

Global leader in drug discovery and development

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Bionomics



Safe Harbor Statement



Factors Affecting Future Performance

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BNO Value Proposition



Combining one of the world's most innovative drug discovery platforms with development of first-in-class and best-in-class therapies:

- **Three Proprietary Technology Platforms:** Unique and rigorous drug discovery platforms provide a pipeline of compelling drug candidates which exhibit characteristics with potential for development and commercialisation.
- **De-risked Business Model:** Partnering for late stage development and commercialisation.
- **Technical Validation:** Two strategic collaborations with Merck & Co with up to US\$678m in potential future milestone and other payments.
- **Broad and deep portfolio:** Our pipeline of drug candidates has a series of near-term catalysts in both clinical progress and partnering opportunities.
- **Strong cash position and growing revenue:** Cash balance of A\$38.4m (at December 2014) supports rapid and unencumbered investment in development programs.



Company Overview

- Leader in the discovery, development & strategic partnering of innovative biopharmaceuticals for cancer & central nervous system disorders.
- **Operations in Australia, US and Europe, global presence** built through acquisitions including Eclipse Therapeutics (2012) & Prestwick Chemical (2014).
- **Robust pipeline and business model** with multiple revenue generating streams through strategic partnering including two strategic collaborations with Merck & Co:
 - Cognition in neurodegenerative diseases (Alzheimer's, Parkinson's), US\$506m in upfront and milestone payments plus royalties on product sales
 - Pain, option and license agreement, US\$172m in fees and milestones payments plus royalties on product sales



Company Overview

Broad and deep portfolio of clinical and preclinical drug candidates with near-term catalysts:

- **BNC210:** negative allosteric modulator of $\alpha 7$ nAChR in development for anxiety and depression with clinical trial readouts expected in 2015 and 2016.
- **BNC101:** monoclonal antibody targeting Cancer Stem Cells (CSC), entering clinic in 2015 (colon, pancreatic cancer);
- **BNC105:** A cancer treatment that disrupts tumour blood vessels and activates tumour cell death pathways, high response rate observed in ovarian cancer in combination with chemotherapy, biomarker driven development strategy; and
- **BNC420:** modulator of VEGFR3 in preclinical development for treatment of melanoma and breast cancer, expected IND filing in 2016.



Proprietary Technology Platforms

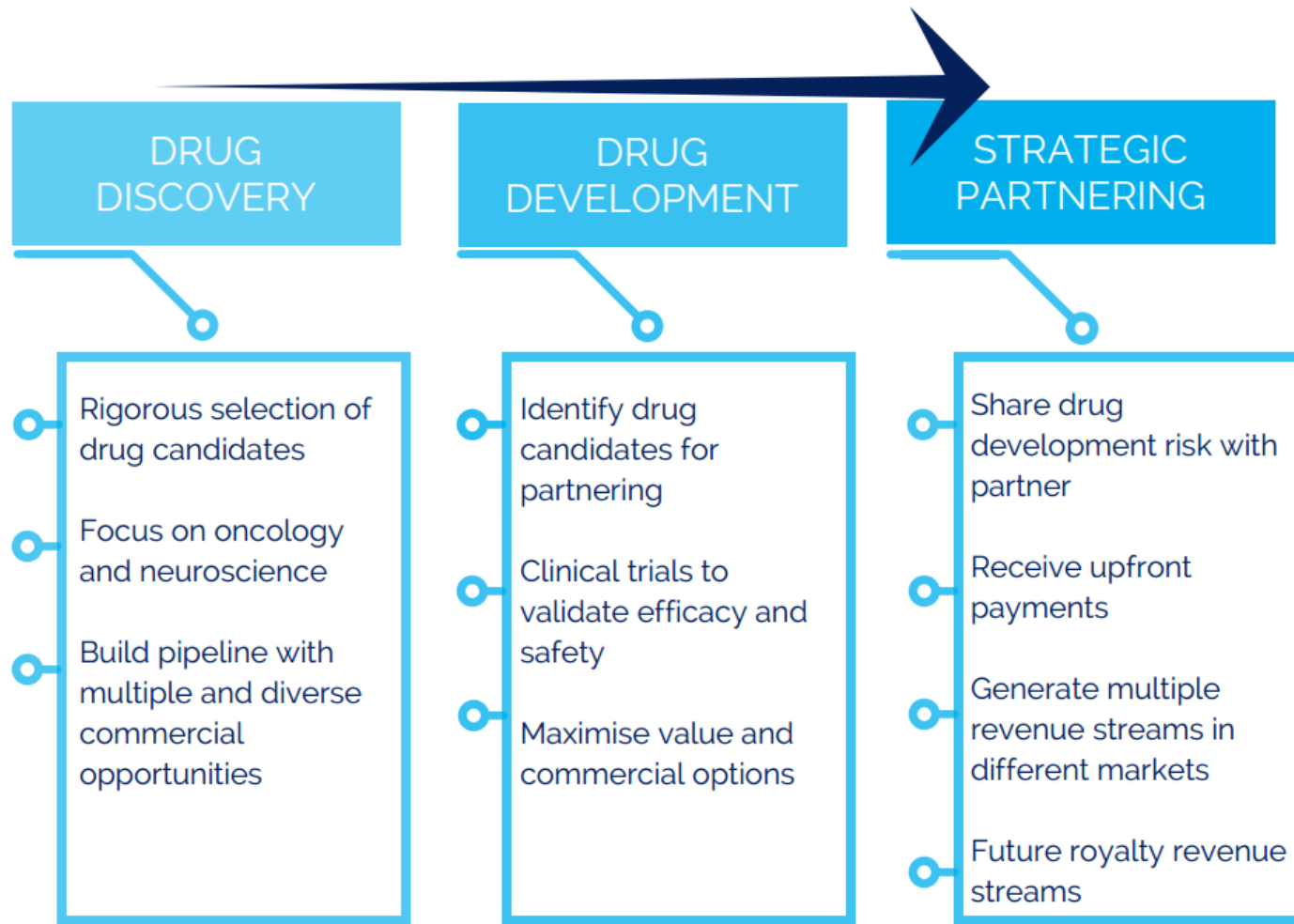


Drug discovery platforms focused on the creation of drug candidates across oncology and neuroscience pipeline.

Platform	Focus
MultiCore®	A diversity orientated chemistry platform for the discovery of small molecule drugs
ionX®	A set of novel technologies for the identification of drugs targeting ion channels for diseases of the central nervous system
CSC Rx Discovery™	Identifies antibody and small molecule therapeutics that inhibit the growth of cancer stem cells



De-Risked Business Model



Merck Partnerships: Technical Validation



Two major partnerships with Merck & Co – up to US\$678m combined future potential milestones plus additional royalties on product sales



Validates ionX® and MultiCore® drug discovery platforms



Value creation through strategic partnering business model





Future success based revenue streams & royalties secured



Merck Partnerships: Technical Validation



Merck Partnerships	 PAIN	 COGNITION & MEMORY
Target Indication	Treatment of chronic and neuropathic pain	Cognitive impairment – Alzheimer’s, Parkinson’s and other conditions
Partnership Deal	Option & license agreement – US\$172m in option exercise fees, development/regulatory milestone payments plus royalties	Potential up to US\$506m payments to Bionomics, plus royalties and product sales Upfront payment of US\$20m
Estimated Market Size	Neuropathic pain segment expected to grow from US\$2.4Bn in 2010 to US\$3.6Bn by 2020	Alzheimer’s Disease –~US\$10.B in 2012, Parkinson’s disease – US\$3.5B in 2014

Platform Technologies Deliver Multi-Product Pipeline



THERAPEUTIC 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					★
	MELK, PRMT1 - Solid tumours					
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, multiple sclerosis, rheumatoid arthritis					★



 MERCK & CO., INC.

 MERCK & CO., INC.

★ Targeted licensing point



Partnered Programs





BNC375 Program: Partnership with Merck & Co.



The BNC375 program is developing small molecule therapeutics for the treatment of cognitive impairment in Alzheimer's disease, Parkinson's disease, ADHD, Schizophrenia and other conditions.

Partnership Deal	<ul style="list-style-type: none">• Covers Bionomics' research program on BNC375 and related compounds.• Potential for up to US\$506m in payments to Bionomics plus additional royalties on net product sales.• Upfront payments of US\$20m.• Merck funds R&D.
Compound Target	<ul style="list-style-type: none">• Targets cognitive impairment in Alzheimer's disease other conditions, targeting receptor critical to cognitive processes.
Market Size & Positioning	<ul style="list-style-type: none">• Significant market opportunity includes many neurodegenerative & psychiatric disorders.• By 2025 the number of Americans aged 65 and older with Alzheimer's is forecast to rise 40% to 7.1 million





BNC375 Program: Potential Competitive Advantages*



Demonstrated potent *in vivo* memory enhancing properties in animal models:

- Improvement in both episodic and working memory
- >100-fold therapeutic dose range & wide safety window

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





BNC375 Program: Market Potential



BNC375 market opportunity includes many neurodegenerative & psychiatric disorders with a significant need for new treatments:

Alzheimer's Disease

5 million

More than 5 million Americans are living with the disease



Every 67 seconds someone in the United States develops Alzheimer's

6th

Alzheimer's disease is the 6th leading cause of death in the United States



500,000

There are approximately 500,000 people dying each year because they have Alzheimer's



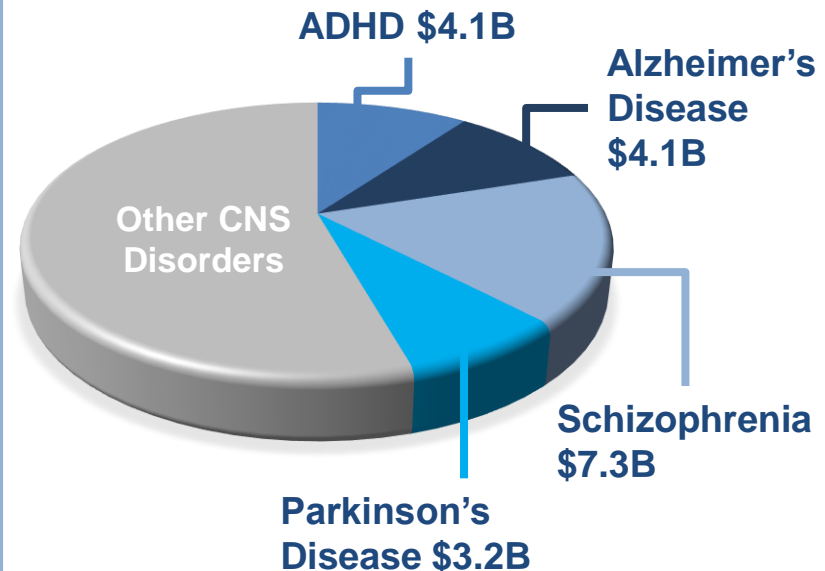
1 in 3

1 in 3 seniors dies with Alzheimer's or another dementia

\$220 billion

In 2013, 15.5 million caregivers provided an estimated 17.7 billion hours of unpaid care valued at more than \$220 billion.

Estimated 2017 CNS Global Sales



Source: Evaluate Pharma, 2013




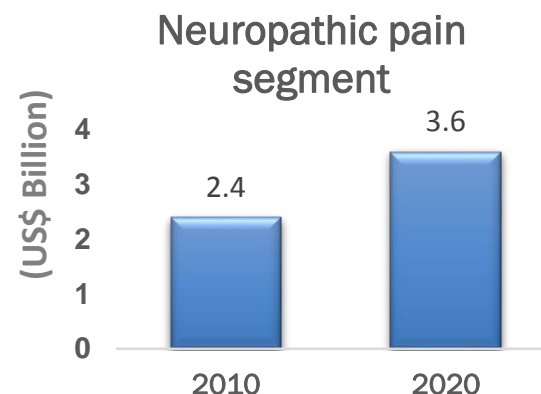
Pain Program: Partnership with Merck & Co



Further validates ionX® & MultiCore® drug discovery platforms.

Heterogeneity of pain requires a range of analgesics with different modes of action but there exists significant unmet needs.

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 additional royalties on net sales.
TREATMENT	Chronic & neuropathic pain.
Market Size & Positioning	<ul style="list-style-type: none">Pain market: ~US\$22b sales in 2010.Current medications have limited effectiveness:<ul style="list-style-type: none">Side-effects e.g. drowsiness, somnolence & dizziness. <div><p>Estimated 1 in 4 patients achieve >50% reduction in pain levels</p></div>



Neuropathic pain segment expected to grow from ~US\$2.4b in 2010 to ~US\$3.6b by 2020.

In-House Development Programs





BNC210: Next Generation Compound Potential to Treat Anxiety & Depression



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



POTENTIAL 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	✓	✗	✓	✗	✗	✓

*Based on data from preclinical animal studies and Phase I clinical trials





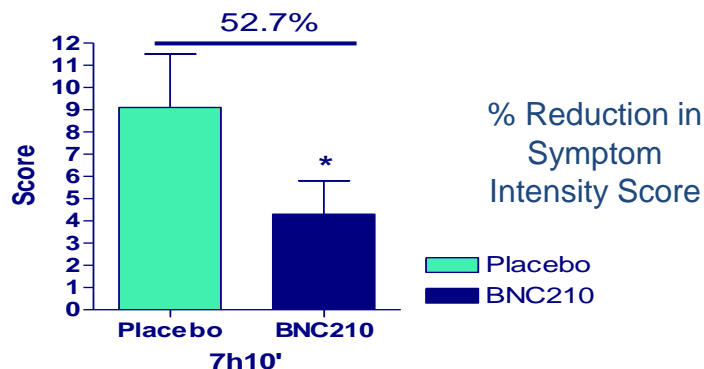
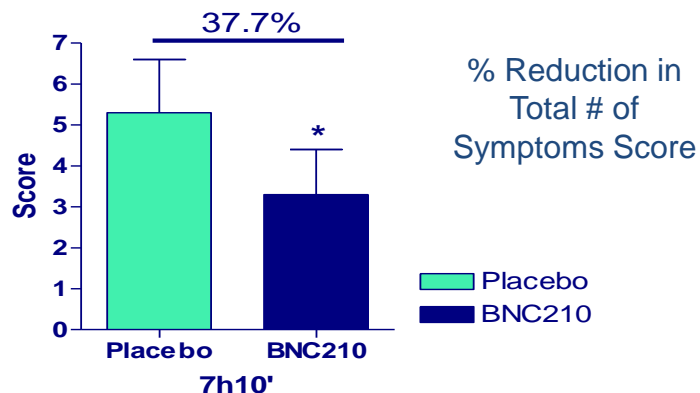
BNC210: Key Findings from Phase I Trials



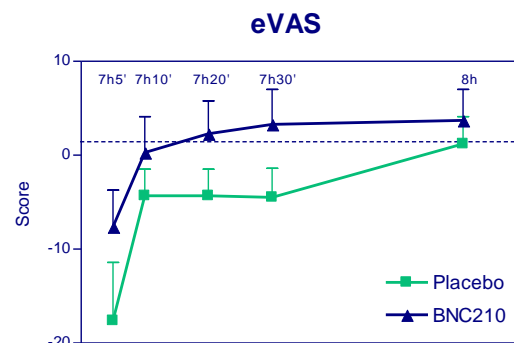
Double-blinded, placebo controlled Phase I trials have provided indicators of BNC210 efficacy in humans and strong data supporting its safety.

Subjects treated with BNC210 experienced:

1. A reduction in number and intensity of panic symptoms on the Panic Symptoms Scale scores following CCK-4 challenge



2. A positive result on the emotional visual analogue scale following a CCK-4 challenge





BNC210: Induced EEG Changes in Brain Activity



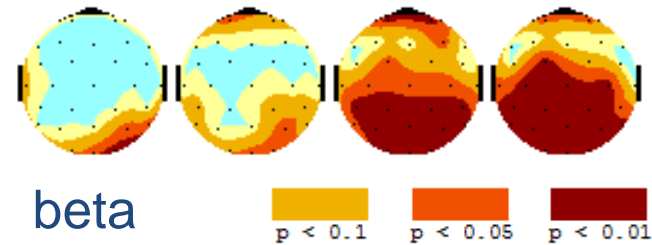
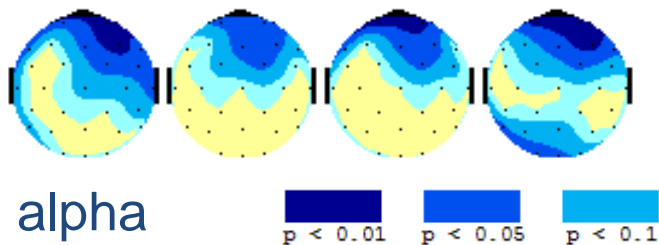
Induced EEG changes in brain activity associated with anxiolysis and the absence of sedation

BNC210.003

Drug/EEG Activity	δ	γ	α	$\alpha 1$	$\alpha 2$	β	$\beta 1$	$\beta 2$	$\beta 3$
BNC210			↓		↓	↑			↑
LORAZEPAM	↑	↓	↓	↓	↓	↑	↑	↑	↑

Arrows represent significant increases or decreases in spectral power displayed over considerable surface or scalp regions

Brain Maps showing BNC210 effect on alpha and beta frequency bands





BNC105: “Best in Class” Tubulin Targeting Agent with Unique Mechanism of Action



TREATMENT	Solid and blood cancers: New paradigm with blockbuster potential.
MARKETS	<ul style="list-style-type: none">• >US\$10b current market size in solid tumours.• Renal cancer market size >US\$2.5b; includes TKIs Sutent (Pfizer), Nexavar (Bayer/Onyx), Afinitor (Novartis).• Ovarian cancer market size ~US\$2.2b; includes carboplatin (BMS), gemcitabine (Gemzar, Eli Lilly).• Chronic Lymphocytic Leukemia (CLL) market ~US\$1.4b in 2013
BENEFITS	<ul style="list-style-type: none">• Targets both solid tumours and blood cancers (CLL)• Multi Action – selectively targets both tumour blood vessels (solid tumours) and cancer cells (solid tumours and blood cancers)• Enhances Effectiveness of Other Cancer Treatments – delivers synergistic anti-cancer effects in numerous combinations





BNC105:

Positive Phase I Ovarian Trial Results



10 of 12 patients achieved positive response in combination study of BNC2015 and standard of care chemotherapy.

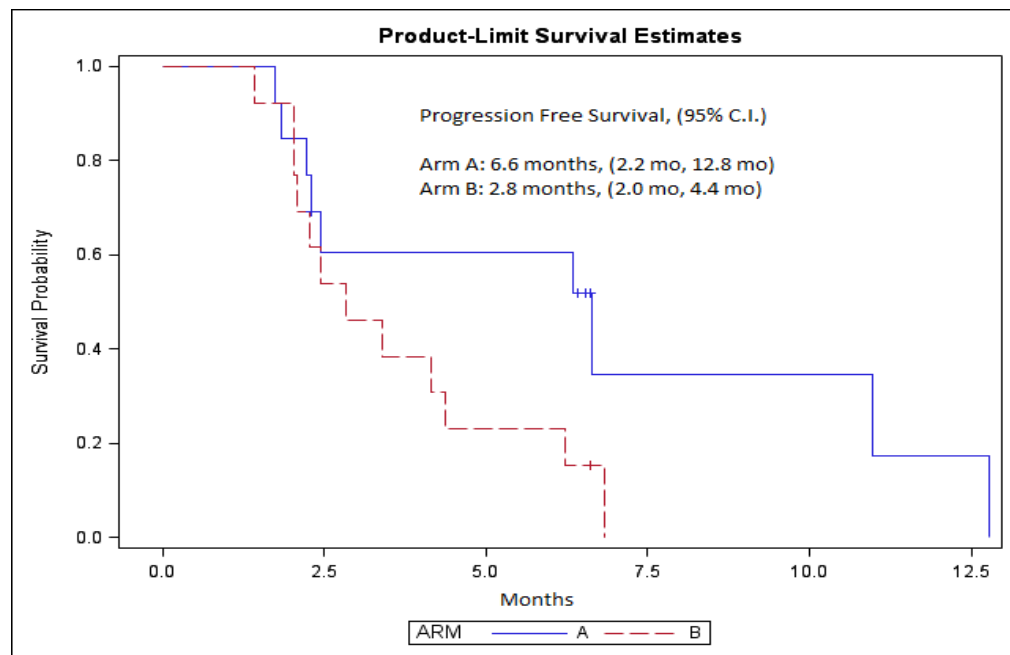
- Combination study (carboplatin + gemcitabine chemotherapy + BNC105) in partially platinum sensitive ovarian cancer patients in first or second relapse.
- 15 patients enrolled, 12 patients completed six cycles of combination therapy and commenced with BNC105 monotherapy.
- 10 patients achieved a positive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



DISRUPTOR-1 Phase II Trial in Renal Cancer Patients



- Primary endpoint not met
- Patients with liver metastasis treated with BNC105+Afinitor experience **3.8 month increase** in Progression Free Survival compared to patients treated with Afinitor alone.



Arm A: BNC105+Afinitor; N=13
Arm B: Afinitor only; N=13



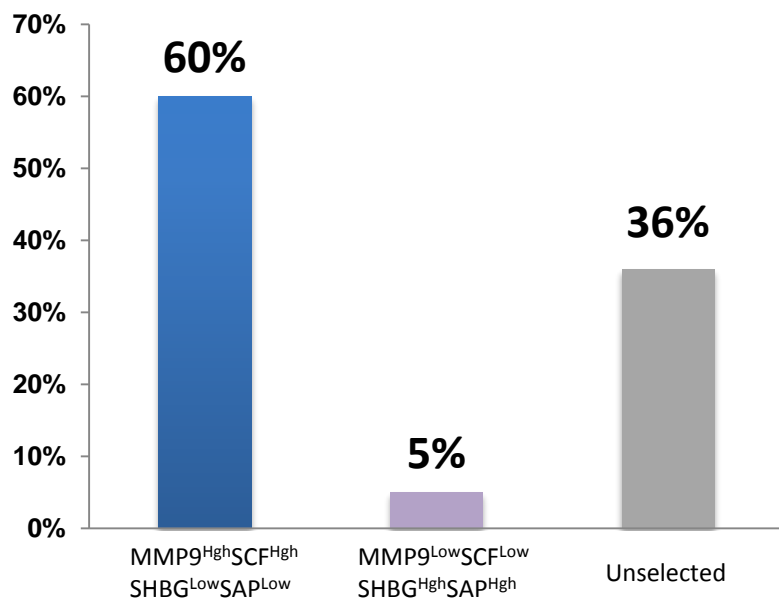
DISRUPTOR-1:

Static and Dynamic Biomarker Signatures Correlated with Patient Benefit

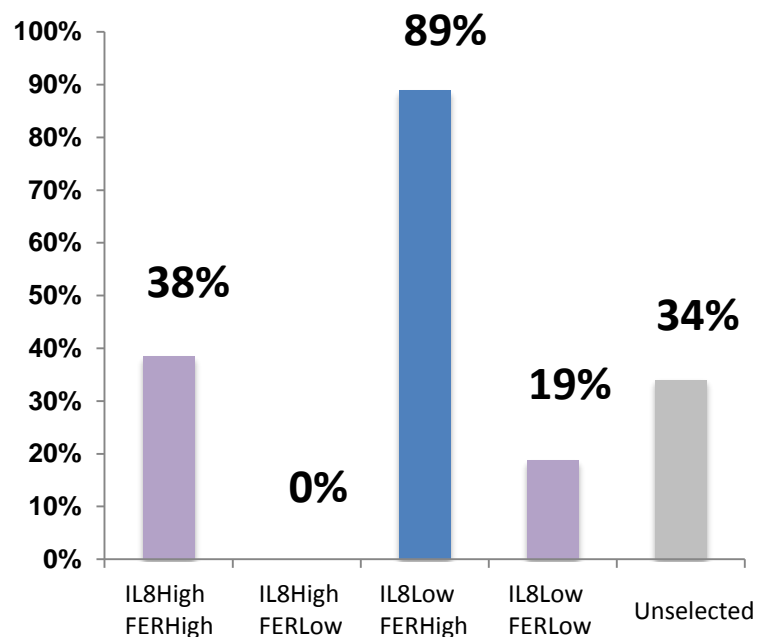


A prospective biomarker-driven study examining Afinitor + BNC105 with patients selected by baseline markers is in development.

Percentage (%) Progression Free Survival at 6 months



60% of patients displaying the dynamic biomarker signature were progression free at 6 months.



89% of patients displaying the baseline biomarker signature were progression free at 6 months.





BNC105 Potential in Chronic Lymphocytic Leukemia (CLL)

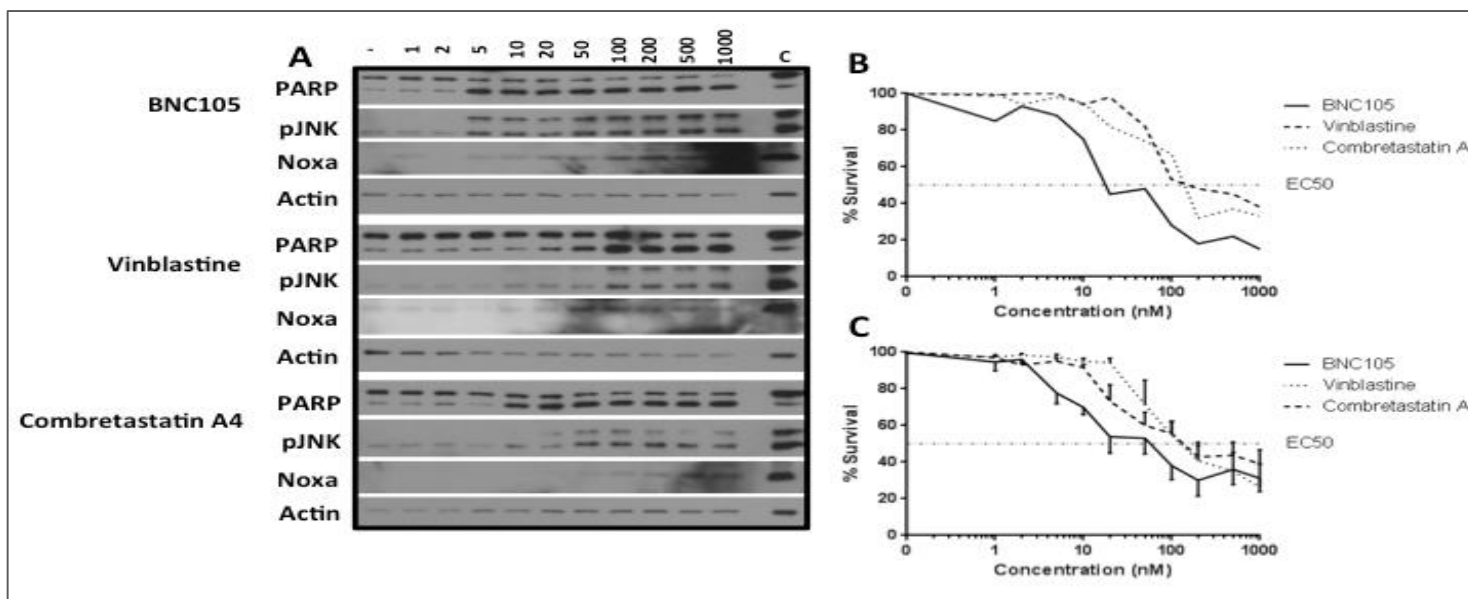


Chronic Lymphocytic Leukemia:

- Most common type of adult leukemia, affects mostly males over 50 years of age (typically around 70 years).
- In US ~15,720 new cases and 4,600 deaths from CLL predicted for 2014.

BNC105 and CLL:

- BNC105 kills CLL cells through activation of death proteins pJNK and Noxa.





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; which marks tumour-initiating High expression of LGR5 in colon cancer has been linked to tumour recurrence & poor prognosis 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 and poor prognosis
MARKET OPPORTUNITY	Market for cancer stem cell therapeutics estimated as US\$8b by 2018.
DEVELOPMENT STAGE	Targeting IND filing and Phase I clinical trials in 2015.
BENEFITS	<p>Inhibition of tumour recurrence.</p> <p>Specific targeting of cancer stem cells which are not killed by chemotherapy or radiotherapy.</p>



BNC420: Suppressing Tumour Progression



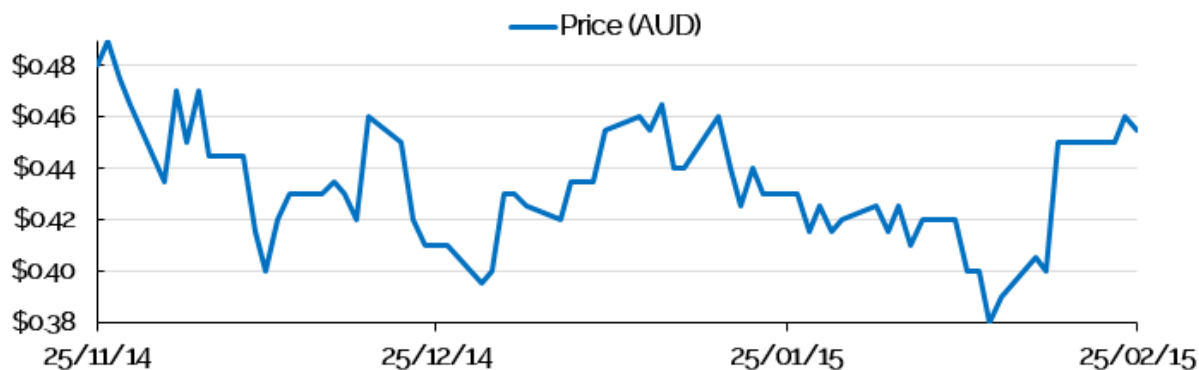
TREATMENT	Solid tumours; breast cancer & melanoma are priority indications.
MECHANISM OF ACTION	<ul style="list-style-type: none">• Orally active, small molecule .• Modulates activity of VEGFR3 receptor:<ul style="list-style-type: none">• inhibits lymph vessel growth, key conduits promoting cancer spread; and• Promotes re-activation of the anti-tumour immune response.
MARKET OPPORTUNITY	<p>Melanoma market value growth predicted due to increasing patient numbers and market entry of novel pipeline therapies, expected US\$2.8b by 2021.</p> <p>Breast cancer market projected to be US\$10.4b by 2019.</p>
DEVELOPMENT STAGE	Preclinical.
BENEFITS	<p>Inhibition of cancer spread.</p> <p>Activation of the tumour immune response.</p>



Strong Financial Position



BNO Share price performance in the last 3 months (AUD\$)



FY14 Results	First Half FY15 Results
Operating profit after tax: \$3.2m	Operating loss: \$5.68m
Revenue: \$27.5m	Revenue: \$7.33m
Cash at 31 December 2014: \$38.37m	

The Year Ahead: New Studies in Three Programs



BNC 210 Clinical Development:

- Initiation and completion of Phase Ib trial investigating target engagement, data anticipated Q3, CY2015
- Initiation of Phase II trial in patients suffering anxiety, Q1, CY2015, data anticipated Q2, CY2016

BNC105 Clinical Development:

- Initiation of Phase II clinical trial in renal cancer patients, biomarker signatures will guide patient selection, in collaboration with global pharma company
- Initiation of clinical trial in patients with Chronic Lymphocytic Leukaemia, in collaboration with Dartmouth College (US)

BNC101 Development:

- IND filing and initiation of Phase I clinical trial in pancreatic and colorectal cancer patients

Continued execution of Bionomics' partnership strategy



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