i-body technology advantages

Challenging targets

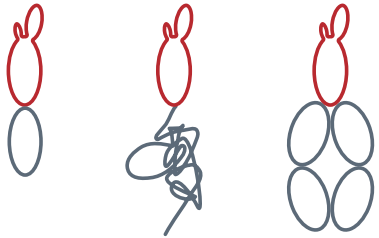


Because of the long binding loop of the i-body, that is lacking in traditional antibodies, i-bodies recognise and bind to a diverse range of different therapeutically-relevant targets including those that are difficult/intractable to access by current antibody therapies such as G-protein coupled receptors (GPCRs) and ion channels.

Multiple delivery routes

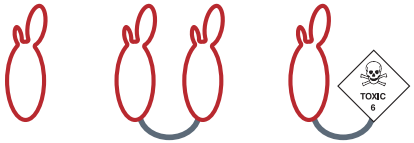
The small physical size and stable properties of i-bodies provides advantages for tissue and organ penetration as well as multiple delivery routes.

Customised half-life



As a result of their small size and exceptional stability i-bodies can serve as building blocks to engineer therapeutics with tailored pharmacokinetic properties.

Multi formatting



Can easily engineer unique differentiated i-body products in a variety of formats including monospecific and bispecifics as well as i-body drug conjugates (IDCs), thus tailoring them for different therapeutic purposes.

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i-bodies combine benefits of small molecules and conventional antibodies

	Small Molecule	Conventional Antibody	AdAlta i-body
High selectivity-specificity		●	●
Low toxicity: no off target effects		●	●
Cavity binding and new epitopes	●		●
Stability	●		●
Alternative routes of administration	●		●
Easy to manufacture	●		●
Speed & risk of development		●	●

Long loop that enables access to novel drug targets

i-body human protein scaffold

i-bodies offer a new and potentially more effective approach to the treatment of a wide range of human diseases.

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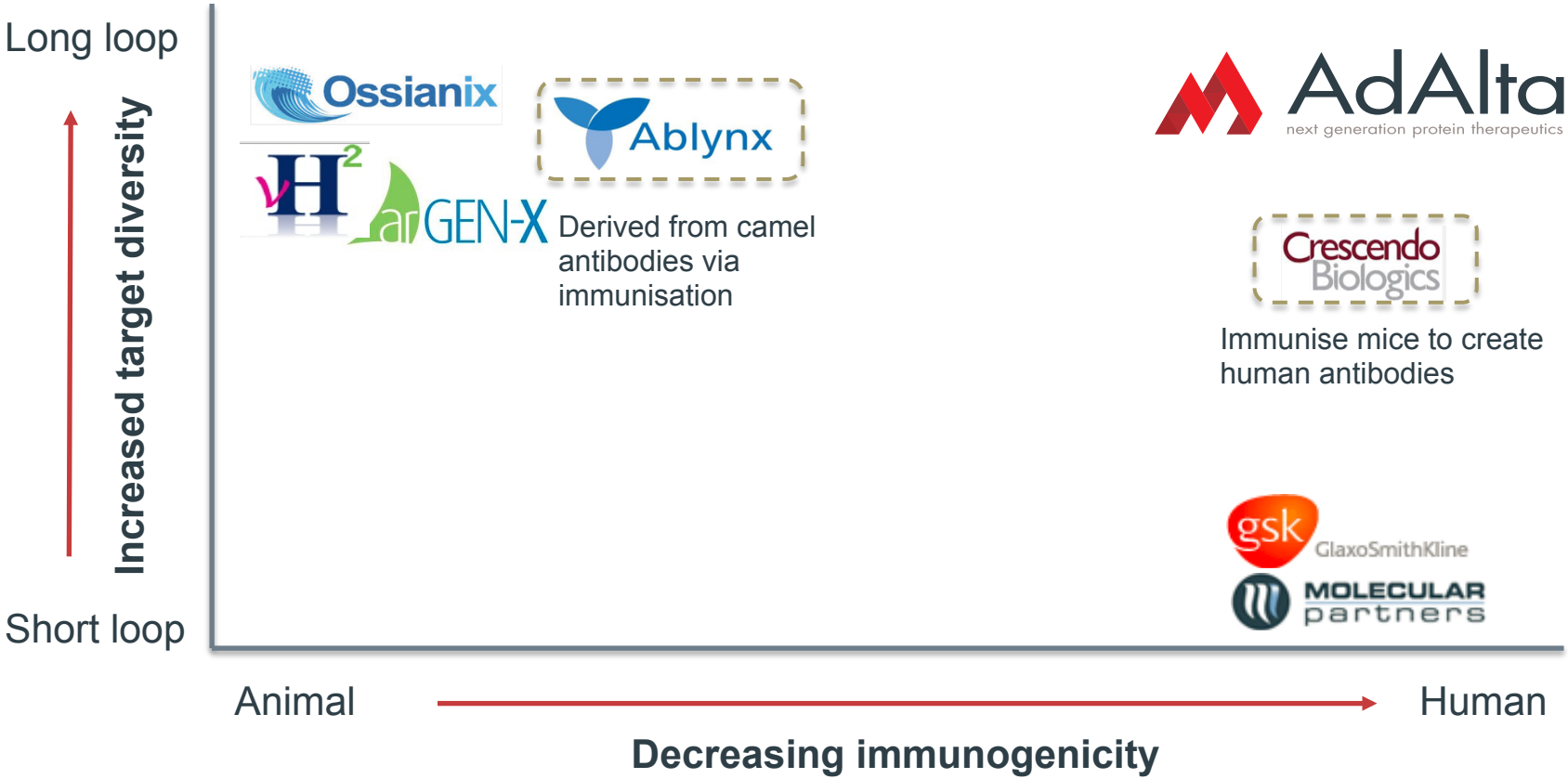
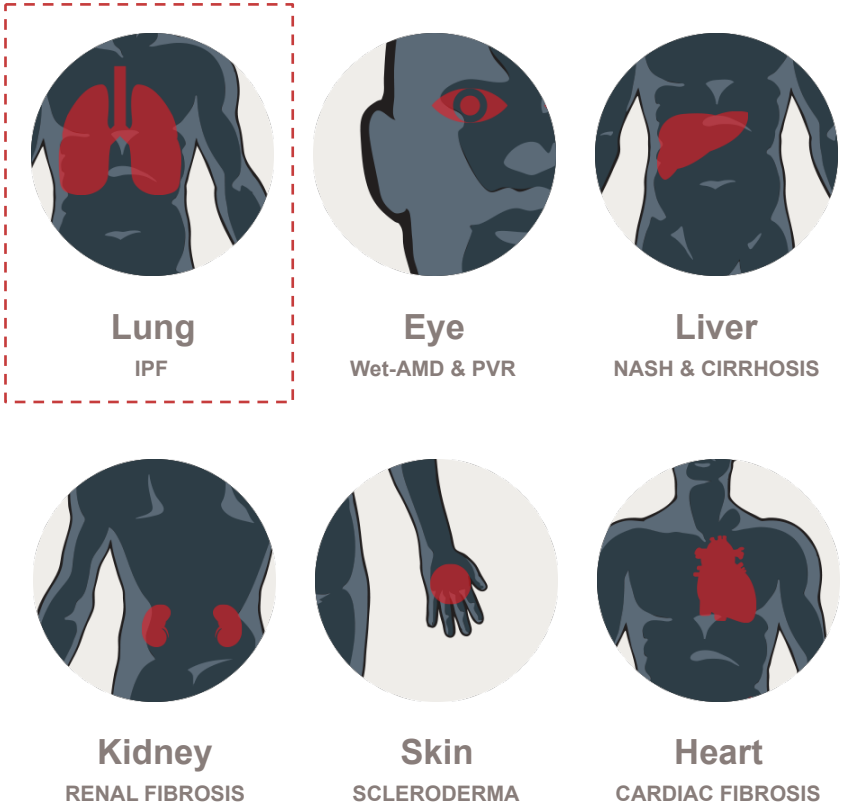
i-body competitive differentiation



Fibrosis: unmet medical need with multiple indications

- Developing i-bodies as improved therapies for the treatment of fibrosis
  - a condition that is prevalent in 45-50% of all diseases
- Fibrosis can occur in many tissues of the body as a result of inflammation or damage
  - it can result in scarring of vital organs causing irreparable damage and eventual organ failure
- AdAlta's initial focus is on lung fibrosis

Collectively fibrosis represents a large unmet clinical need



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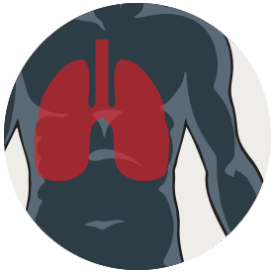
AD-114 lead program in Idiopathic Pulmonary Fibrosis (IPF)

- AD-114 is lead i-body candidate in pre-clinical development
  - Demonstrates both anti-fibrotic and anti-inflammatory activity in the lung
  - Important for arresting and modifying the disease and tackling the treatment of idiopathic pulmonary fibrosis (IPF); this is the primary indication



Lung

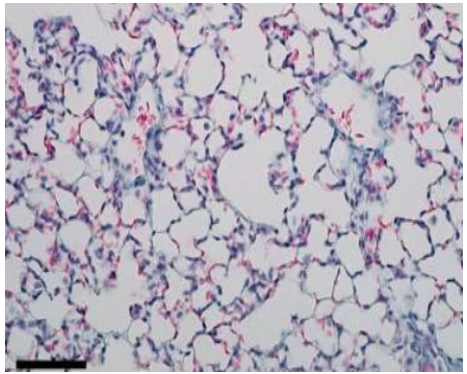
IPF

Idiopathic Pulmonary Fibrosis
A chronic, highly lethal and rare disease.
50-70% mortality rate
>135,000 people in US alone
World wide sales ~$4.2B by 2020

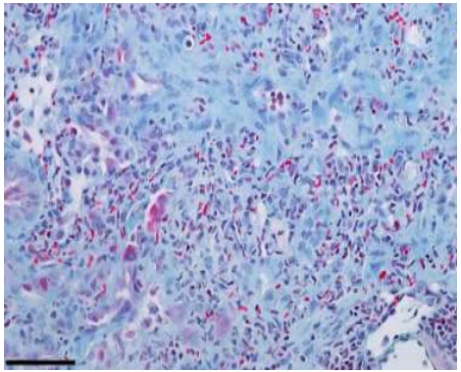
Source: Evaluate Pharma, Orphan Drug Report 2015

AD-114 prevents lung fibrosis in disease models

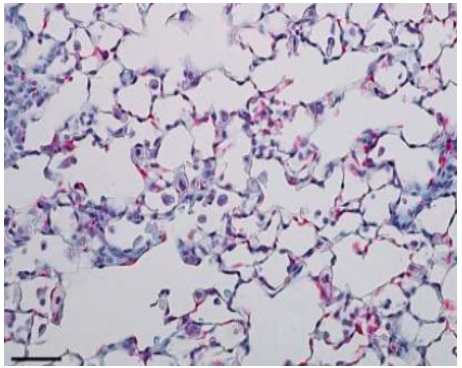
Extensive pre-clinical AD-114 studies have demonstrated positive *in vitro* (in the lab) and *in vivo* (in animals) data



Normal lung tissue



IPF lung tissue
(lung disease mouse model)



IPF lung tissue + AD-114 dosed for 21 days
(lung disease mouse model)

AD-114 reduces collagen content and inflammatory cell infiltration and demonstrates a similar architecture to that of the normal lung in the Bleomycin mouse model

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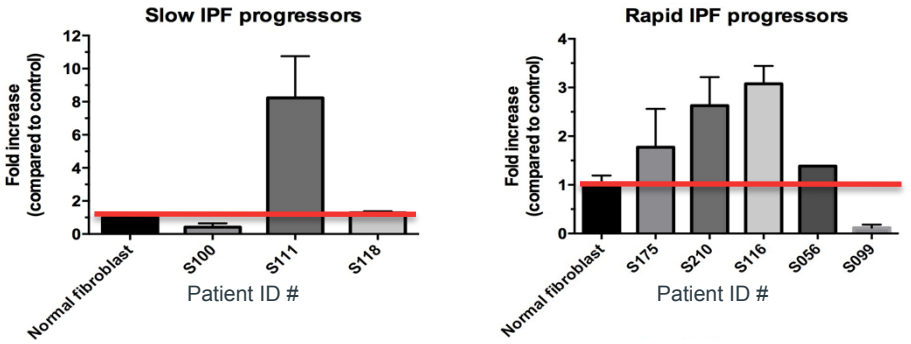
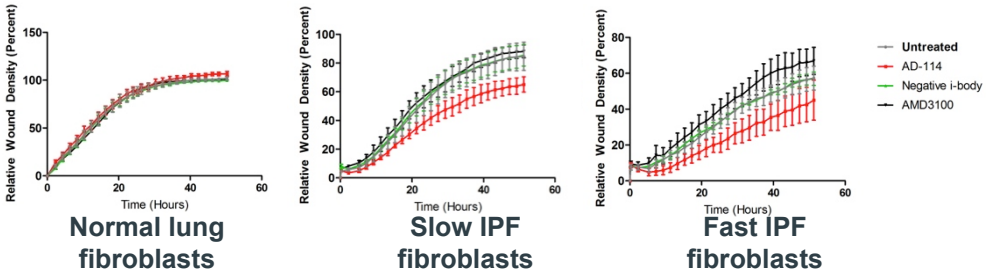
AD-114 mechanism of action in idiopathic pulmonary fibrosis (IPF)

- AD-114 binds to the G protein-coupled receptor, CXCR4 (a chemokine receptor)
- CXCR4 has been demonstrated to play a central role in the development of fibrosis and is a novel disease pathway target in IPF
- Patients with rapid IPF disease progression express more CXCR4 compared to slow IPF progressors
- CXCR4 +ve cells (fibrocytes) significantly elevated in stable IPF patients, have been shown to be an independent predictor of early mortality
  - 7.5 months with more than 5% fibrocytes
  - 27 months with less than 5% fibrocytes
- AdAlta has shown AD-114 binds to the active edge of fast progressor patient tissue and in an animal model inhibits fibrocyte migration to the lungs

CXCR4 expression increased in fast progressing IPF patient tissue



AD-114 reduces fibroblast migration in both slow and fast IPF patient tissue



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AD-114 key advantages compared to existing IPF treatments

Migration of normal & IPF patient fibroblasts *in vitro*

MIGRATION	No effect on normal fibroblasts	Inhibits slow IPF progressors	Inhibits fast IPF progressors
i-body AD-114	✔	✔	✔
Nintedanib (Boehringer)	✗	✔	✔
Pirfenidone (Roche)	✔	✗	✗
Other CXCR4 drug (Sanofi)	✔	✗	✗

- Greater *in vitro* efficacy compared to the only approved therapies Nintedanib and Pirfenidone for IPF treatment (as detailed above)
  - Existing IPF treatments have limited efficacy; either no effect or slow down disease progression i.e. no cure
- Novel mechanism of action compared to other drugs targeting CXCR4
- Very specific for diseased tissue with effects only shown on human IPF tissue and no effects displayed on normal tissue nor any evidence of off target effects
- *In vitro* and *in vivo* pre-clinical data demonstrate that the AD-114 has both anti-fibrotic and anti-inflammatory effects

Novel mechanism of action for fibrosis treatment enabling a “first in class” therapy

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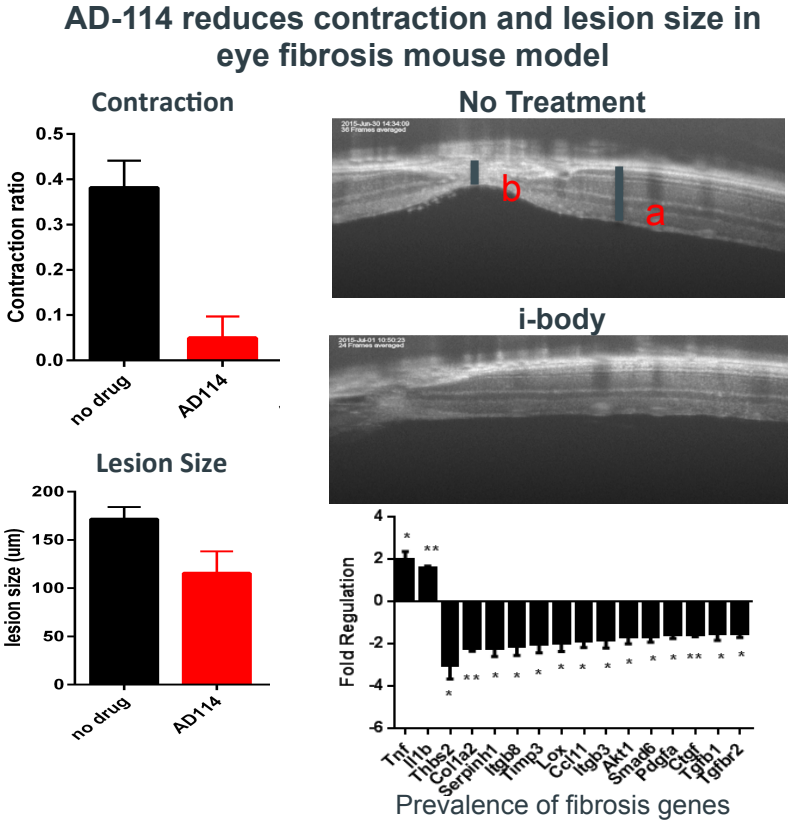
AD-114 prevents eye fibrosis and has potential for broad application

- AdAlta has shown that AD-114 has anti-fibrotic effects in treating fibrosis of the:
  - Lung; this is the **initial indication**
  - Eye; pursuing this as an additional indication (with NHMRC grant support)
- AdAlta aims to broaden the application of AD-114 to other fibrosis indications, including demonstrating therapeutic application of fibrosis diseases of the liver, skin, kidney and heart



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Antibody market

Source: mAbs (2016), 8:2, 197-204 and mAbs (2015), 7:1, 9-14

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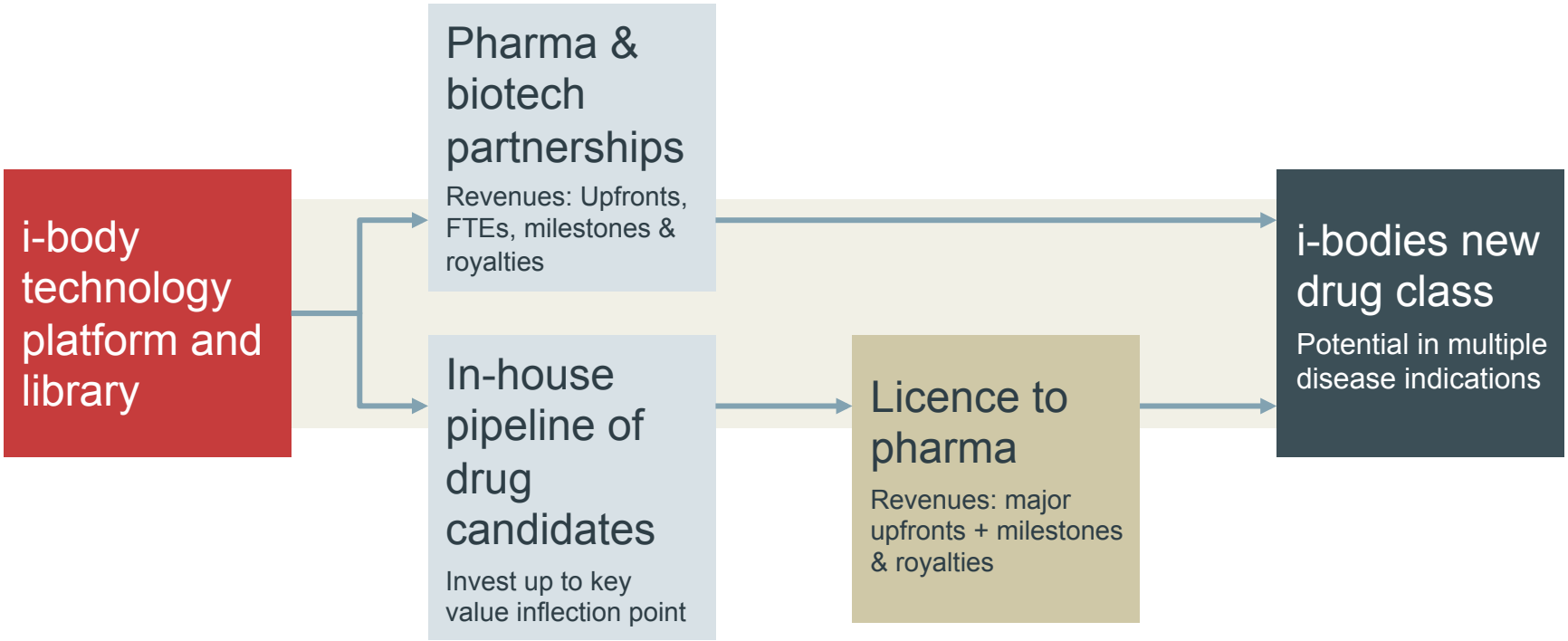
Global market interest in fibrosis treatments

Recent transactions confirm that big pharma are actively acquiring fibrosis assets at an early stage – typically based on Phase I results

Date	Company	Target	Acquired by	Deal value (US$)	Deal commentary
Sep-15	Adheron Therapeutics	SDP051	Roche	$105M upfront, plus $475M in milestones	SDP-51 at end of Phase I for IPF
Aug-15	Promedior	PRM-151	BMS	$150m upfront + $1.25B	Phase II IPF and myelofibrosis
Nov-14	Galecto Biotech AB	TD139	BMS	$444M	Option to acquire at end of clinical POC (no later than 60 days following Ph 1b for IPF completion)
Aug-14	Intermune	Esbriet / Pirfenidone	Roche	$8.3B	Approval in Europe / Japan, phase III in the US
Jun-13	MicroDose Therapeutx	MMI0100	Teva Pharmaceuticals	$40M upfront $125M milestones	MMI0100 was in pre-clinical development
Mar-12	Stromedix	STX100	Biogen Idec	$75M upfront $487.5M milestones	End of phase I for IPF
Jul-11	Amira / BMS	BMS-986020	BMS	$325M upfront $150M milestones	End of phase I for IPF

Source: Medtrack Pharma Intelligence, Informa (all IPF deals since 2011)

AdAlta business model – strategy to create value



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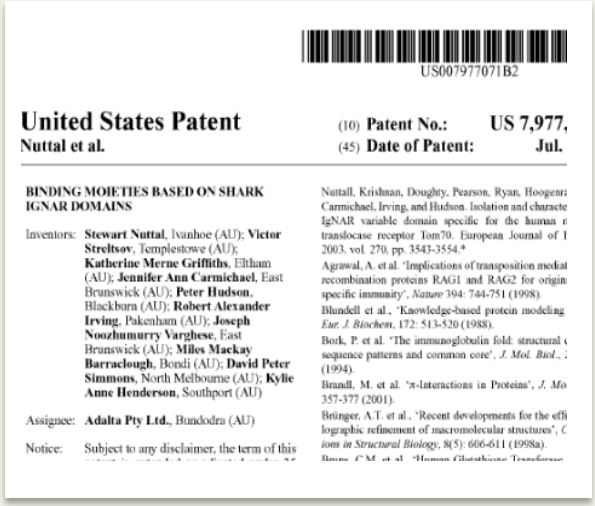
Market benchmarks

Fibrosis lead AD-114	adheron THERAPEUTICS Sep-15 acquired by Roche $105m + $475m milestones phase I asset	Promedior PRM-151 exclusive license Aug-15 by BMS $150m + $1.25b milestones phase IIa asset	Galecto Biotech AB Option to acquire Nov-14 by BMS $444m milestones phase I asset
Next gen antibodies	arGEN-X IPO Jul-14 on Euronext €40m raised phase Ib assets	MOLECULAR partners Licence Dec-13 with Roche CHF55m + CHF1b milestones DARP-in platform	Ablynx Licence deal Sep-13 with Abbvie $175m + $665m+ milestones phase IIa asset
GPCRs	HEPTARES therapeutics Acquired Feb-15 by Sosei $400M Phase Ib asset + 7 pre-clinical leads	receptos Acquired by Celgene July-15 $8b Ph III, Ph II and GPCR platform	

Strong intellectual property protection

- AdAlta has a strong portfolio of worldwide granted patents and applications that protect both the i-body technology platform and its i-body drug candidates
- **Platform protection**
  - AdAlta's granted patents specifically cover a method of modifying a number of human proteins called I-SET domains to include features of shark single domain antibodies; this modified protein is called an i-body
  - This patent family is granted worldwide: US, Europe, Japan, Canada and Australia
- **Product protection**
  - AdAlta's lead drug candidate AD-114 is covered by a patent application that covers the novel composition of matter
  - Industry standard practice for each new i-body product



US007977071B2

United States Patent
Nuttal et al.

(10) **Patent No.: US 7,977,**
(45) **Date of Patent: Jul.**

BINDING MOIETIES BASED ON SHARK IGNAR DOMAINS

Inventors: **Stewart Nuttal**, Ivanhoe (AU); **Victor Streltsov**, Templestowe (AU); **Katherine Merne Griffiths**, Eltham (AU); **Jennifer Ann Carmichael**, East Brunswick (AU); **Peter Hudson**, Blackburn (AU); **Robert Alexander Irving**, Pakenham (AU); **Joseph Noozhumurry Varghese**, East Brunswick (AU); **Miles Mackay Barraclough**, Bondi (AU); **David Peter Simmons**, North Melbourne (AU); **Kylie Anne Henderson**, Southport (AU)

Assignee: **Adalta Pty Ltd.**, Bundodra (AU)

Notice: Subject to any disclaimer, the term of this

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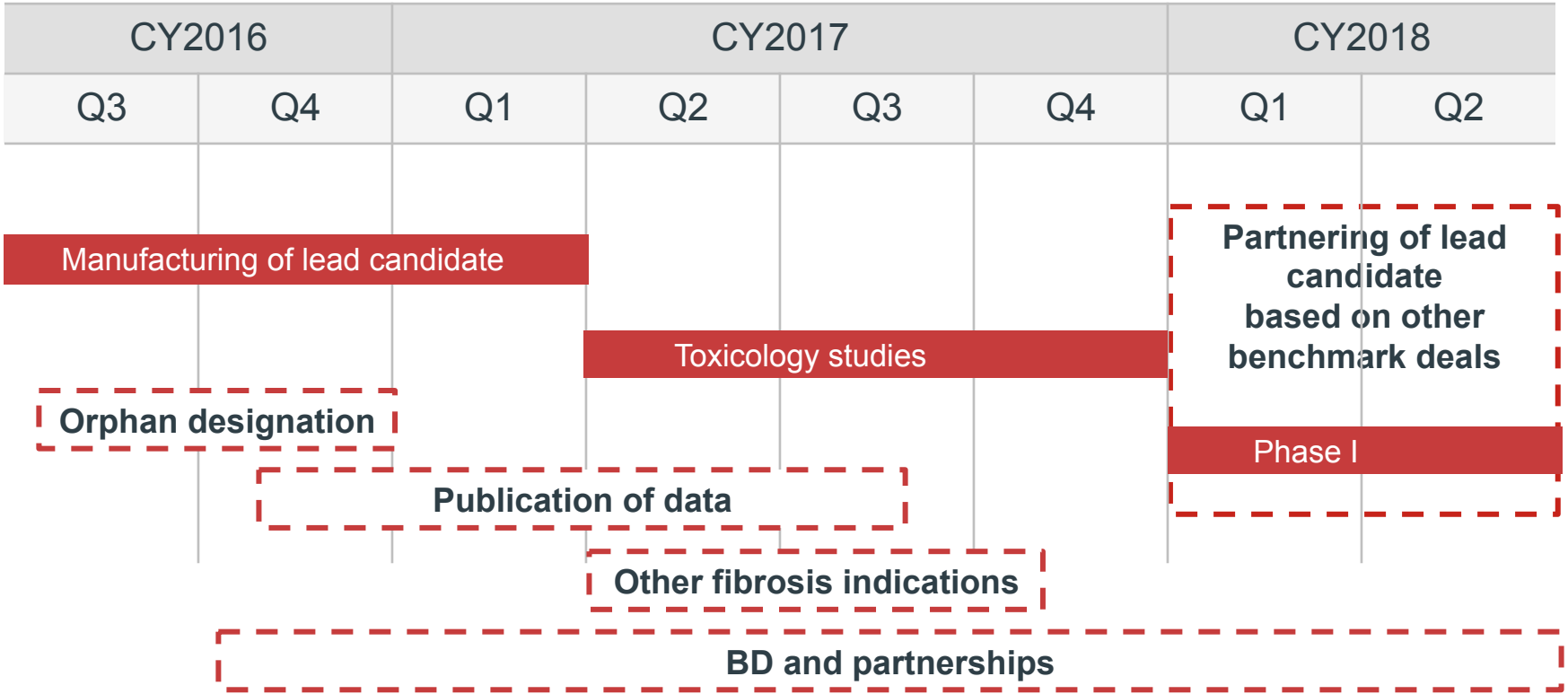
AD-114 development: key milestones



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Expected newsflow next 18 months

Q3 2016	▸ Orphan Drug Designation (US FDA) ▸ Commence manufacturing of material for toxicology testing ▸ Presentation at Discovery on Target, Boston
Q4 2016	▸ Additional AD-114 IPF fibrosis data ▸ Hypertrophic scarring animal results for AD-114 ▸ Completion of evaluation of AD-114 with IPF clinicians Alfred Hospital
H1 2017	▸ Presentation at Biotech Showcase, San Francisco ▸ Data available from AD-114 NASH animal studies ▸ Manufactured material for toxicology testing available
H2 2017	▸ Eye fibrosis additional data, funded by NHMRC development grant ▸ Completion of other pre-clinical study animal models of AD-114 ▸ Initial Kidney/Heart data available for AD-114 ▸ AD-114 toxicology results

Management and Board in place to deliver strategy

Sam Cobb: Founding CEO and Director

Extensive experience in raising equity, contract and grant funding

15 years of commercialisation and management experience

Dr Mick Foley: Founding CSO

Expert in phage display

NIH, NHMRC, ARC, Gates funding and over 70 scientific publications

Dr Paul MacLeman: Chairman

Managing Director of a ASX listed IDT Australia Ltd

Founded biologics companies, experienced ASX listed executive

Dr John Chiplin: Independent Director

CEO of investment Company NewStar Ventures

Managing Director of acquired antibody company Arana Therapeutics

Liddy McCall & Dr James Williams: Yuuwa Capital Directors

Founders and investment Directors of Yuuwa Capital

Founders of iCeutica Inc (acquired 2011) and Dimerix Limited

Directors of several Australian biotech and Agritech companies

Multiple FDA, CE Mark and TGA approvals

AdAlta

Scientific Advisory Board

Internationally recognised with proven track record of drug development

David McGibney: pre-clinical and clinical advisor

20 years with Pfizer, including Head of European R&D

Ex Pfizer Ltd board member

Developed Viagra, and 10+ blockbuster drugs

Brian Richardson: drug discovery and development expert

Ex-Sandoz and Novartis (40+ years), including Head of Pre-clinical Research

Over 60 original peer reviewed research papers

John Westwick: pulmonary drug discovery and development

Over 14 years experience at Novartis, head of respiratory drug discovery

Five product launches and 13 positive proof of concepts in respiratory, including a number of antibodies which are now in phase III.

AdAlta investment summary

- Powerful proprietary technology platform to develop a pipeline of i-bodies for the treatment of a wide range of human diseases
- Initial focus on treating Idiopathic Pulmonary Fibrosis and other fibrotic diseases - high unmet clinical need
- Advanced lead candidate with significant pre-clinical validation of AD-114 demonstrating anti-fibrotic and anti-inflammatory effects
- Early commercialisation opportunity
- Experienced Management and Board to drive AD-114 development and secure technology platform partnerships and product licensing deals
- IPO August 2016 raised $10M to meet major milestones: clinical trials of AD-114 in fibrosis and development of i-body pipeline