

Bionomics



Creating and developing innovative therapies

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Safe Harbor Statement

Factors Affecting Future Performance

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Bionomics Overview

KEY STATISTICS (August 2014)

ASX code	BNO
Share price (15/8/14)	A\$0.535
52 week high	A\$0.89
52 week low	A\$0.37
Shares on issue	~417.3M
Market capitalisation	~A\$223M
Cash 30/6/14 <i>not inclusive of Merck upfront payments (US\$20M) or the R&D Tax Incentive (\$7.5M)</i>	A\$10.5M

BOARD

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

12 MONTH SHARE PRICE PERFORMANCE



MANAGEMENT

Deborah Rathjen	CEO & MD
José Iglesias	CMO
Melanie Young	CFO & Company Secretary



Our Business

- Bionomics is a leader in the discovery and development of innovative biopharmaceuticals with operations in Australia, Europe and US.
 - Focus is on serious medical conditions including cancer and central nervous system disorders; aim is to deliver treatments that offer substantially improved patient outcomes.

- The company undertakes **discovery, development and strategic partnering** of first in class and best in class drugs:
 - **Two major partnerships with Merck & Co in FY14:**
 - ***BNC375*** program targeting memory loss in Alzheimer's Disease, Parkinson's Disease, Schizophrenia, ADHD and other conditions
 - Chronic and neuropathic pain

- Broad and deep portfolio of clinical and preclinical drug candidates with near-term catalysts:
 - ***BNC101*** Cancer Stem Cell (CSC) targeting antibody entering clinic in 2015 (***colon, pancreatic cancer***)
 - ***BNC420***, a modulator of VEGFR3 in preclinical development for treatment of ***melanoma and breast cancer***
 - Additional, partnerable drug candidates - ***BNC164 (Kv1.3, psoriasis)*** and ***BNC105 (kidney cancer, ovarian cancer & other solid tumour types, chronic lymphocytic leukaemia)***



Platform technologies deliver multi-product pipeline, leveraging core strengths

THEARPEUTIC AREA

DRUG CANDIDATE/PROGRAM

DISCOVERY

PRE-CLINICAL

PHASE I

PHASE II

LICENSEE/
PARTNER

CANCER

BNC105 - Solid tumours, renal, ovarian, mesothelioma

BNC101 - Cancer stem cells, solid tumours, colon, breast, pancreatic

BNC102 - Cancer stem cells, solid tumours

BNC420 - Solid tumours, melanoma, breast

PRMT-1, MELK - Cancer stem cells



CENTRAL NERVOUS SYSTEM

BNC210 - Anxiety/depression

BNC375 - Cognitive impairment, Alzheimer's disease, Parkinson's, ADHD, schizophrenia

GABA-A - Epilepsy

Undisclosed - Pain



IMMUNE DISEASE

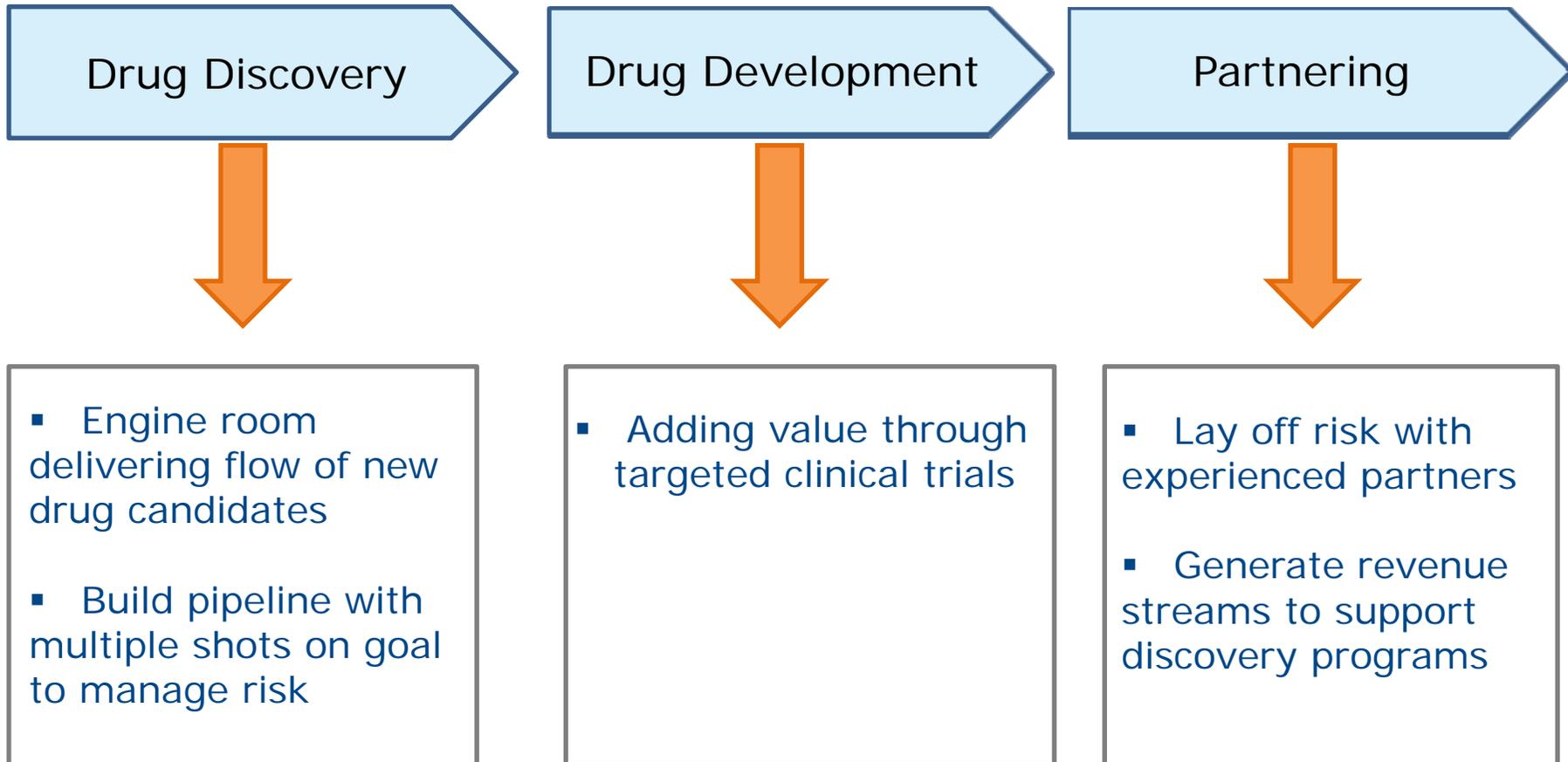
BNC164 - Psoriasis, ophthalmology, multiple sclerosis, rheumatoid arthritis



Targeted licensing point



Managing the Execution Risk: The Bionomics Business Model





Strong financial position

FY 2014 results:

- Cash at 30 June 2014: \$10.5m
 - Boosted post 30 June 2014 by upfront payments from Merck (US\$20m)
 - Anticipated \$7.5m cash from Australian R&D Tax Incentive refund for FY14
- Revenue for the period: \$27.5m
- Operating profit after tax: \$3.2m



BNC375 Program: Bionomics-Merck & Co Partnership

- Targeting cognitive impairment – Alzheimer’s disease, Parkinson’s disease & other conditions
- Covers Bionomics’ research program on BNC375 and related compounds
- Potential for up to US\$506 million in payments to Bionomics *plus* royalties on net product sales
 - Upfront payments of US\$20 million
- Merck & Co is a leading global pharmaceutical company, with 2013 revenues of approximately US\$44 billion, at the forefront of developing innovative ways to treat and prevent disease
 - Fund all R&D including clinical trials
 - Commercialise worldwide



BNC375 Program: Market Potential

- Market opportunity includes many neurodegenerative & psychiatric disorders

	Prevalence	Estimated global sales pa
Alzheimer's disease	9.7m	\$10.2b (2012)
Cognitive Dysfunction in Schizophrenia	3.4m	No approved products
ADHD	44.9m	\$4.9b
Parkinson's disease	7m	\$3.5b

- Alzheimer's disease is the most common form of dementia and the 6th leading cause of death in the US
- 40% growth in Americans over 65 with Alzheimer's by 2025
- Direct cost of Alzheimer's care in the US in 2014 \$214b
- Need for new treatments, with no new drug for a decade.



BNC375 Program: Overview

- BNC375 targets a receptor critical to cognitive processes
- BNC375 has demonstrated potent in vivo memory enhancing properties in animal models
 - Both episodic and working memory improved
 - 100-fold therapeutic dose range & wide safety window in studies to date
- BNC375 studies presented in US and European symposia



BNC375: Potential Competitive Advantages*

Characteristics	Bionomics BNC375	Competing Agents+
Potent	✓	✓
Rapid onset of action	✓	✗
Potentiates endogenous receptor ligand	✓	✗
Preserve the normal signalling patterns of the receptor	✓	✗
Do not cause receptor desensitization	✓	✗
No potential for development of tolerance	✓	✗

*Based on data from preclinical animal studies

+Published information & Bionomics' in-house data



US\$172m pain partnership with Merck & Co

- Deal further validates ionX® & MultiCore® drug discovery platforms
- Value creation through strategic partnering business model
- Future success based revenue streams & royalties secured

Partnership Deal	<ul style="list-style-type: none">▪ Option & license agreement with Merck & Co▪ US\$172m in option exercise fees, development/regulatory milestone payments, plus royalties
Compound Target	<ul style="list-style-type: none">▪ Treatment of chronic & neuropathic pain
Market Size & Positioning	<ul style="list-style-type: none">▪ Pain market: ~US\$22nb sales in 2010▪ Neuropathic pain segment expected to grow from ~US\$2.4bn in 2010 to~ US\$3.6bn by 2020▪ Current medications have limited effectiveness<ul style="list-style-type: none">▪ Estimated that only 1 in 4 patients achieve >50% reduction in pain levels▪ side-effects eg drowsiness, somnolence & dizziness



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

TREATMENT	Anxiety and Depression
MARKETS	<ul style="list-style-type: none"> Anxiety – global sales of US\$5-7bn annually Depression – global sales US\$11bn in 2008
CLINICAL/ REGULATORY	<ul style="list-style-type: none"> Phase I trial program included a trial assessing panic attack symptoms; BNC210 prevented panic attack and reduced panic attack symptoms BNC210-related changes in human brain activity observed, indicative of efficacy in absence of sedation BNC210 has an excellent safety profile

COMPETITIVE ADVANTAGES OF BNC210						
DRUG	NO SEDATION	NO WITHDRAWAL SYNDROME	NO MEMORY IMPAIRMENT	FAST ACTING	NO DRUG/DRUG INTERACTIONS	ONCE-A-DAY DOSING
BNC210	✓	✓	✓	✓	✓	✓
VALIUM	✗	✗	✗	✓	✓	✓
PROZAC	✓	✗	✓	✗	✗	✓



BNC105: “Best in Class” vascular targeting agent with unique mechanism of action

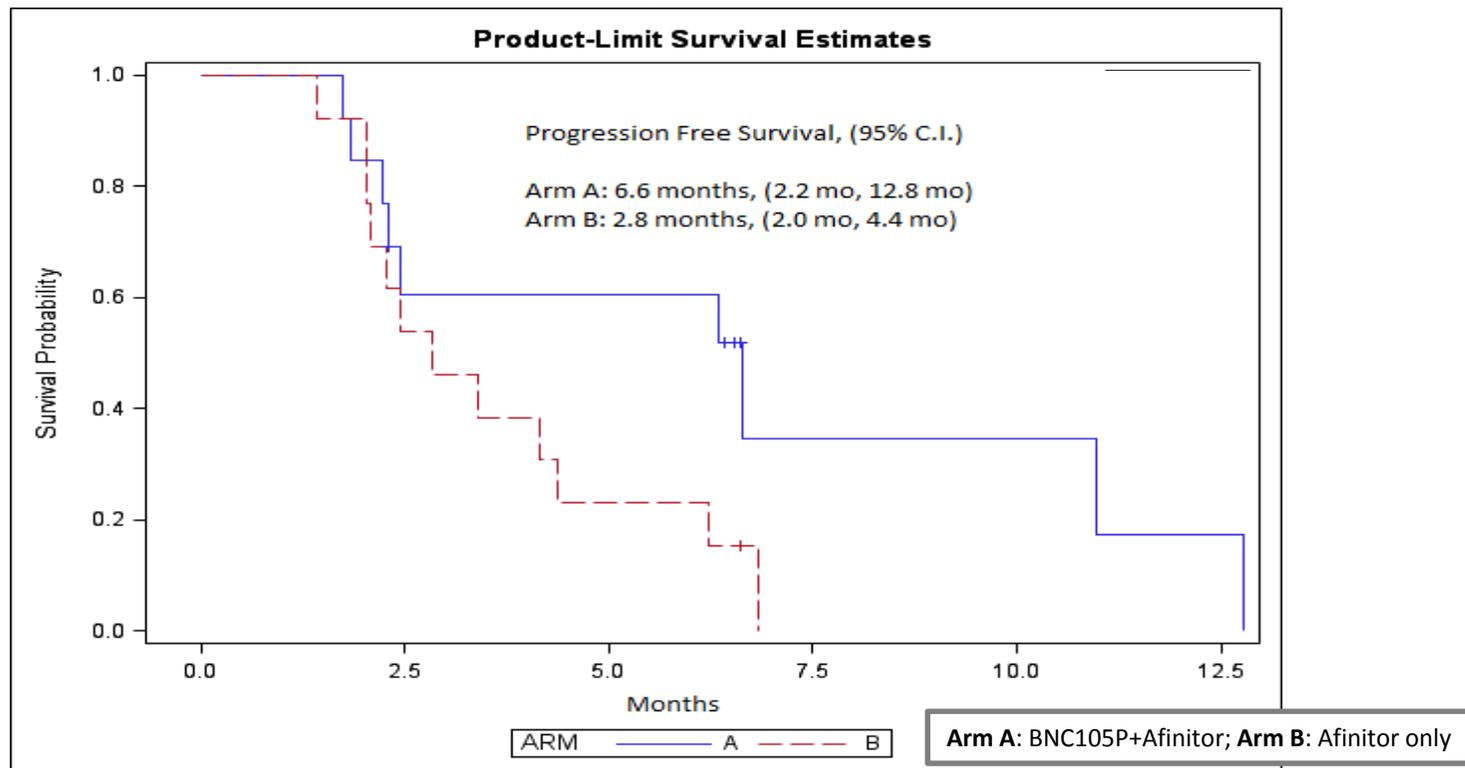
TREATMENT	<ul style="list-style-type: none">▪ Solid Cancers: New paradigm with blockbuster potential
MARKETS	<ul style="list-style-type: none">▪ The current market size in treatment of all solid tumours is >US\$10b▪ Renal cancer market size >US\$2.5bn; includes TKIs Sutent (<i>Pfizer</i>), Nexavar (<i>Bayer/Onyx</i>), Afinitor (<i>Novartis</i>)▪ Ovarian cancer market size ≈US\$2.2bn; includes carboplatin (<i>BMS</i>), gemcitabine (<i>Gemzar, Eli Lilly</i>)
BENEFITS	<ul style="list-style-type: none">▪ <i>Multi Action</i> – selectively targets both tumour blood vessels and cancer cells▪ <i>Rapid, Potent Action</i> – works rapidly to shut down tumour blood vessels, potent anti-tumour action as a single agent, tumour less likely to escape treatment▪ <i>Enhances Effectiveness of Other Cancer Treatments</i> – delivers synergistic anti-cancer effects in numerous combinations (e.g., anti-VEGF therapies and platin based drugs)



DISRUPTOR-1: BNC105 combination treatment benefited patients with advanced disease

- Addition of BNC105 to Afinitor treatment delayed disease progression in patient subgroups identified on the basis of metastases, previous nephrectomy and Fuhrman tumour differentiation grade
- Ground-breaking discovery of biomarkers that may allow selection of patients
- Biomarker changes correlated with progression-free survival in a statistically significant manner (p-values of 0.0136 to 0.0348)

3.8 month increase in PFS in patients with liver metastases





BNC105: Phase I Ovarian Trial Results

- Combination study (carboplatin + gemcitabine chemotherapy + BNC105) in partially platinum sensitive ovarian cancer patients in first or second relapse
- 15 patients enrolled
- 10 patients achieved a positive response according to RECIST 1.1 and/or GCIG CA125 criteria
- 12 patients completed six cycles of combination therapy and commenced with BNC105 monotherapy
- 1 patient has completed the protocol-prescribed 12 cycles of treatment comprised of 6 cycles of combination therapy and 6 cycles of BNC105 monotherapy, and continued on BNC105 monotherapy
- Side-effects related to gemcitabine + carboplatin treatment backbone; haematological origin
- Recommended BNC105 Phase II dose: 12mg/m² in combination with carboplatin and gemcitabine



BNC101: Targeting cancer stem cells in solid tumours

TREATMENT	Solid tumours; colon & pancreatic are priority indications
MECHANISM OF ACTION	<ul style="list-style-type: none">▪ Humanised monoclonal antibody▪ BNC101 binds selectively to LGR5; LGR5 marks tumour-initiating cells in colon & gastric cancer▪ LGR5 highly overexpressed in colon, ovarian, liver, breast, lung & other solid tumours▪ High expression of LGR5 in colon cancer has been linked to tumour recurrence & poor prognosis
MARKETS	Market for cancer stem cell therapeutics estimated as US\$8B by 2018
DEVELOPMENT STAGE	IND filing and Phase I clinical trials target 2015
BENEFITS	Inhibition of tumour recurrence Specific targeting of cancer stem cells which are not killed by either chemotherapy or radiotherapy

Cancer Stem Cell Assets are Valuable:

Celgene commits \$3.3B in whopper cancer stem cell deal with OncoMed Fiercebitech, December 3, 2013



VEGFR3 Program: BNC420

- Innovative therapeutic strategy - suppressing tumor progression by targeting lymphangiogenesis and tumor-induced immune tolerance
- VEGFR3 is a well validated target for tumor lymphangiogenesis and was recently demonstrated to drive tumor-induced immune tolerance
- BNC420 inhibits VEGFR3 phosphorylation, with favorable PK and safety profile, orally active
- Displays selectivity over VEGFR2 and this provides broad scope for long term use in maintenance and adjuvant settings as well as potential for safe inclusion in combination regimens
- Indications include Melanoma and Triple Negative Breast Cancer



Investment Highlights

- Robust business model with multiple revenue generating streams through strategic partnering
- Demonstrated in FY14 through two partnership deals with Merck & Co:
 - Cognition eg Alzheimer's Disease: Research collaboration and license agreement, up to US\$506 million in upfront, research and milestone payments, **plus** royalties on product sales
 - Pain: Option and license agreement, up to US\$172 million in fees and milestone payments, **plus** royalties on product sales.
- Further significant partnerships anticipated which will continue to validate business model and technology
- Addressing major market opportunities:
 - Pain market: ~US\$22bn sales in 2010
 - Alzheimer's disease - \$10.2bn in 2012
 - Anxiety – global sales of US\$5-7bn annually
 - Depression – global sales US\$11bn in 2008
- Well financed, first profit in FY14



ASX:BNO

www.bionomics.com.au