

Creating and developing innovative therapies

Deborah Rathjen
CEO & Managing Director
ASX Small to Mid Caps Presentation
October 2012



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### Factors Affecting Future Performance

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## Bionomics Investment Highlights

- Emerging biotech with global operations in Australia (ASX:BNO), Europe and the United States
- World class discovery and development capabilities targeting multi-billion dollar market opportunities in solid tumour oncology, CNS, and immune diseases
- Broad and deep portfolio of clinical and preclinical drug candidates:
  - BNC105 solid tumour targeting agent in Phase II trials for renal and ovarian cancer with key data in 2013
  - BNC210 targeting anxiety and depression partnered with Ironwood Pharmaceuticals, about to enter Phase Ib
    - US\$345 million milestones, including anticipated US\$13 million to January 2014, plus royalties
  - ET101 and ET102 Cancer Stem Cell (CSC) targeting antibodies from recent acquisition of Eclipse Therapeutics; ET101 entering clinic in 2014
  - Partnerable *Kv1.3* (*Multiple Sclerosis*) and *Alpha 7* (*Alzheimers Disease*) CNS assets anticipated to generate additional value inflection points in CY2013



## **Bionomics Snapshot**

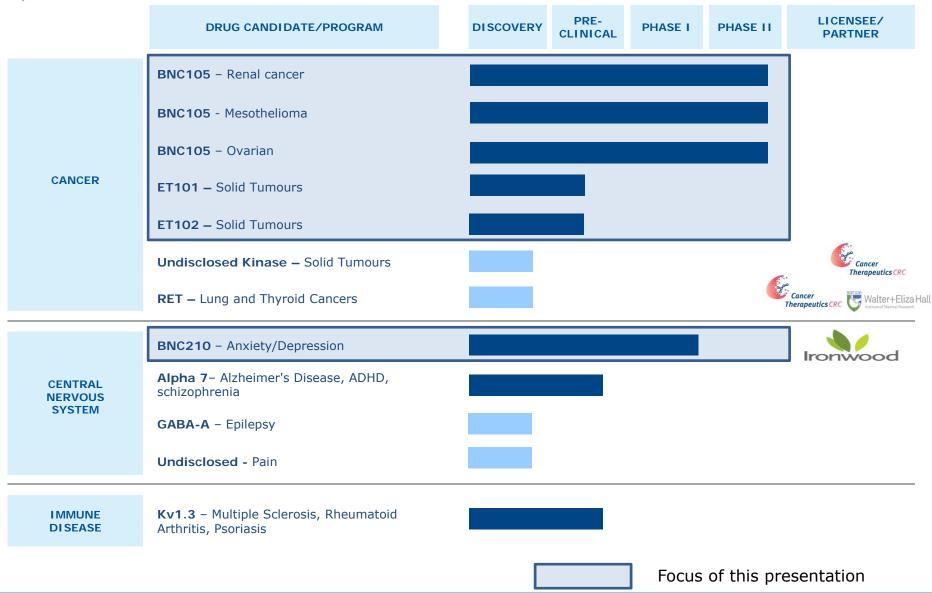
KEY STATISTICS (21.9.12)		
ASX code	BNO	
Current share price	A\$0.375	
52 week high	A\$0.62	
52 week low	A\$0.24	
Shares on issue	369.3M	
Market capitalisation	A\$138M	
Net cash (30.6.12)	A\$17.34M	

BOARD		
Chris Fullerton	Chairman	
Deborah Rathjen	CEO & MD	
Trevor Tappenden	Non-exec Director	
Errol DeSouza	Non-exec Director	
Graeme Kaufman	Non-exec Director	
Jonathan Lim	Non-exec Director	

MANAGEMENT		
Deborah Rathjen	CEO & MD	
Emile Andriambeloson	Head of Research, Neurofit	
Peter Chu	VP US Operations & Cancer Biology	
Andrew Harvey	VP Drug Discovery	
José Iglesias	CMO (from 1 November 2012)	
Gabriel Kremmidiotis	VP R&D	
Sue O'Connor	VP Neuroscience Research	
Chris Reyes	VP R&D Biologics	
Jeremy Simpson	<b>VP Clinical Development</b>	
Melanie Young	CFO & Company Secretary	



## Bionomics: Balanced Oncology and CNS Pipeline





### BNC210: Partnered with Ironwood Pharmaceuticals



### The Ironwood BNC210 Partnership:

- Up to US\$345 million in upfront, development (clinical trials) and regulatory milestone payments (i.e. all milestone payments are pre-sales).
- Royalty on net sales of products incorporating BNC210 (IW-2143).
- US\$13 million anticipated to January 2014.
- Ironwood will fund all clinical trials and other development activities.

### **Current activities directed towards:**

- Increasing understanding of biology
- Undertaking formulation development
- Additional manufacture
- Advancing IND
- Initiating Phase Ib and planning for Phase IIa



# BNC210: A next generation compound with potential in the treatment of anxiety and depression

TREATMENT	Anxiety and Depression	
MODE OF ACTION	<ul> <li>Modulates novel pathway, to promote anti-anxiety activity and neurite outgrowth in vitro.</li> </ul>	
CLINICAL/ REGULATORY	<ul> <li>Four Phase I trials completed, including a trial assessing panic attack symptoms:</li> <li>59 subjects enrolled in double-blinded placebo controlled trial;15 subjects classified as having a panic attack upon CCK-4 administration</li> <li>Statistically significant decrease in both number &amp; intensity of symptoms (p&lt;0.05)</li> <li>BNC210 treated subjects returned to normal emotional status within 10 minutes, compared to 60 minutes on placebo</li> <li>This trend correlated with the statistically significant reduction in panic symptoms by BNC210</li> <li>BNC210 has been administered to 108 healthy subjects to date with excellent safety profile</li> </ul>	
BENEFITS	<ul> <li>BNC210-related changes in human brain activity indicative of efficacy</li> <li>Reduced panic symptoms</li> <li>No evidence of sedation or addiction to date</li> </ul>	
MARKETS	<ul> <li>Anxiety – global sales of US\$5-7bn annually</li> <li>Depression – global sales US\$11bn in 2008</li> </ul>	



## BNC210: Fewer side-effects expected to be a key product differentiator

		COMPETITIVE	ADVANTAGES (	OF BNC21	O*	
DRUG	NO SEDATION	NO WITHDRAWAL SYNDROME	NO MEMORY IMPAIRMENT	FAST ACTING	NO DRUG/DRUG INTERACTIONS	ONCE-A- DAY DOSING
BNC210	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>
VALIUM	*	*	*	<b>√</b>	<b>√</b>	✓
PROZAC	✓	*	✓	*	*	✓
BUSPAR	×	<b>√</b>	<b>√</b>	×	<b>√</b>	×

 $<sup>\</sup>ensuremath{^{*}}$  Based on preclinical data and results of Phase I trial comparing BNC210 with Lorazepam



# BNC105: "Best in Class" Vascular Targeting Agent with Unique Dual Mechanism of Action

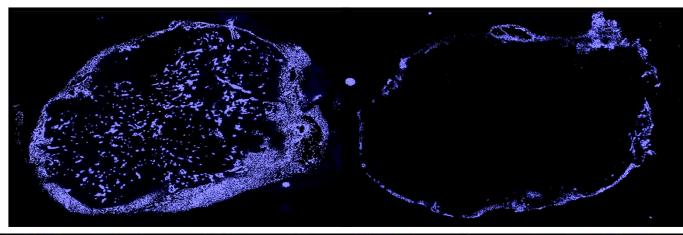
TREATMENT	Solid Cancers	
MODE OF ACTION	<ul> <li>Proprietary, novel vascular targeting agent</li> <li>Rapidly shuts down existing &amp; new tumour blood vessels</li> <li>No impact on normal blood vessels</li> </ul>	
CLINCAL/ REGULATORY	<ul> <li>Phase II Renal cell cancer (US, Australia, Singapore)</li> <li>Market size &gt;US\$2.5bn</li> <li>Sutent, Pfizer; Nexavar, Bayer/Onyx; Afinitor, Novartis</li> <li>Afinitor combination has potential to extend to breast cancer and pancreatic tumours, for example</li> <li>Phase I/II Ovarian cancer (Australia, New Zealand, US)</li> <li>Market size ≈US\$2.2bn in 2011</li> <li>Carboplatin, BMS; Gemcitabine, Eli Lilly</li> <li>Drug combination has potential to extend to lung, prostate and breast cancer</li> </ul>	
BENEFITS	<ul> <li>Dual Action – selectively targets both tumour blood vessels and cancer cells</li> <li>Rapid, Potent Action – works rapidly to shut down tumour blood vessels, potent anti-tumour action as a single agent, tumour less likely to escape treatment</li> <li>Enhances Effectiveness of Other Cancer Treatments – delivers synergistic anti-cancer effects in numerous combinations (e.g., anti-VEGF)</li> </ul>	
MARKETS	<ul> <li>The current market size in treatment of all solid tumours is &gt;US\$10b (Avastin, Genentech/Roche sales &gt;US\$5b in 2011)</li> </ul>	



untreated

## **BNC105: Targeting Solid Tumours**

By selectively shutting down tumour blood vessels, BNC105 rapidly inhibits tumour growth



BNC105 treated

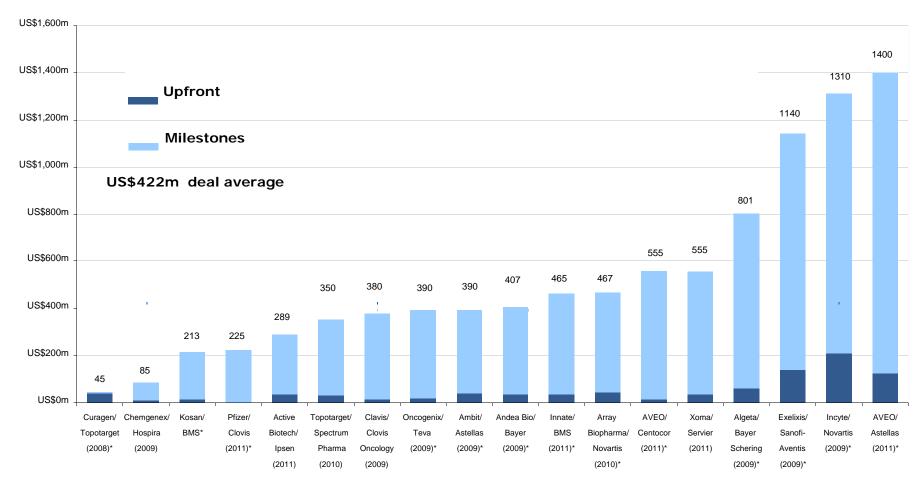




## **BNC105: Partnership Potential**

### BNC105 Phase II results will drive licensing outcome

### Precedent Oncology Licensing Transactions



Source: Edison Research reports, Linwar Research reports, Bionomics management sources, Greenhill Caliburn analysis

Average excludes significant outliers Curagen/Topotarget, Chemgenex/Hospira, Exelixis/Sanofi-Aventis, Incyte/Novartis and AVEO/Astellas

<sup>\*</sup> Indicates worldwide deal



## **Eclipse Transaction Overview**

- BNO has acquired Eclipse Therapeutics, a Biogen Idec (NASDAQ:BIIB) spin-out
  - Bionomics Inc based San Diego USA
- Therapies targeting cancer stem cells (CSCs): the "seeds" of cancer
  - Estimated \$8B market opportunity by 2018
  - Significant investment over 7 years by BIIB
  - Drug candidate ET101 expected in human trials in 2014
  - Second drug candidate ET102 & CSC drug discovery platform
- \$10M consideration in Bionomics shares valued at 41.76 cents per share
  - Eclipse shareholders may qualify for cash earn-outs for late stage development or partnering success
- Eclipse shareholders, including Biogen Idec, currently hold
   ~5.2% stake in BNO



# Market Opportunity: CSCs Next Significant Advance in Cancer Treatment

Company	Technology	Financials
OncoMed	<ul> <li>CSC antibodies targeting cancer gene/signalling pathways (Wnt &amp; Notch)</li> <li>Strong preclinical trial results</li> </ul>	Strategic alliance: Bayer Total: >\$1,975M Upfront: \$40M  Strategic alliance: GSK Total:>\$1,400M Upfront: undisclosed
Verastem	<ul> <li>Screening platform CSC-like cells</li> <li>Preclinical Wnt program</li> <li>Clinical focal adhesion kinase (FAK) program</li> </ul>	<ul><li>IPO 2012 (NASDAQ:VYST)</li><li>Market cap~\$212M</li></ul>
Boston Biomedical	<ul> <li>Advanced clinical development programs (Phase I, II, planning Phase III)</li> </ul>	Acquired by Dainippon for >\$2.6B in 2012 (\$200M upfront)
Roche (Arius)	<ul> <li>Pre-IND anti-CD44 antibody</li> </ul>	Acquired for \$184M cash by Roche



### **Financial**

### **FY12 Results:**

- Cash at 30 June 2012:\$17.34M
- Net cash inflow for the 12 month period: \$1.29M
- Revenue for the period: \$6.83M
- Operating loss after tax:\$3.14M
- Cash \$17.34M at 30 June 2012
- Anticipated >\$3M cash from Australian R&D Tax Incentive refund in FY13
  - With potential for similar Incentive to be received in FY14
- Anticipated ~\$10M from Ironwood
- Access US grant funding



# R&D Outlook & Anticipated Milestones: Partnership Focus

Key Program Milestone	Anticipated Timing (CY)
BNC105	
- Complete Phase II renal cancer trial enrolment	Q4, 2012/Q1, 2013
- Results from renal cancer trial	2H, 2013
- Complete ovarian Phase I trial enrolment	1H,2013
- New data presentations at AACR & ASCO	1H, 2013
ET101	
Initiation of IND enabling studies & GMP manufacture	1H, 2013
Alpha 7	
Drug candidate selection	2H, 2012
Initiation of IND enabling studies & GMP manufacture	1H, 2013
Kv1.3	
Partnership	2013



## Summary

- Bionomics has world class discovery and development capabilities targeting multi-billion dollar market opportunities in solid tumour oncology, CNS, and Immunology
- The acquisition of Eclipse (now Bionomics Inc) has positioned BNO as a leading player in cancer stem cells, adding antibody therapeutics and a US platform.
- The licensing of anxiety drug BNC210 to Ironwood has the potential to deliver very significant shareholder returns via milestone payments and royalties.
- Phase II trial success of BNC105 in renal cancer and ovarian cancer should lead to a lucrative licensing transaction.
- A range of additional pipeline drug candidates are advancing including Alpha 7 Alzheimer's candidate and Kv1.3 Multiple Sclerosis candidates with strong partnering potential.
- Bionomics is well positioned to execute its plan to build sustainable revenue streams from multiple drug candidates.



## ASX:BNO - Appendix

www.bionomics.com.au



## Large end markets with unmet needs

Three core proprietary technology platforms lie at the heart of Bionomics, delivering multiple product opportunities.

Bionomics has three key compounds in development (BNC105, BNC210, Kv1.3) which are focussed on treatments for solid cancers, CNS conditions and immune diseases respectively.

Bionomics also has a number of other promising early stage compounds.

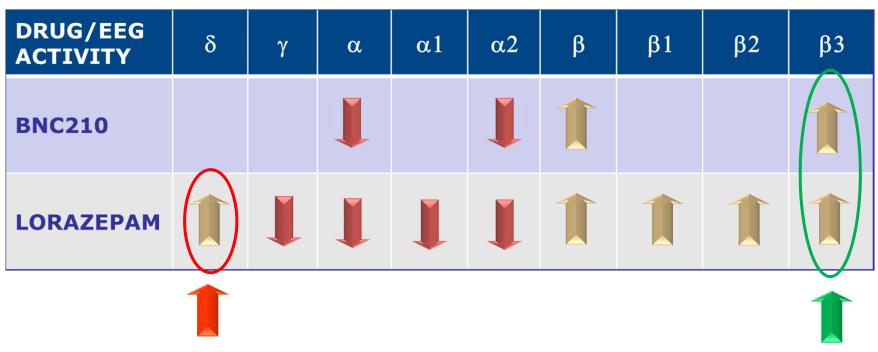
PROPRIETARY TECHNOLOGY PLATFORMS		
MULTICORE	<ul> <li>Proprietary, diversity oriented chemistry platform for the discovery of small molecule drugs</li> </ul>	
ANGENE	<ul> <li>An angiogenesis target and drug discovery platform</li> </ul>	
IONX	<ul> <li>A set of novel technologies for the identification of drugs targeting ion channels for CNS indications</li> </ul>	

KEY	DRUG C	ANDIDATES	CURRENT PHASE	END MARKET & POTENTIAL SIZE
CANCER	BNC105	<ul> <li>Potential solid tumour cancer treatment which works by shutting down blood vessels in tumours</li> </ul>	PHASE II	<ul> <li>Renal – Sutent (Pfizer); Nexavar (Bayer/Onyx); Afintor (Novartis) global sales of &gt;US\$2.5bn in 2011</li> <li>Ovarian – US\$3.6bn in 2010</li> <li>All solid tumour types – Avastin (Genentech/Roche) global sales of &gt;US\$7bn in 2010</li> </ul>
CNS	BNC210	<ul> <li>"First in class", novel mechanism to treat anxiety and depression -in partnership with Ironwood</li> </ul>	PHASE 1b	<ul> <li>Anxiety – global sales of US\$5-7bn annually</li> <li>Depression – global sales US\$11bn in 2008</li> </ul>
IMMUNE DISEASE	KV1.3	<ul> <li>Potential treatment for Multiple Sclerosis and other autoimmune diseases</li> </ul>	PRE- CLINICAL	<ul> <li>Multiple Sclerosis – global sales of &gt;US\$12bn in 2010</li> </ul>



## BNC210 Phase I trial: BNC210 vs Lorazepam

- BNC210 was compared with Valium-like anti-anxiety drug Lorazepam in a double-blinded, placebo controlled trial involving 21 subjects.
- BNC210 clearly outperformed Lorazepam in tests measuring attention, memory, co-ordination, sedation & addiction.
- EEG data showed BNC210-related changes in human brain activity indicative of efficacy.



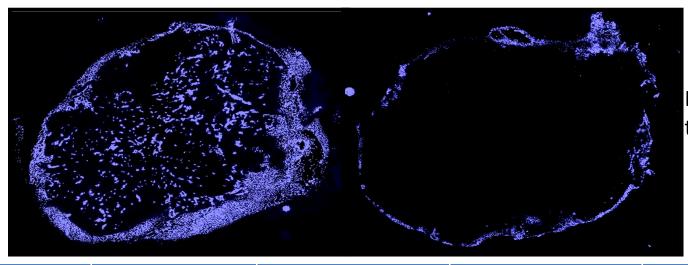
Increased sedation

**Reduced anxiety** 



## BNC105 Rapidly and Selectively Shuts Down Tumour Blood Vessels

untreated



BNC105 treated

Agent	Company	Activity on Activated HUVEC (EC50, nM)	Activity on Quiescent HUVEC (EC50, nM)	Selectivity Index
BNC105	Bionomics	0.31	25	80.64
Zybrestat	Oxigene	3.6	3.9	1.08
MPC6827	Myrexis	4.79	3.24	0.67
AVE8062	Sanofi aventis	3.95	3.08	0.77



### BNC105: Renal Cancer

- Potential to be a new treatment paradigm for patients with renal cancer
- Encouraging initial results from US renal cancer trial
  - Combination of Afinitor & BNC105P
     BNC105 safe & well
     tolerated
- As effective as Sutent in reducing tumour size in animal model
  - Sutent (*Pfizer*) is the current market leader with 2010 global sales US\$1b

### **Right Kidney Tumour Burden**

Saline



Sutent

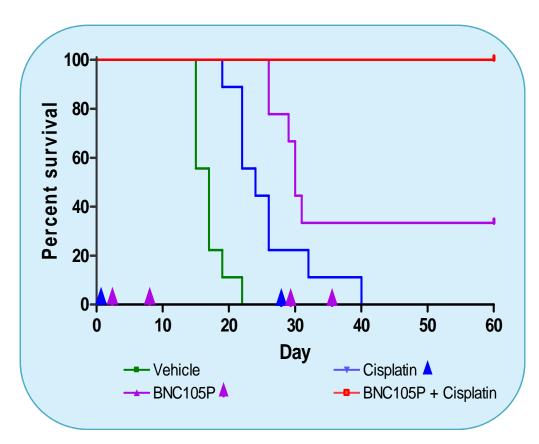
Globally, Renal Cancer is 7<sup>th</sup>
most common form of
cancer resulting in over
100,000 deaths p.a.



### BNC105: Ovarian cancer

Ovarian cancer is 5<sup>th</sup> leading cause of cancer-related death among women. In the US Ovarian Cancer is responsible for:

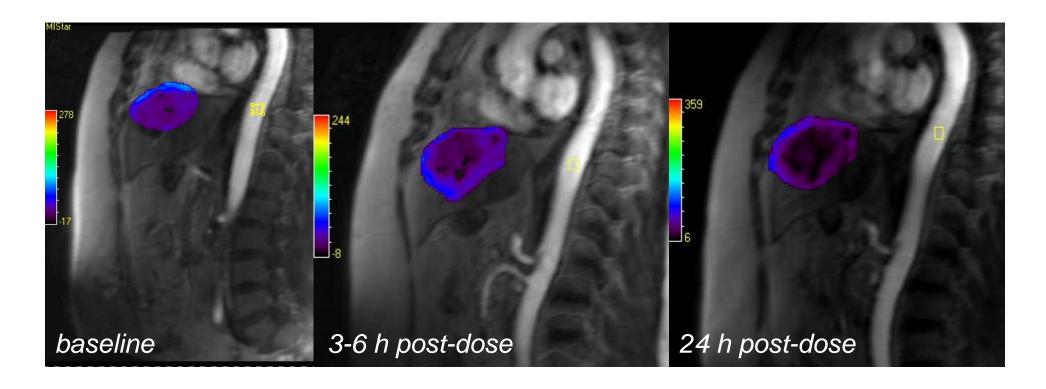
- 21,880 new cases & 13,850 deaths in US (2010)
- ~\$2.2b pa spent in treatment.
- BNC105 preclinical data supports ovarian cancer trial:
  - Potent cytotoxic for platin sensitive and resistant ovarian cancer cells
  - Inhibits tumour growth and improves survival in cisplatin-resistant ovarian cancer model
  - Treatment of lung cancer-bearing animals with BNC105 + cisplatin results in 100% survival





# DCE-MRI Evidence of tumour Blood Flow Changes in Patients Treated with BNC105

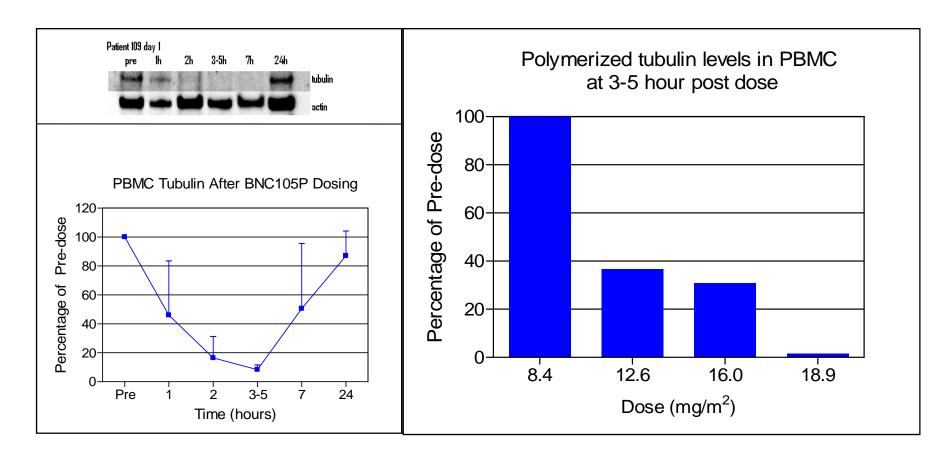
Following BNC105 dosing there are decreased magnitude and rates of enhancement in the tumour center, indicative of VDA activity.



Rectosigmoid adenocarcinoma patient (liver met shown)



## BNC105 Exhibits "On Target" Activity in Patient Samples



## No other VDAs have demonstrated "on target" activity in clinical samples



## Solid pipeline backing BNC105, BNC210 and ET101

UNDISCLOSED KINASE		<ul> <li>Novel kinase inhibitory activity for the treatment of malignancies currently in discovery phase.</li> <li>Partnered with CRC-CTx.</li> </ul>
CANCER	RET	<ul> <li>RET kinase inhibitor for the treatment of lung and thyroid cancers</li> <li>Partnered with CRC-CTx and WEHI</li> </ul>
CNS	Alpha 7 nicotinic acetylcholine receptor modulator	<ul> <li>Targets improvement of memory in Alzheimer's disease, Schizophrenia and other conditions.</li> <li>Significant end markets with Bionomics estimate for Alzheimer's market at US\$5bn in 2012 and Schizophrenia market US\$4.2bn in 2011.</li> </ul>
	GABA-A modulator	<ul><li>Potential treatment for Epilepsy.</li><li>Utilises ionX platform.</li></ul>
IMMUNE DISEASES	Kv1.3 inhibitor	<ul> <li>Targeting Kv1.3, a potassium ion channel in T cells which is the target for a Bionomics drug for the treatment of multiple sclerosis, rheumatoid arthritis, psoriasis and other autoimmune diseases.</li> <li>The global immunomodulators market size was estimated at US\$46.8 billion in 2010.</li> <li>Annual revenue of MS drugs worldwide &gt;US\$12 billion in 2010.</li> <li>The global RA market was estimated at US\$9 billion in 2009 and is forecast to grow by 6% annually to reach US\$14.3 billion by 2017.</li> <li>The psoriasis market was estimated at US\$3.4 billion in 2009 and is estimated to grow to US\$6.8 billion in 2019.</li> </ul>



# $\alpha$ 7 Nicotinic Acetyl Choline Receptor Positive Allosteric Modulators (PAM)

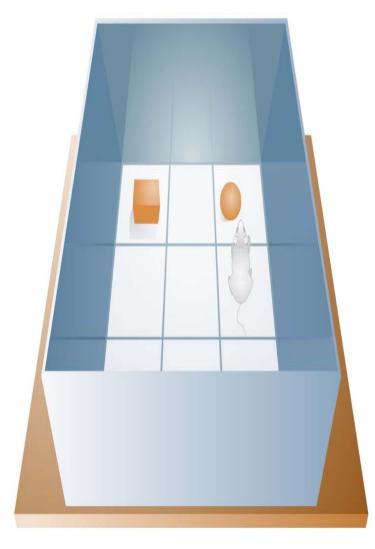
- Market opportunity includes many neurodegenerative and psychiatric disorders:
  - Alzheimer's Disease, Parkinson's Disease, Multiple Sclerosis, Schizophrenia, ADHD and mood and anxiety disorders

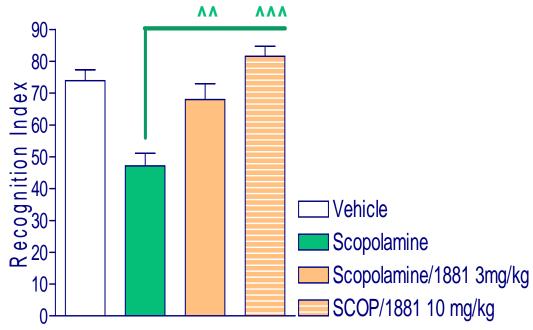
	Prevalence	Global sales
Alzheimer's Disease	9.7 Million	\$5.6 Billion
Cognitive Dysfunction in Schizophrenia	3.4 Million	No approved products
ADHD	44.9 Million	\$4.2 Billion

- ullet  $\alpha$ 7 NAChR receptor agonists improve attention, working memory and recognition memory
  - Normalizing the physiological response
  - Preserving the integrity of neurotransmission
  - Allows more effective tonic cholinergic input and show less receptor desensitization
  - Avoid toxicity associated with cholinergic excess and high influx of Ca++
- Advantages of PAM: allows "fine-tuning" of receptor activity with a broader margin of safety
- New drug candidate for IND enabling studies and clinical development Q3, 2012



# BNC1881 reduces scopolamine-induced deficit in the rat Novel Object Recognition test





n=12-22 rats.

 $^{p\leq 0.01}$ ;  $^{p\leq 0.001}$ ; Significantly different to Scopolamine treated rats

Recognition Index:  $RI = tB/(tA + tB) \times 100$ 



### CVs of Executive Team

#### DR DEBORAH RATHJEN CEO & MANAGING DIRECTOR

A seasoned biotech executive of almost 20 years, Dr Deborah Rathjen joined Bionomics in June 2000 from Peptech Limited, where she was Manager of Business Development and Licensing. Dr Rathjen was a coinventor of Peptech's TNF technology and leader of the company's successful defence of its key TNF patents against a legal challenge by BASF, providing Peptech with a strong commercial basis for licensing negotiations with BASF, Centocor and other companies with anti-TNF products. This success saw the company grow from a A\$17m market capitalisation to a A\$500m market capitalisation. Dr Rathjen has significant technology and product licensing experience. Dr Rathjen is Chairperson of the AusBiotech Board, and is a former member of the Prime Minister's Science Engineering and Innovation Council. In 2004 Dr Rathjen was awarded the AusBiotech President's Medal for her significant contribution to the Australian biotechnology industry, in 2006 she received a Distinguished Alumni Award from Flinders University, in 2009 the BioSingapore Asia Pacific Woman Entrepreneur of the Year, and in 2010 Bio Innovation SA Industry Leader Award.

### DR EMILE ANDRIAMBELOSON HEAD OF RESEARCH AT NEUROFIT

Dr Emile Andriambeloson joined Neurofit in 2002 from Novartis Pharma and has played an important role in the development of Neurofit's business. In 2005 Dr Andriambeloson became the Head of Research at Neurofit and is the key interface with Neurofit's international customer base as well as Bionomics' CNS programs. Dr Andriambeloson has a PhD from the University of Strasbourg in France and is recognised for his expertise in pharmacology. He is the author of 18 articles published in highly regarded peer reviewed scientific journals. Dr Andriambeloson's previous positions include Novartis Pharma (Basel, Switzerland), Heart Research Institute (Sydney, Australia) and University of New South Wales (Sydney, Australia).

### DR ANDREW HARVEY VICE PRESIDENT DRUG DISCOVERY

Dr Andrew Harvey joined the chemistry group at Bionomics in 2007 and has led the group in the Multiple Sclerosis collaboration with European pharmaceutical company, Merck Serono, since the collaboration began in June 2008. He played a leading scientific role in the partnering discussions with Merck Serono and has inventorship on each of Bionomics' Multiple Sclerosis patents. In 2007, Dr Harvey was instrumental in the establishment of the new chemistry facilities at the Bionomics headquarters in Adelaide. During his prior employment at The Walter and Eliza Hall Institute for Medical Research, Dr Harvey was awarded a National Health and Medical Research Council Industry Fellowship for his research in identifying new treatments for Multiple Sclerosis. He holds a PhD and a BSc (Honours) from Canterbury University in New Zealand.

### DR GABRIEL KREMMIDIOTIS VICE PRESIDENT RESEARCH AND DEVELOPMENT

Molecular geneticist and immunologist Dr Gabriel Kremmidiotis joined Bionomics as Head of Bioinformatics in January 2002 and his role has since expanded to Vice President Research & Development. Formerly Senior Medical Scientist at the Department of Cytogenetics & Molecular Genetics at the Women's & Children's Hospital in Adelaide, Dr Kremmidiotis has several patent inventions on breast cancer tumour suppressor genes, including Bionomics' BNO64 and BNO1 genes as well as other tumour suppressor genes. Dr Kremmidiotis has a PhD and a Bachelor of Science (Honours) from Flinders University and a Bachelor of Science from The University of Melbourne. He has published research findings in 23 internationally-recognised scientific publications including Cell, Human Molecular Genetics and American Journal of Human Genetics, and is a member of the Human Genetics Society of Australasia.



## CVs of Executive Team

### MS MELANIE YOUNG CFO & COMPANY SECRETARY

Ms Young has over 13 year's experience, with six years in the medical device field, including two years as CFO of an ASX-listed company covering all facets of the company's global finance function. In particular, her considerable commercial experience in listed company reporting requirements, international finances and working capital management will complement the Bionomics team. Ms Young has also gained experience in negotiating distributor agreements, due diligence, cost reduction strategies and improving operating efficiencies. Previously Ms Young worked for Deloitte Touche Tohmatsu in the Growth Solutions Division. Ms Young holds a Bachelor of Commerce from Deakin University and is a Chartered Accountant.

## DR SUE O'CONNOR VICE PRESIDENT NEUROSCIENCE

RESEARCH

Sue O'Connor graduated from the University of Adelaide, Australia with a PhD in Genetics. Following a year of post-doctoral research at the Hanson Institute, Sue moved into the Biotechnology sector, working on drug development projects in the Department of Medicine at Flinders University, Australia. During this time, Sue's interest in neuro-psychopharmacology and the development of drugs for the treatment of psychiatric disorders was formed. Since joining the Bionomics team 9 years ago, her major focus has been in CNS drug discovery and development. In the course of her work at Bionomics, Sue has identified BNC210, a small molecule with considerable potential as a new treatment for anxiety disorders and has taken the molecule through to the completion of four Phase Ia / Ib clinical trials in Australia and Europe. BNC210 has now been partnered with a US pharmaceutical company for further clinical development. The current focus for Sue and the CNS group is the development of new drugs to treat cognitive impairment associated with several disease states.

### DR JEREMY SIMPSON VICE PRESIDENT CLINICAL DEVELOPMENT

Dr Jeremy Simpson joined Bionomics in July 2012. He holds a Bachelor of Science (Honours) from Cardiff University and a PhD from Brunel University. Dr Simpson has over 20 years of corporate leadership experience in healthcare, pharma and contract research organisation settings across Australia, New Zealand and the Asia Pacific region. Dr Simpson has worked in clinical development roles with Wellcome Australia, Pharmacia Australia and ICON Clinical Research where he led the Asia Pacific regional team whilst based in Singapore. Most recently, Dr Simpson was Scientific Affairs Director at Fresenius Kabi Australia with responsibility for regulatory affair, medical affairs, quality assurance, clinical development and product reimbursement. In 2011 he was awarded the Fresenius Kabi Asia Pacific Management Team Award 2011.



### CVs of Executive Team

### DR JOSÉ IGLESIAS CHIEF MEDICAL OFFICER

Due to commence with Bionomics on November 1st 2012, Dr Iglesias graduated from Medical school in Uruguay in 1986. Before commencing a post-doctoral fellowship at the University of Toronto testing the ability of Natural Killer (NK) cells from patients with Chronic Myelogenous Leukemia (CML) to eliminate malignant cells from their own bone marrow, he spent 2 years attending Oncology clinics, and in private Oncology and Hematology practices. Entering the Pharmaceutical Industry in 1991 as a Clinical Research Scientist at Glaxo Canada, Dr Iglesias later moved to Adria Laboratories of Canada as the Associate Director of Oncology Clinical Research. In 1994, Dr Iglesias joined Eli Lilly Canada as Associate Director of Clinical Research and in 2002 transferred to Sydney, in the role of Oncology Medical Advisor for Eli Lilly's Australian and Asian Operations. In 2004, Dr. Iglesias returned to Canada to join AMGEN Canada as Oncology Medical Director, a position he occupied until 2006. In this role, he was responsible for the AMGEN Oncology Clinical Trials Program in Canada. In 2006, Dr. Iglesias accepted the position of Vice President, Global Clinical Development, with NASDAQ listed Abraxis BioScience and in May 2008, he became its Chief Medical Officer. In this global role, Dr Iglesias was responsible for the worldwide clinical development of Abraxane and all other Abraxis Bioscience pipeline molecules. Additionally in 2010 he was in charge of the Medical Affairs division as Senior Vice President, Global Clinical Development and Medical Affairs. From October 2010 until Sept 28 2012, Dr Iglesias held the position of Vice President, Clinical Development, at Celgene Corporation. Dr Iglesias is author or co-author of more than 50 publications in the area of Oncology.

#### DR PETER CHU

VICE PRESIDENT US OPERATIONS & CANCER BIOLOGY Peter Chu, PhD is a seasoned biotech industry professional with almost 20 years experience in medical research and drug discovery. Dr. Chu is a recognized expert on cancer stem cells, and also has peer-reviewed publications in the areas of cancer therapeutics, solid and hematologic tumours, tumour immunology and stem cells. Prior to founding Eclipse, Dr. Chu was a scientist at Biogen Idec for 9 years, where he led the cancer stem cells research program. In addition, he held various leadership positions on multiple therapeutic antibody cancer programs in pre-clinical and clinical phases of development. While at Biogen Idec, Dr. Chu also gained extensive experience reviewing and evaluating many business development and new venture investment opportunities in oncology and cancer stem cells. Dr. Chu received his doctorate from the Biomedical Sciences Program at the University of California, San Diego, and a master's degree from the University of Toronto. He completed his undergraduate studies in microbiology and immunology at McGill University in Montreal, Canada.

#### **DR CHRIS REYES**

VICE PRESIDENT RESEARCH AND DEVELOPMENT CANCER BIOLOGY Chris Reyes, PhD, brings his experience linking protein biophysics to drug discovery and development to his work at Eclipse. Prior to founding Eclipse, Dr. Reyes was a scientist at Biogen Idec charged with the leading multiple antibody therapeutic and engineering programs. Dr. Reyes has extensive project management experience and is a co- inventor on numerous Biogen Idec patent applications covering antibody engineering and therapeutic antibodies. Dr. Reyes received his bachelor's degree in Biophysics from the University of California, Berkeley and performed his graduate studies in Biophysics at the University of California, San Francisco. Dr. Reyes was a NSF-sponsored postdoctoral fellow at The Scripps Research Institute focused on the X-ray crystallography of integral membrane proteins and led a small drug discovery team focused on overcoming multi-drug resistance pathogens.



## CVs of Scientific Advisory Board

#### DR ERROL DE SOUZA

Dr Errol De Souza is an internationally recognised leader in CNS research and development. He is the former President and CEO of leading US biotech companies Synaptic Pharmaceutical Corporation and Archemix Corporation and is currently President and CEO of the US company Biodel. Prior to these roles, Dr De Souza held senior management positions within Aventis (NYSE:AVE) and its predecessor Hoechst Marion Roussel Pharmaceuticals, Inc. Most recently, Dr De Souza was Senior Vice President and Site Head, US Drug Innovation and Approval (R&D), at Aventis where he was responsible for the discovery and development of drug candidates through Phase IIa clinical trials for CNS and inflammatory disorders and was a co-founder and former Chief Scientific Officer of Neurocrine Biosciences. Dr De Souza is also currently an Adjunct Professor at the Centre for Molecular and Behavioural Neuroscience at Rutgers University in New Jersey and has served on multiple Editorial Boards, NIH Committees as well as on the Board of Directors of several companies.

#### **DR CARROLEE BARLOW**

Dr Carrolee Barlow is the Chief Scientific Officer and Chief Medical Officer of BrainCells Inc. in San Diego. Prior to joining BrainCells in 2004, Dr Barlow was the Director of Molecular Neuroscience and the Therapeutic Area Head for Stroke and Neurodegeneration at Merck Research Laboratories. At Merck, Dr Barlow directed the neuroscience biology and screening efforts at the San Diego site and served as the therapeutic area head for the global exploratory, licensing and full-phase efforts in the area of stroke and neurodegeneration. Dr Barlow joined Merck in 2002. Prior to joining Merck, she held a faculty position in the Laboratory of Genetics at the Salk Institute for Biological Studies in La Jolla, California, where she maintained an adjunct appointment. At the Salk Institute, her research laboratory focused on developing and studying animal models of human neurological disease. Dr Barlow completed her MD training at the University of Utah followed by a residency at The New York Hospital, Cornell Medical Center in Internal Medicine. After completing her residency training, she obtained a PhD in molecular and developmental biology at the Karolinska Medical Nobel Institute in Stockholm, Sweden. After completion of her PhD research, she returned to the United States and joined the National Institutes of Health where she completed medical subspecialty training in the field of endocrinology and a post-doctoral fellowship in neurogenetics at the National Human Genome Research Institute.

#### DR SIMON CAMPBELL

Dr Simon Campbell received his PhD from the University of Birmingham in 1965 followed by postdoctoral appointments in Chile and Stanford. From 1969 to 1972, he was Visiting Professor at the Universidade do Sao Paulo in Brasil, then he joined Pfizer Central Research, Sandwich UK in 1972. Dr Campbell retired from Pfizer in 1998 as Senior Vice President for Worldwide Discovery and Medicinals R&D Europe. He has co-authored over 120 publications and patents, and was a key member of the research teams that discovered Cardura™, Norvasc™, and Viagra™. Dr Campbell's scientific contributions have been recognised by the RSC Award for Medicinal Chemistry (1989), the Herschberg Award from the American Chemical Society (1997), the Industrial Research Institute (US) Achievement Award (1997), the CIA Individual Achievement Award (2006) and the Galen Medal (2007). He was elected FRS (1999), FMedSci (2002) and was appointed CBE in 2006. Currently, Dr Campbell is a member of the SABs of Astex (Cambridge), Bionomics (Adelaide) CTx (Melbourne) Avila, Ensemble, and Hydra (Boston), ETC and S\*Bio (Singapore) and Intellikine (San Diego). He acts as consultant to Abingworth Management, Apposite Capital, CRUK and the Wellcome Trust. He is a past President of the RSC, and serves on the Advisory Council for CaSe and the Expert Scientific Advisory Committee for the Medicines for Malaria Venture (Geneva).



## CVs of Scientific Advisory Board

#### MR RICHARD MORGAN

Mr Richard Morgan has over 25 years experience in pharmaceutical research and development, many as an R&D executive at GlaxoWellcome where he was International Head of Toxicology and Preclinical Outsourcing. Over his career he has been responsible for the preclinical safety evaluation of over 100 new chemical entities (NCE's), covering all major therapeutic areas. Products he has contributed to include Lamictal (Epilepsy), Zomig (Migraine), Malarone (PCP/Malaria), Atracurium (NMB), Wellbutrin (Anti-depressant), Zovirax, Zidovudine, Lamivudine (Anti-Virals) and Exosurf (Infant RDS). Richard operates his own consultancy company (R&B HealthCare Ltd), providing advice on drug development and toxicology. He is a member of the Board of Cogstate Ltd and Advisory Boards of a number of Australian biotech companies.

### PROFESSOR PAUL FITZGERALD

Professor Paul Fitzgerald is Professor of Psychiatry, Deputy Director and Consultant Psychiatrist at Alfred Psychiatry Research Centre, a joint research centre of Monash University and the Alfred Hospital in Melbourne. He is a qualified psychiatrist, has a Masters of Psychological Medicine and research PhD. He runs a substantive research program utilising brain stimulation and neuroimaging techniques including transcranial magnetic stimulation, functional and structural MRI, EEG and new infrared spectroscopy. The program has focussed on the conduct of investigative studies of brain function / dysfunction as well as the conduct of a variety of novel clinical trials in Mood, Anxiety, Psychotic and Developmental Disorders. He has published over 90 papers and received grant funding from the NHMRC and a number of US based organisations including a NHMRC Practitioner Fellowship. He is on a variety of local and international committees including the scientific and review committees of Neuroscience Victoria.

#### **DR JAYESH DESAI**

Dr Jayesh Desai practices as a Medical Oncologist at the Royal Melbourne Hospital and Peter MacCallum Cancer Centre in Melbourne, and Senior Clinic Research Fellow within the Ludwig Colon Cancer Initiative program at the Ludwig Institute for Cancer Research in Parkville. He also serves as an Associate Director for Cancer Trials Australia (CTA) and Chairs the CTA Phase I Drug Development Group, and is Chair of the Australasian Sarcoma Study Group. Dr Desai completed his Medical Oncology training in Melbourne in 2002, before spending 3 years as a Translational Research Fellow at the Dana-Farber Cancer Institute/Harvard Medical School in Boston, USA. His clinical and research interests focus on rationally developing new anticancer therapeutics, and in exploring predictive markers of response to these agents. He has been Principal Investigator for more than a dozen first-in-human Phase 1 oncology trials, from small academically-focused groups and biotechs to large pharmaceutical company-sponsored trials. He has been closely involved in the development of Bionomic's Vascular Disrupting Agent, BNC105, as a Principal Investigator for that compound's first-in-human trial.

#### **DR ANN HAYES**

Dr Ann Hayes worked for 22 years for GlaxoWellcome, initially in research, with particular expertise in the areas of CNS and pain. Before the GSK merger, she was a Director in Drug Discovery, and was involved in determining long-term Discovery strategy, in portfolio management and in discovery project management. Ann left GSK in 2001 and set up a business as an independent pharmaceutical consultant. In this capacity she has co-founded three companies, Ionix Pharmaceuticals which has been bought by Vernalis, Therasci which has been bought by CeNeS, and Theradeas. Ann is a non-executive director for Curidium plc and Plethora Solutions plc, and a member of the advisory boards for CeNeS and Lectus. She has also held non-executive director positions at Therasci, Ionix and Sirus (which was sold to Arakis). She currently consults regularly for CeNes and Shire, as well as doing ad hoc consulting for a number of small companies and VCs.



## CVs of Scientific Advisory Board

#### DR FIONA MCLAUGHLIN

Dr Fiona McLaughlin is the Head of Research and Development for the Heidelberg based oncology biotechnology company Elara Pharmaceuticals GmbH, responsible for progression of the drug development pipeline and licensing/collaboration activities. Prior to joining Elara, Dr McLaughlin was Director of Research and a member of the Senior Management Team at the UK based Antisoma Research Ltd from 2007-2010. Following Antisoma's acquisition of Boston based Xanthus Pharmaceuticals Inc, she became VP Translational Research for the expanded company and built up an innovative portfolio of in-licensed early stage oncology assets. Prior to joining Antisoma, she has held the posts of Oncology Development Specialist and Head of Pre-Clinical development for the specialty pharmaceuticals company BTG in London, combining virtual drug development and in-licensing to expand and progress the drug development portfolio, From 2001-2004 Fiona was Head of Biology for the Oxford based oncology company Prolifix Ltd which was later acquired by Topotarget A/S. Throughout this time she was primarily responsible for the research and non-clinical development activities which led to the clinical development of the HDAC inhibitor Belinostat. Dr McLaughlin gained her PhD from the Haematology Department at Cambridge University and carried out post-doctoral research at GlaxoSmithKline in the UK, where she subsequently held several research posts in vascular diseases, inflammation and steroid induced osteoporosis. In addition to her current post at Elara Pharmaceuticals, Dr McLaughlin is also an independent consultant to the pharmaceutical industry and is a fully elected Fellow of the Society of Biology

#### DR CHRISTOPHER J SWEENEY

Dr Christopher J Sweeney received his medical degree from the University of Adelaide, South Australia in 1992, and completed an internship at the Royal Adelaide Hospital. From 1994 to 1997, Dr Sweeney was an Internal Medicine resident at Gundersen Lutheran Medical Center, La Crosse, Wisconsin, and from 1997 to 2000 he was a Fellow in Hematology / Oncology at Indiana University Medical Center. Dr Sweeney is certified by the American Board of Internal Medicine in Internal Medicine and Medical Oncology. He is a member of several professional societies, including the American Society of Clinical Oncology, Eastern Cooperative Oncology Group and American Association for Cancer Research. He has authored and co-authored more than 60 peer reviewed articles, as well as several monographs and book chapters. He has focused his academic career on cancer drug development by performing (1) phase I dose escalation trials with pharmacokinetic and pharmacodynamic endpoints including multiple anti-angiogenic drugs (2) phase I trials of new chemotherapeutics in patients with renal or liver dysfunction (3) pharmacogenetic and biomarker discovery studies (4) trials of targeted therapies with a focus on bladder and prostate cancer and (5) drug discovery in the laboratory. Dr Sweeney has served as the Associate Director for Clinical Research for the NCI-designated, Indiana University Cancer Center and the Co-Leader of the Experimental Developmental Therapeutics Program of the NCI designated Indiana University Cancer Center, In 2005 Dr Sweeney was elected Chairman of the Hoosier Oncology Group, Dr Sweeney has served on the Program Committee and the Cancer Education Committee of the American Society of Clinical Oncology and is on the Editorial Board for ASCOs "Journal of Clinical Oncology". He has peer reviewed funding from the PhRMA Foundation (Faculty Development Award), the National Institutes of Health and the Department of Defense. He joined the RAHCC and Director of Clinical Trials in January 2008.



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