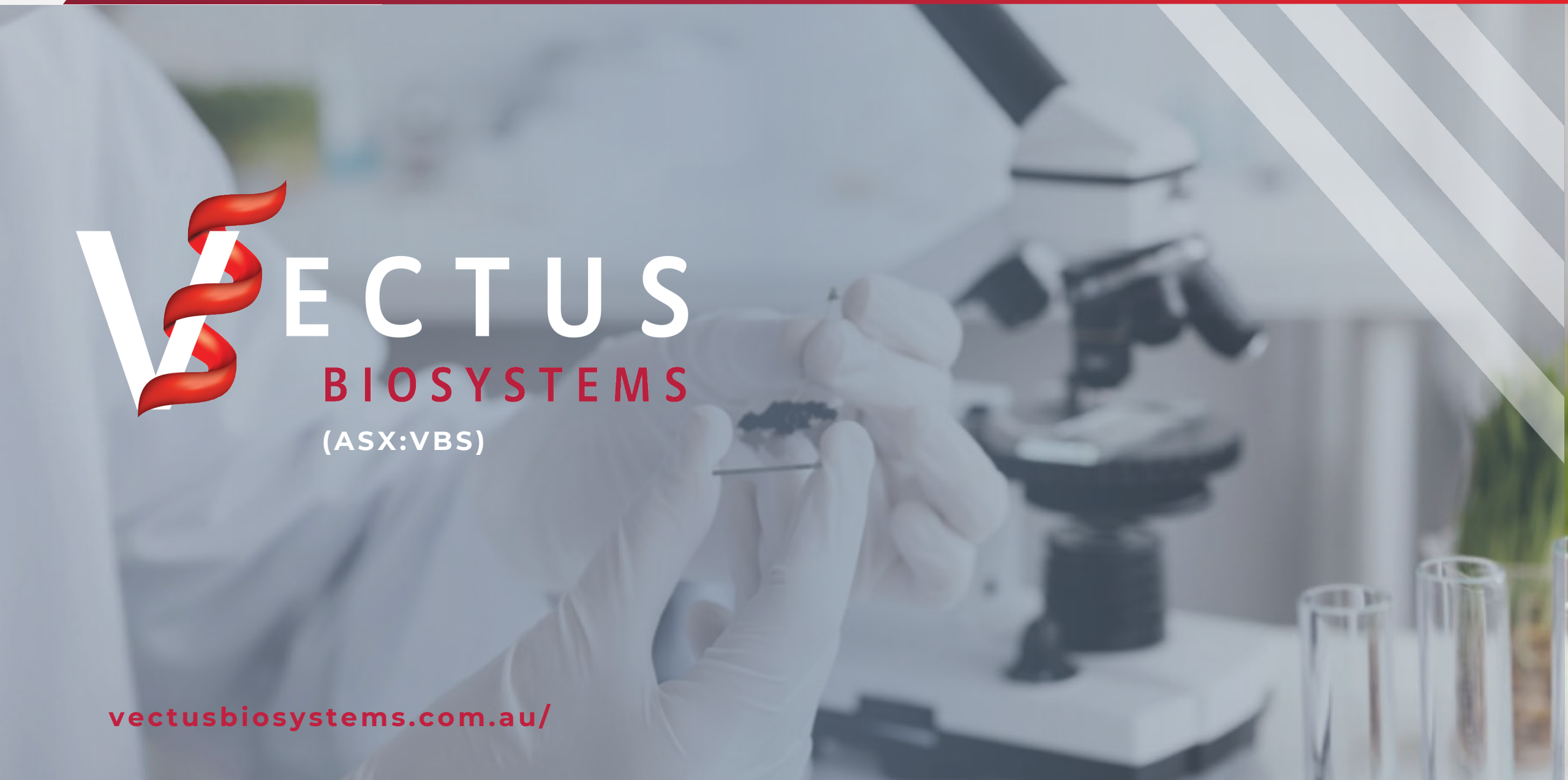


VECTUS BIOSYSTEMS

(ASX:VBS)

vectusbiosystems.com.au/

INVESTMENT HIGHLIGHTS

3 FIRST IN CLASS ASSETS ADDRESSING MAJOR UNMET THERAPEUTIC NEEDS

VB0004 – Addressing Systolic Hypertension, cardiac, renal and pulmonary fibrosis, possible orphan indication for scleroderma

VB4-A32 – Addresses liver fibrosis, restored normal liver architecture in NASH/ASH models

VB4-A79 – Addresses pulmonary fibrosis from all causes except scleroderma where BP lowering probably required

LEAD PROGRAM VB0004 CONTINUES POSITIVE PROGRESS THROUGH PHASE 1

Completion of Single Ascending Dose (S.A.D) study with no adverse events observed

Completion of 14 day Multiple Ascending Dose (M.A.D) study with no significant adverse events

Interim data shows potential for single daily dose of VB0004 to treat various chronic conditions

EXCEPTIONAL PATENT PORTFOLIO ENCOMPASSING A LIBRARY OF > 1,000 COMPOUNDS

VB0004 Patent granted in all major jurisdictions including USA, Europe, Japan, Peoples Republic of China, Republic of South Korea, Russian Federation, as well as Australia, Israel, Philippines, South Africa, Canada, ARIPO

MANUFACTURING SECURED ADDING TO COMMERCIAL POTENTIAL

GMP manufacturing and scale up fully validated at two international centres

Broad pharmaceutical engagement established with both tier-1 and mid-size potential licensees

Targeting first-in-class reimbursement for large franchise indications

CORPORATE SNAPSHOT

KEY METRICS

ASX	VBS
Shares on issue	47.25m
Market Capitalisation	$45.4m
Share Price (28/11/22)	$0.96
52-week trading range	$0.90 - $1.70

SHAREHOLDER BREAKDOWN

19.04%	Board of Directors
39.94%	Top 20
41.23%	Other

HIGHLY EXPERIENCED BOARD & MANAGEMENT

Dr Ronald Shnier
Non-Executive Director and Chairman

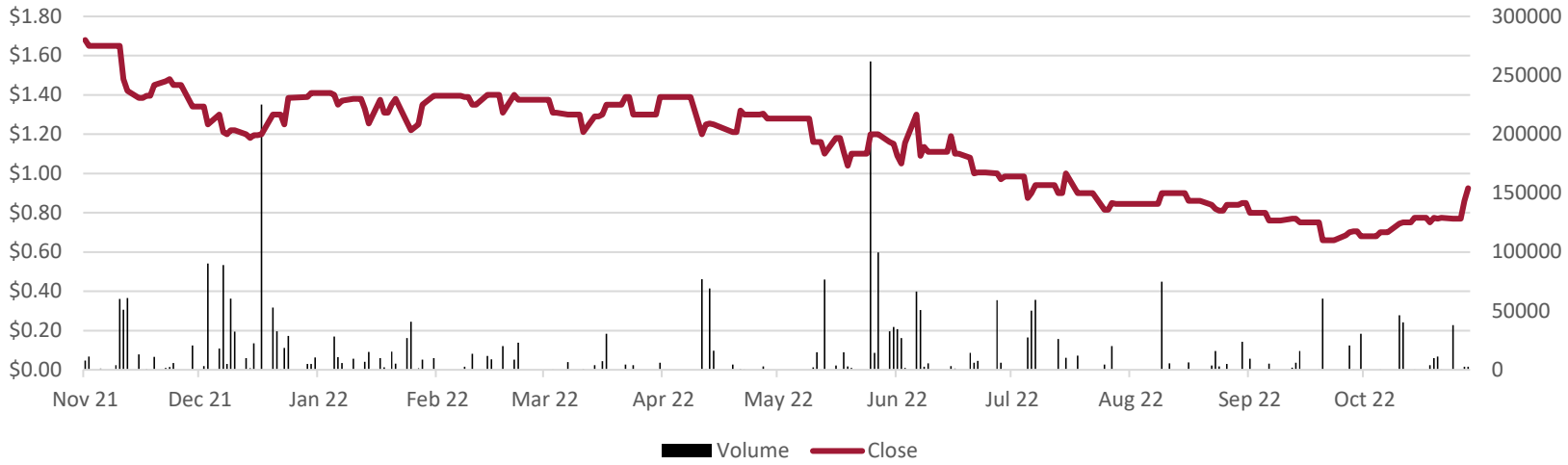
Mr Maurie Stang
Non-Executive Director and Deputy Chairman

Dr Karen Duggan
Executive Director and Chief Executive Officer

Mr Peter Bush
Non-Executive Director

Dr Susan Pond
Non-Executive Director

SHARE PRICE PERFORMANCE – LAST 12 MONTHS



TARGETING LARGE MARKETS WITH SIGNIFICANT UNMET NEEDS

Fibrosis is the replacement of functional tissue by scar tissue, usually as a result of injury, and is the pathology which underlies:

HEART FAILURE

(largest single item on US health care budget $US32b in 2013)

LIVER FAILURE

(40% of population of China, India and South East Asia are affected)

KIDNEY FAILURE

(Dialysis and renal transplant costs in the US reached $49.2b in 2011)

RESPIRATORY FAILURE

(pulmonary fibrosis)

FIBROSIS REVERSAL, A MAJOR UNMET NEED

Fibrotic disease contributes to more than

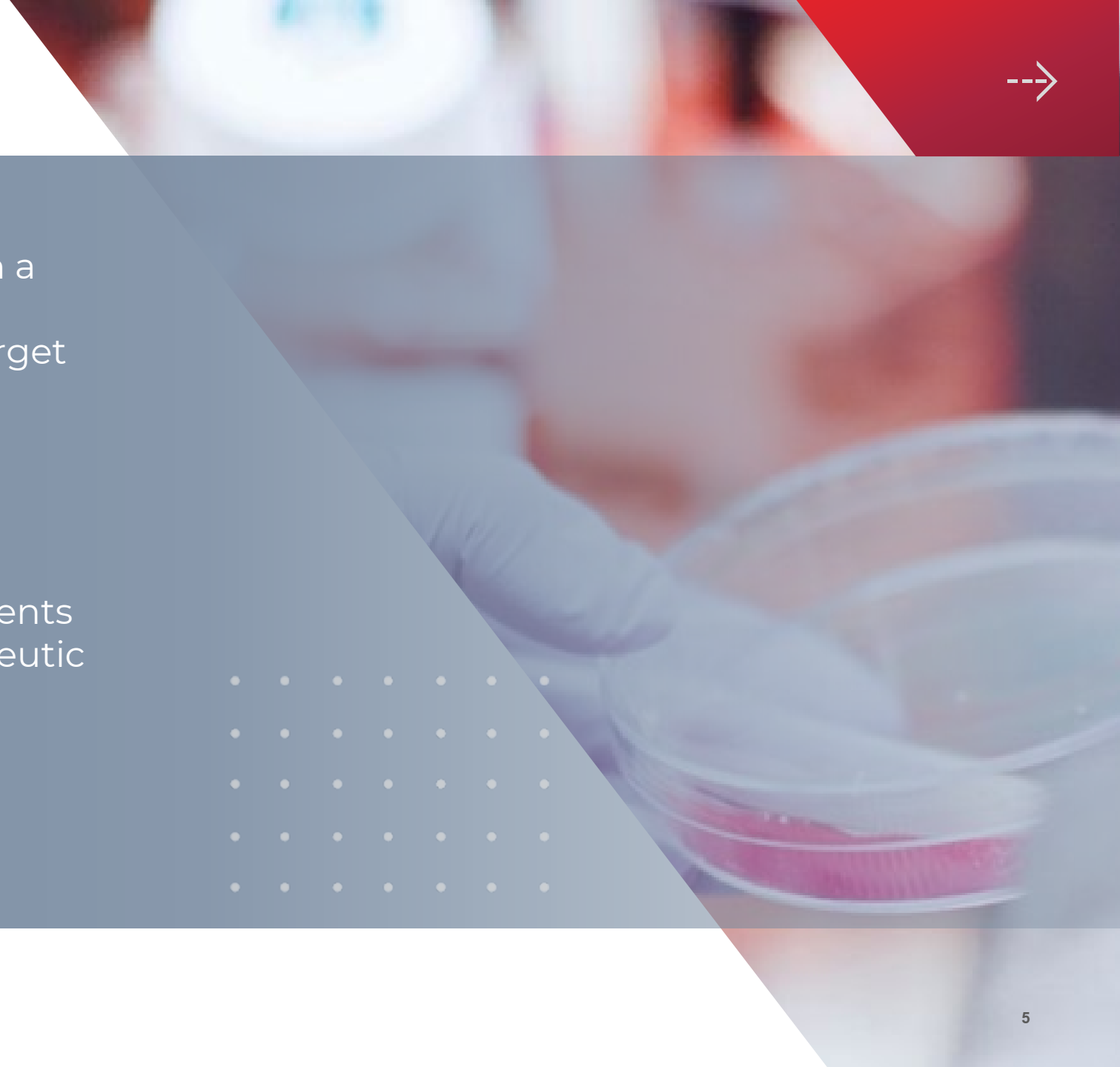
40%

of all deaths worldwide

WHY VECTUS?

Vectus is strongly positioned with a range of transformational, orally doseable small molecules that target disease progression, aimed at meaningful functional changes & reversing existing damage to key cardiovascular organs

With continued success these agents would address the largest therapeutic indications, with no known direct competition & first-in-class reimbursement



2023 CATALYSTS

VB0004	• Completed Phase 1a Human Safety Trials • Phase 1B Human Trial in progress • Leverage engagement with global pharmaceutical companies
VB4-A32	Undertake GMP synthesis (Assymchem), with IND toxicology studies to follow
NEW EMERGING LEADS	Accelerate work on detailed mechanisms of action for VB4-A32, VB4-A79
EXPAND	Facilities and resources to undertake a broader drug development program
INVESTIGATE	Candidates from Vectus' extensive patented library for roles in other fibrotic / protein accumulative diseases such as osteoarthritis, retinal fibrosis, Alzheimer's disease
COMMERCIALISE	Broaden Accugen commercial roll out with Vectus' breakthrough qPCR platform

PATH TO CLINIC – VB0004

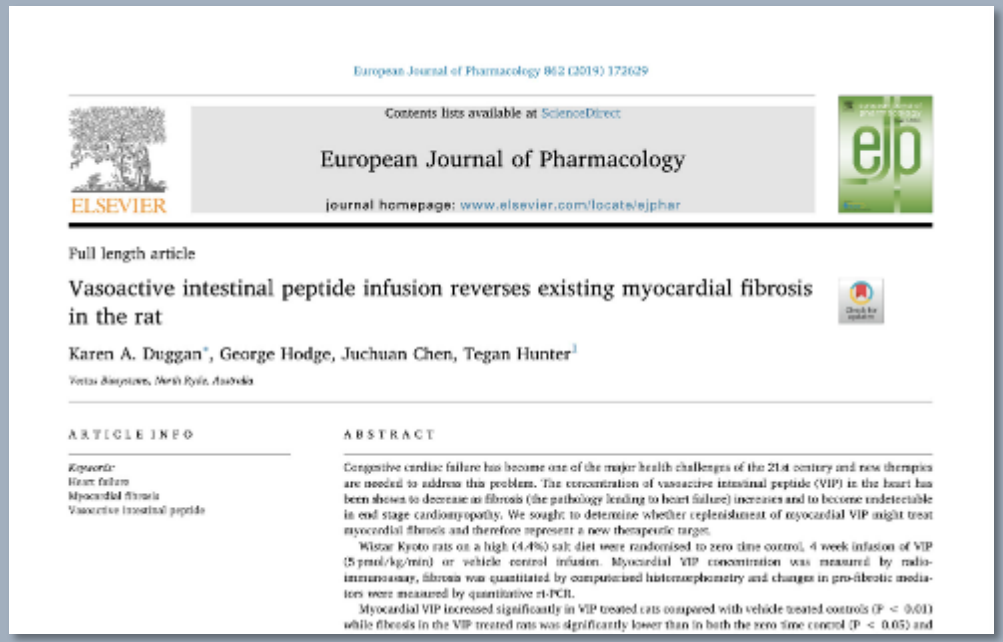
PHARMA LICENSING CRITERIA

- Validated Target
- Platform Technology
- Transform-ational Agent
- Demonstrated Efficacy in Animal Model
- Demonstrated Safety – IND toxicology
- Synthesis at Scale
- Cost of Goods Competitive
- IP Covers Composition of Matter
- Sufficient Patent Life
- Phase I Safety Study
- Human pD (Efficacy) data

COMPLETED IN PROGRESS

TARGET VALIDATION

Treatment with VIP reversed cardiac fibrosis in multiple animal models data from one was published in the paper entitled "Vasoactive intestinal peptide reverses existing myocardial fibrosis in the rat"



European Journal of Pharmacology 862 (2019) 172629

Contents lists available at ScienceDirect

European Journal of Pharmacology

journal homepage: www.elsevier.com/locate/ejphar

Full length article

Vasoactive intestinal peptide infusion reverses existing myocardial fibrosis in the rat

Karen A. Duggan*, George Hodge, Juchuan Chen, Tegan Hunter[1]

Vectus Biosystems, North Ryde, Australia

ARTICLE INFO

Keywords:
Heart failure
Myocardial fibrosis
Vasoactive intestinal peptide

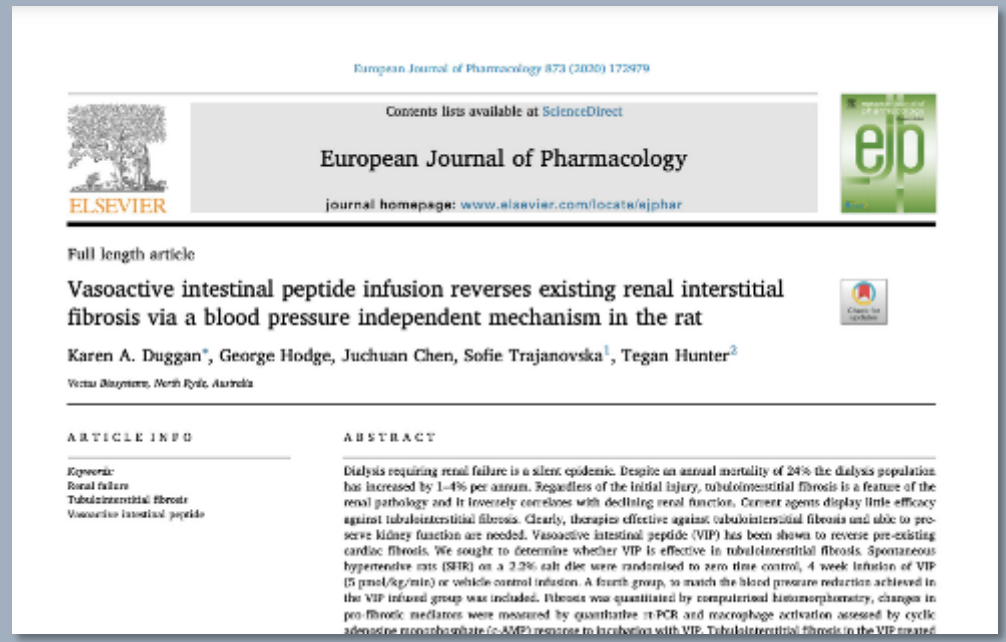
ABSTRACT

Congestive cardiac failure has become one of the major health challenges of the 21st century and new therapies are needed to address this problem. The concentration of vasoactive intestinal peptide (VIP) in the heart has been shown to decrease as fibrosis (the pathology leading to heart failure) increases and to become undetectable in end stage cardiomyopathy. We sought to determine whether replenishment of myocardial VIP might treat myocardial fibrosis and therefore represent a new therapeutic target.

Wistar Kyoto rats on a high (4.4%) salt diet were randomised to zero time control, 4 week infusion of VIP (5 pmol/kg/min) or vehicle control infusion. Myocardial VIP concentration was measured by radioimmunoassay, fibrosis was quantitated by computerised histomorphometry and changes in pro-fibrotic mediators were measured by quantitative rt-PCR.

Myocardial VIP increased significantly in VIP treated rats compared with vehicle treated controls ($P < 0.01$) while fibrosis in the VIP treated rats was significantly lower than in both the zero time control ($P < 0.05$) and

Treatment with VIP was also found to reverse interstitial fibrosis in the kidney in multiple animal models data from one was published in the paper entitled "Vasoactive intestinal peptide infusion reverses existing renal interstitial fibrosis via a blood pressure independent mechanism in the rat"



European Journal of Pharmacology 873 (2020) 172979

Contents lists available at ScienceDirect

European Journal of Pharmacology

journal homepage: www.elsevier.com/locate/ejphar

Full length article

Vasoactive intestinal peptide infusion reverses existing renal interstitial fibrosis via a blood pressure independent mechanism in the rat

Karen A. Duggan*, George Hodge, Juchuan Chen, Sofie Trajanovska[1], Tegan Hunter[2]

Vectus Biosystems, North Ryde, Australia

ARTICLE INFO

Keywords:
Renal failure
Tubulointerstitial fibrosis
Vasoactive intestinal peptide

ABSTRACT

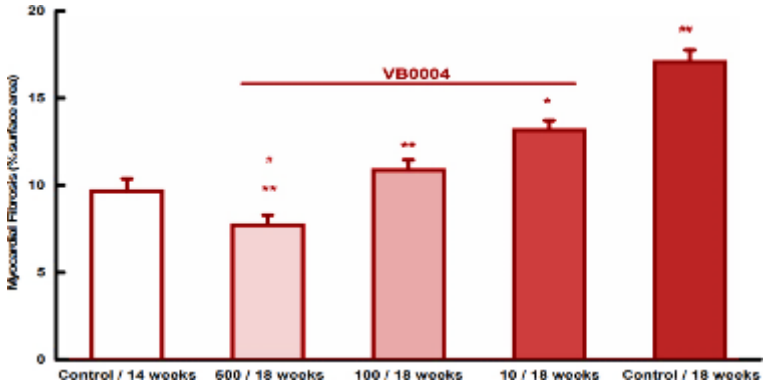
Dialysis requiring renal failure is a silent epidemic. Despite an annual mortality of 24% the dialysis population has increased by 1–4% per annum. Regardless of the initial injury, tubulointerstitial fibrosis is a feature of the renal pathology and it inversely correlates with declining renal function. Current agents display little efficacy against tubulointerstitial fibrosis. Clearly, therapies effective against tubulointerstitial fibrosis and able to preserve kidney function are needed. Vasoactive intestinal peptide (VIP) has been shown to reverse pre-existing cardiac fibrosis. We sought to determine whether VIP is effective in tubulointerstitial fibrosis. Spontaneous hypertensive rats (SHR) on a 2.2% salt diet were randomised to zero time control, 4 week infusion of VIP (5 pmol/kg/min) or vehicle control infusion. A fourth group, to match the blood pressure reduction achieved in the VIP infused group was included. Fibrosis was quantitated by computerised histomorphometry, changes in pro-fibrotic mediators were measured by quantitative rt-PCR and macrophage activation assessed by cyclic adenosine monophosphate (c-AMP) response to incubation with VIP. Tubulointerstitial fibrosis in the VIP treated

VB0004 & CARDIAC FIBROSIS

VB0004 has been shown to:

- Rescue cardiac tissue damaged by fibrosis
- Repair existing cardiac damage
- i.e. VB0004 is transformational

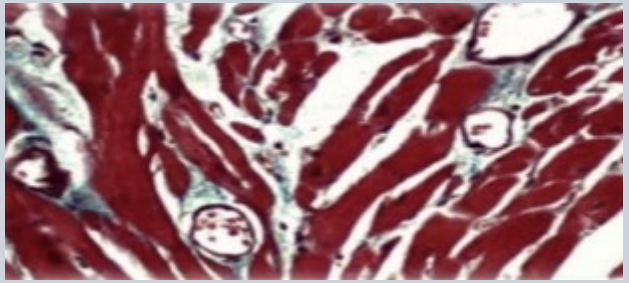
Treatment with VB0004 at 3 Doses



At the highest dose (500pmol/kg/min), VB0004 reversed pre-existing fibrosis, while a dose response effect on the level of fibrosis is apparent

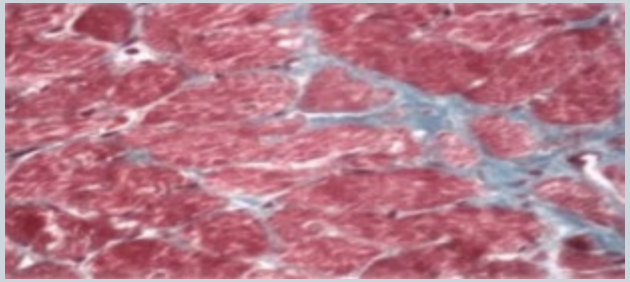
14-Week Control

Fibrous tissue (blue staining) is visible around blood vessels and extending between muscle fibres



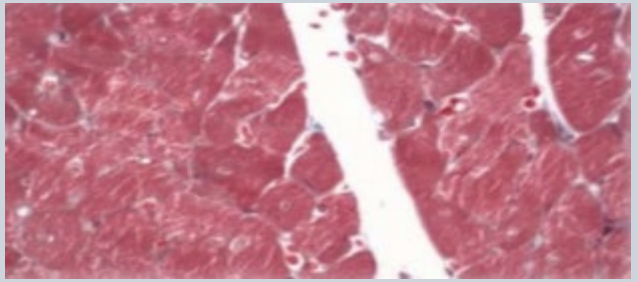
5% Ethanol 18-Week Control (Vehicle Control For VB0004)

Fibrosis visible as blue stained tissue is present throughout the section



Heart At 18 Weeks After 4-week Treatment with VB0004 (500 Pmol/Kg/Min)

Minimal fibrosis is visible; normal architecture has been restored



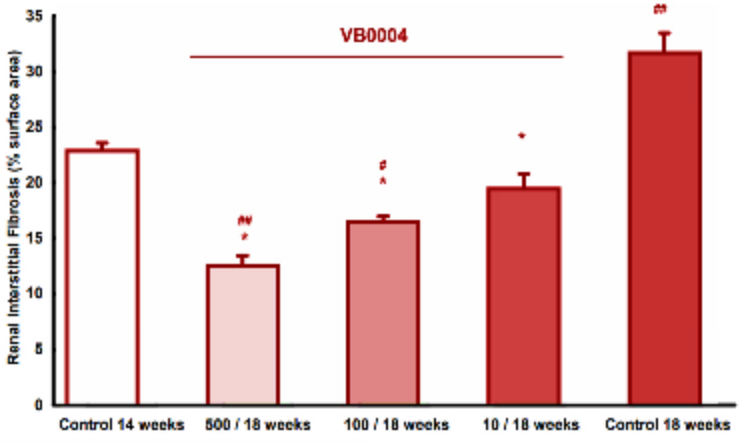
VB0004 & KIDNEY FIBROSIS

In the kidney VB0004 has been shown to:

- Reverse renal interstitial fibrosis at all doses
- Restore normal architecture at all doses

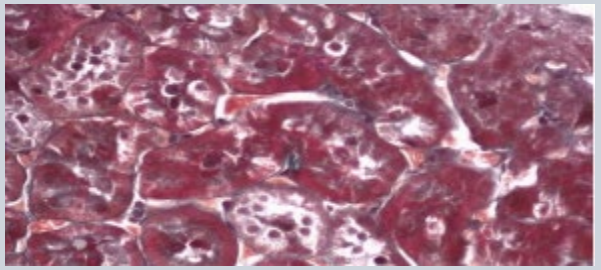
  (i.e. VB0004 is considered transformational)

Treatment with VB0004 at 3 Doses



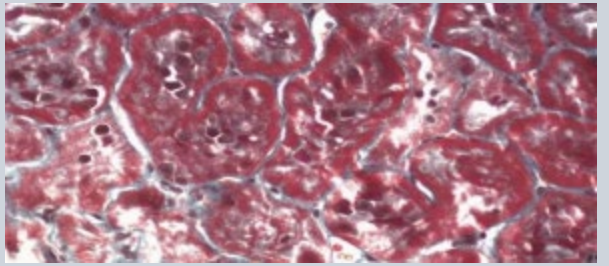
14-Week Control

Fibrosis (blue) partially surrounds some but not all tubukes



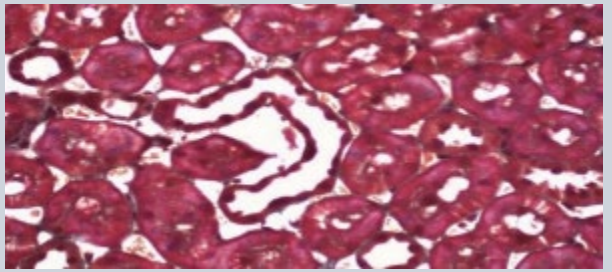
5% Ethanol 18-Week Control (Vehicle Control For VB0004)

Fibrosis has progressed to surround most tubules



Kidney At 18 Weeks After 4-week Treatment with VB0004 (500 Pmol/Kg/Min)

No fibrosis visible



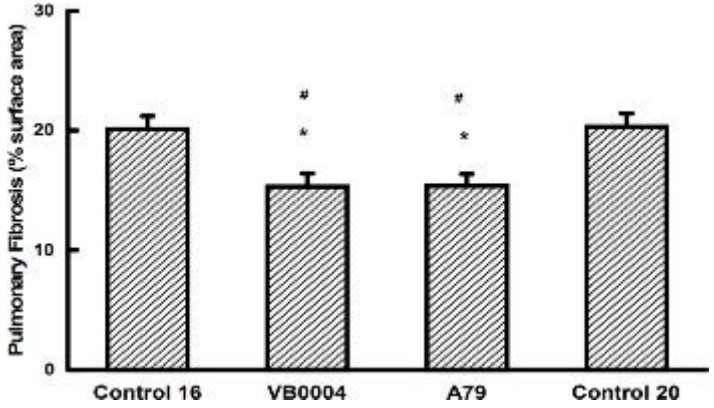
VB0004 & PULMONARY FIBROSIS

In the lung:

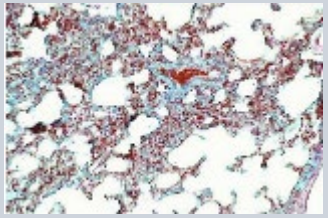
- VB0004 reversed fibrosis present 2 weeks after treatment with bleomycin (an anticancer drug)

(i.e. VB0004 also transformational in the lung)

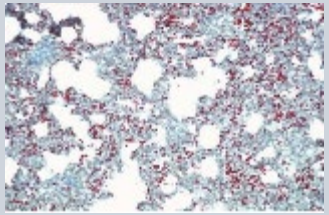
Treatment with VB0004 and VB4-A79



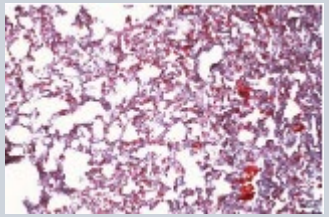
16-Week Control



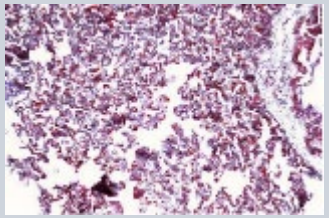
20-Week Control



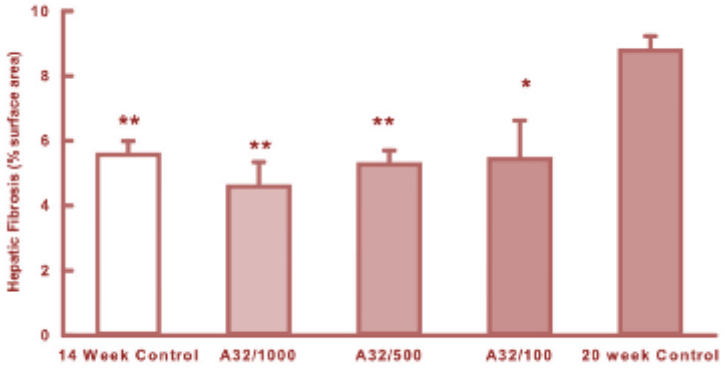
VB4-A79 at 20 weeks

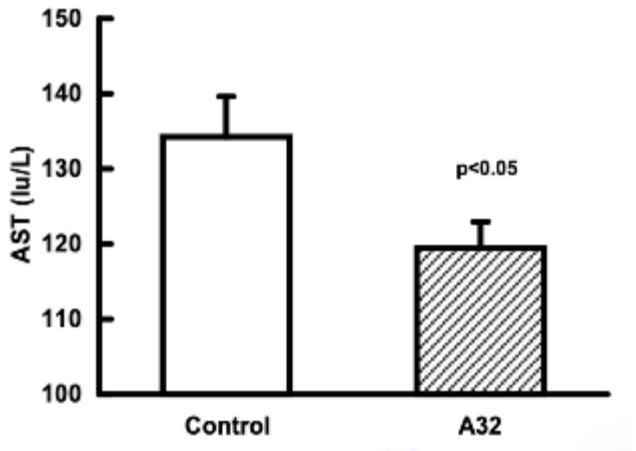


VB0004 at 20 weeks



VB4-A32 & HEPATIC CIRRHOSIS

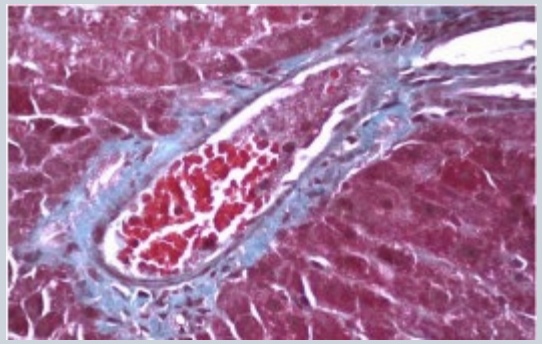




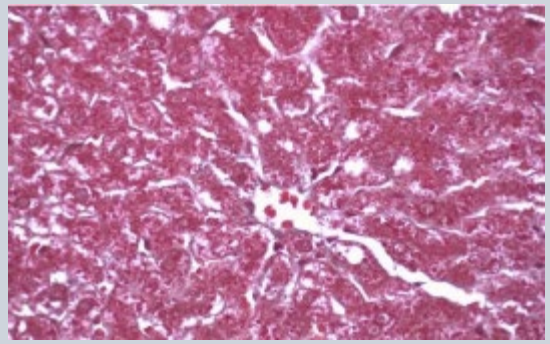
VB4-A32 demonstrated ability to:

- Reduce peri-portal fibrosis in the liver in a dose dependent manner (above left)
- Improve liver function tests (below left)

20-Week Control



A32 20 Weeks



SYNTHESIS AT SCALE & COST

01

FIRST GMP SYNTHESIS BY GLYCOSYN

- **Yield increased as scale increased**
- **VB0004 manufactured to 5kg scale**
- **Cost efficient at 5kg scale**

  < $(US)0.05 per mg
- **Estimated dose 1-5mg**
- **Stability studies – stable at 2 yrs (long shelf-life)**

02

SECOND GMP SYNTHESEIS ASSYCHEM

- **Campaign planned to provide 3 validation batches**
- **Confirm consistency of the synthesis process**
- **Samples of all 3 will undergo 2 yr stability testing**
- **Meets FDA requirements for GMP manufacture for Phase 1 and 2 clinical trials**

PHASE 1

Trial design – conventional Single Ascending Dose (SAD) & Multiple Ascending Dose (MAD)

Includes pharmacokinetic and pharmacodynamic studies

Expected outcomes – maximum tolerated dose, dose limiting toxicity (if present), pharmacokinetic (PK) and pharmacodynamic (PD) data

Syneos Health (Nasdaq SYNH) retained to write Investigator Brochure (IB), trial protocol and monitor Phase 1 trial

SAD completed with no significant adverse events, max tolerated dose 300mg

Healthy subjects 14 day MAD completed, no significant adverse events, max tolerated dose 100mg daily

PK – Tmax at 6-8hrs, half life 10-15hrs, no accumulation over 14 days

Affected individuals 2 groups 28 days 2 doses biomarkers identified - recruiting

VB0004 IN SUMMARY

Fist in class therapeutic

- VIP agonist

Transformational agent

- reverses existing fibrotic disease
- effective in multiple organs

Synthesis

- 3 steps
- cost competitive ($0.05 /mg)

Stability

exceeds 2 years

Efficacy

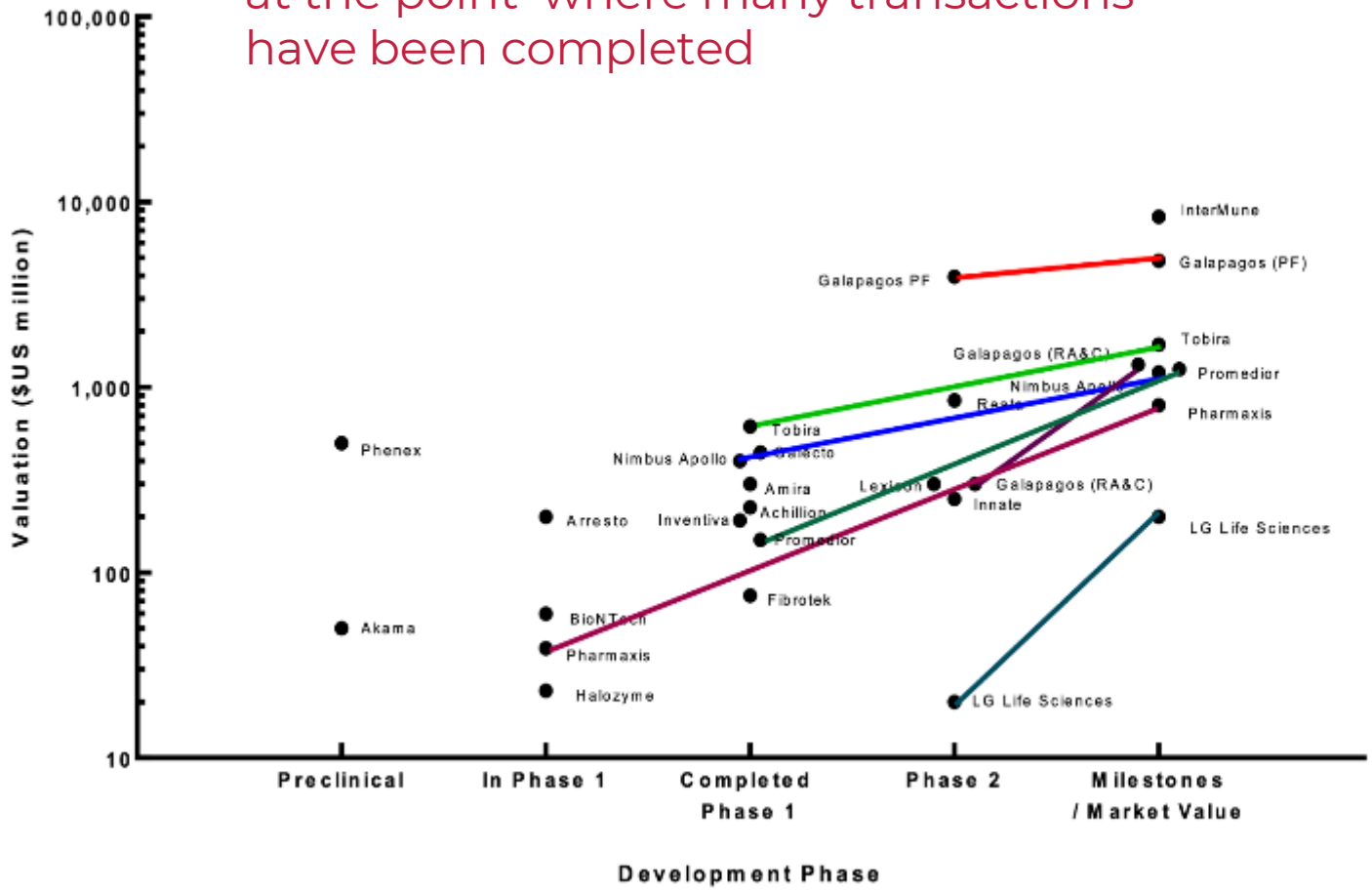
- significantly greater reductions in SBP, cardiac and renal fibrosis at lower doses than current agents.

Potential role

- given significantly greater efficacy at lower doses than current agents may replace RAS blockers as the foundational agent for therapeutic regimens in cardiovascular and renal disease

COMPARABLE TRANSACTIONS

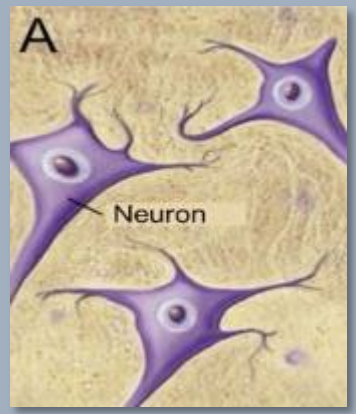
Successful Phase 1/1b would place Vectus at the point where many transactions have been completed

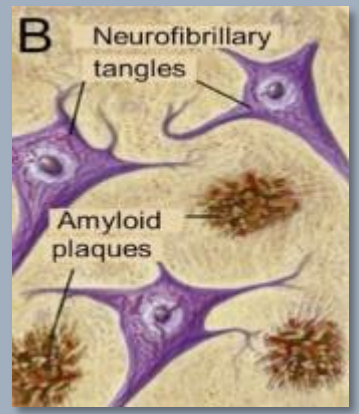


NEW INDICATIONS ALZHEIMERS & LONG COVID

NORMAL

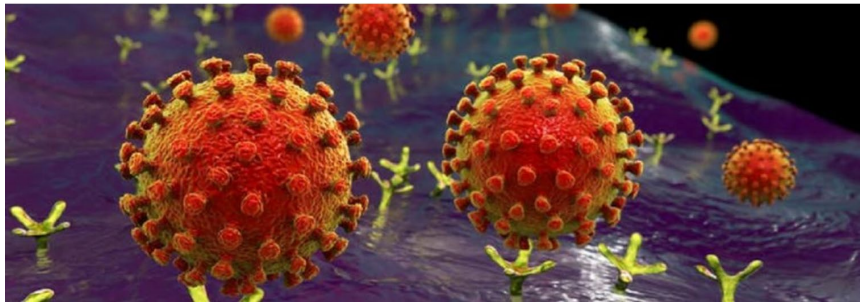
ALZHEIMER'S DISEASE





HEALTHY BRAIN

SEVERE ALZHEIMER'S



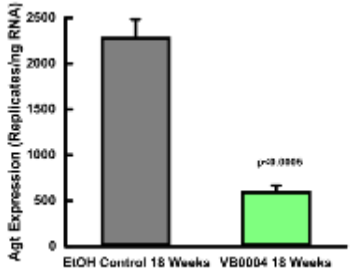
Sars-Cov2 + ACE2
↓
↑ Ang II

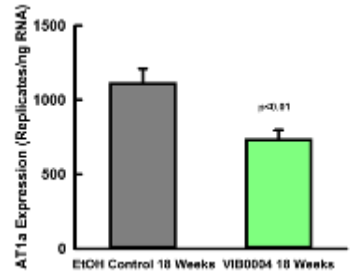
Cytokine Storm
↓
ARDS
↓
ICU ± Ventillation
↓
Fibrosis

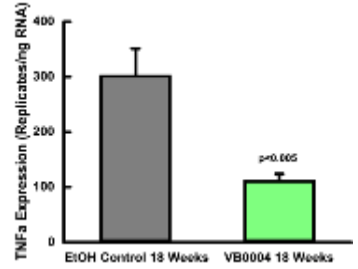
↑ Agt
↓
↑Ang II
↓
↑TNFα → ↑AT1a
↓
Fibrosis

Fibrosis

Ang II = Angiotensin II
ARDS = Acute Respiratory Distress Syndrome
Agt = Angiotensinogen, the Ang II precursor
TNFα= Tumour Necrosis Factor alpha







PATENT PORFOLIO – LONG PATENT LIFE

VIP patents for heart, kidney and aortic fibrosis

- granted all jurisdictions

VIP fragment patents compositions and methods of use for hypertension, cardiac, renal and aortic fibrosis

- granted most jurisdictions

VB0004 compositions and methods of use for hypertension, cardiac and renal fibrosis

- granted Russian Federation, Israel, Singapore, ARIPO, Canada, Philippines, South Africa, Ukraine, Vietnam, Nigeria, Mexico, accepted in Indonesia

VB0004 library of approx. 70 related compounds compositions and methods of use for treatment of hypertension, cardiac and renal fibrosis

- granted US, Australia, China, Europe, Japan, Korea, Russia, Ukraine, Hong Kong, Vietnam, Singapore, accepted in South Africa, ARIPO, Brazil, accepted Mexico

VB4-A32 and library of related compounds compositions and methods of use for treatment of hepatic, cardiac and renal fibrosis

- granted US, Europe, Australia, South Africa

VB4-P5 and library of related compounds compositions and methods of use for treatment of renal cell death, renal fibrosis and hepatic fibrosis

- granted US, China, Australia, South Africa, accepted Europe, Japan, Russia, Israel

GMP method of synthesis VB0004

- granted USA, Australia, India, accepted Europe, China

VB4-A79 and related compounds compositions and use for treatment of pulmonary fibrosis

- granted Australia, China, accepted USA, Europe, Mexico

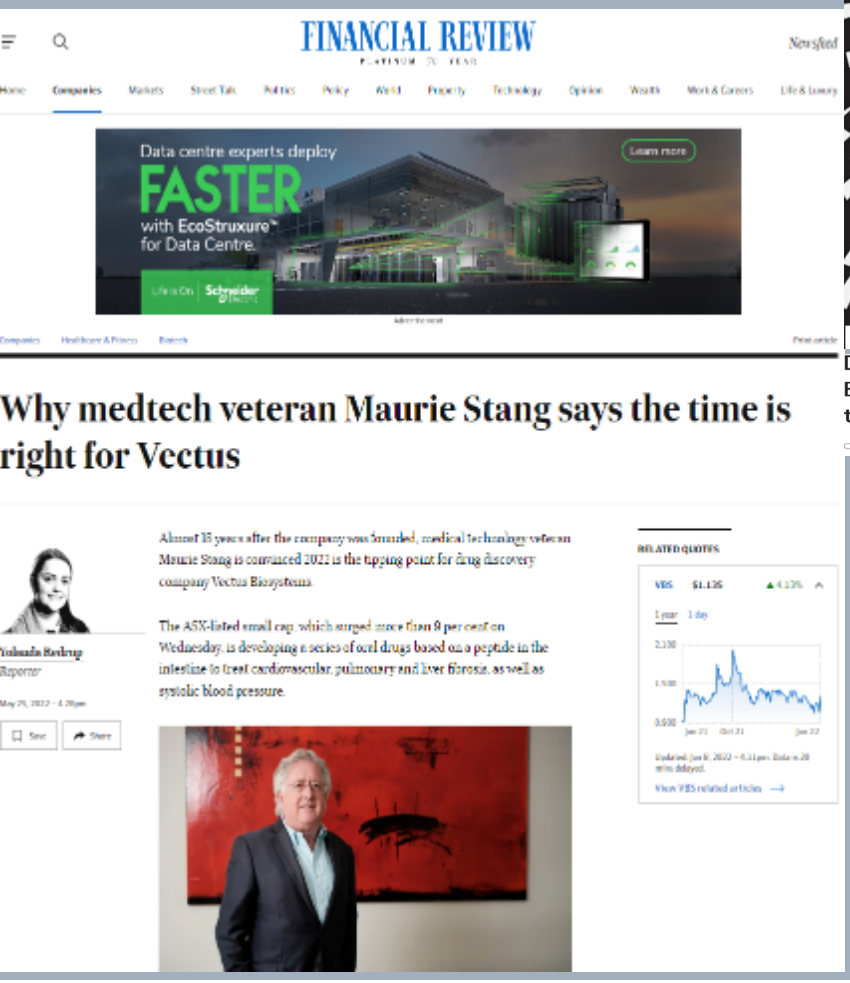
VB0001 and related compounds compositions and use for management of hypertension and fibrotic disease

- PCT application

VB0002, VB0003 and VB0005 and related compounds compositions and use for management of hypertension and fibrotic disease

- national phase

IN THE MEDIA – VECTUS INCREASING MARKET RECOGNITION



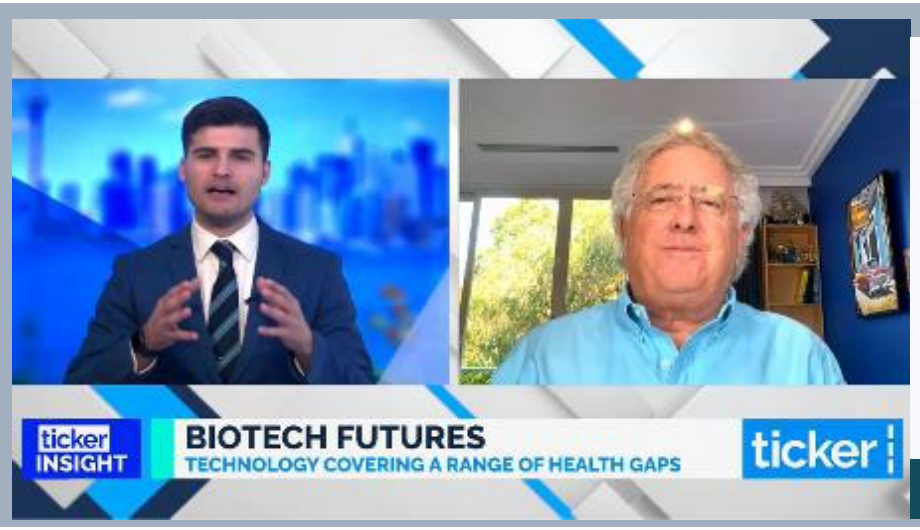
Dr Boreham's Crucible: Is Vectus Biosystems about to become a VIP for takeover suitors?

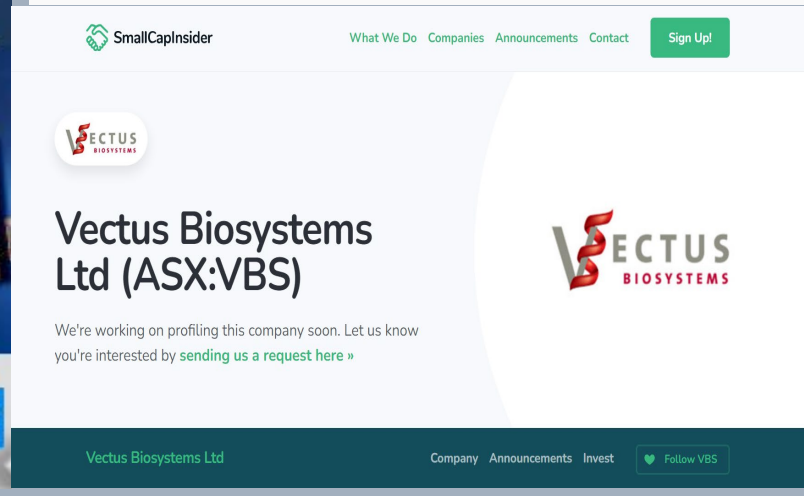
October 3, 2022 | Tim Boreham

ASX Health Stocks: Vectus jumps 13pc on promising Phase 1 study results

May 25, 2022 | Eddy Sunarto

Vectus Biosystems progresses its human trials with lead cardiovascular drug candidate VB0004





VECTUS BIOSYSTEMS

CONTACT

MAURIE STANG

Non-Executive Director & Deputy Chairman
mauries@regionalhealth.com.au

KAREN DUGGAN

Executive Director & CEO
kduggan@vectusbiosystems.com.au