Bionomics Investor Presentation

Bionomics Limited (ASX: BNO, OTCQB: BNOEF) (Bionomics or Company), a global, clinical stage biopharmaceutical company, is pleased to provide an updated Corporate Presentation following the successful capital raisings completed during April 2021 and subsequent pipeline expansion activities.


Released on authority of the Chairman of the Board & CEO.

FOR FURTHER INFORMATION PLEASE CONTACT:

Ms Suzanne Irwin
Company Secretary
+61 8 8354 6100
CoSec@bionomics.com.au

About Bionomics Limited
Bionomics (ASX: BNO, OTCQB: BNOEF) is a global, clinical stage biopharmaceutical company leveraging its proprietary platform technologies to discover and develop a deep pipeline of best in class, novel drug candidates. Bionomics' lead drug candidate BNC210, currently in development for initiation of a second Phase 2 trial for the treatment of PTSD, is a novel, proprietary negative allosteric modulator of the alpha-7 nicotinic acetylcholine receptor. Beyond BNC210, Bionomics has a strategic partnership with Merck & Co., Inc (known as MSD outside the United States and Canada) with two drugs in early-stage clinical trials for the treatment of cognitive deficits in Alzheimer’s disease.

www.bionomics.com.au
Factors Affecting Future Performance

This announcement contains "forward-looking" statements within the meaning of the United States’ Private Securities Litigation Reform Act of 1995. Any statements contained in this announcement that relate to prospective events or developments, including, without limitation, statements made regarding Bionomics’ drug candidates (including BNC210), its licensing agreements with Merck & Co. and any milestone or royalty payments thereunder, drug discovery programs, ongoing and future clinical trials, and timing of the receipt of clinical data for our drug candidates are deemed to be forward-looking statements. Words such as "believes," "anticipates," "plans," "expects," "projects," "forecasts," "will" and similar expressions are intended to identify forward-looking statements. There are a number of important factors that could cause actual results or events to differ materially from those indicated by these forward-looking statements, including unexpected safety or efficacy data, unexpected side effects observed in clinical trials, risks related to our available funds or existing funding arrangements, our failure to introduce new drug candidates or platform technologies or obtain regulatory approvals in a timely manner or at all, regulatory changes, inability to protect our intellectual property, risks related to our international operations, our inability to integrate acquired businesses and technologies into our existing business and to our competitive advantage, as well as other factors. Results of studies performed on our drug candidates and competitors’ drugs and drug candidates may vary from those reported when tested in different settings.
TO IMPROVE THE LIVES OF PEOPLE LIVING WITH SERIOUS CNS DISORDERS

Corporate Presentation
BNO (Australia: ASX)
BNOEF (USA: OTCQB)

May 2021
Factors Affecting Future Performance

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Subject to the requirements of any applicable legislation or the listing rules of any stock exchange on which our securities are quoted, we disclaim any intention or obligation to update any forward-looking statements as a result of developments occurring after the date of this presentation.
Advancing differentiated approaches for unmet needs in large underserved markets

Lead clinical candidate BNC210 in Phase 2b with Fast Track designation from FDA for PTSD

BNC210 entering Phase 2 for acute treatment in Social Anxiety Disorder (SAD) - Already established clinical proof-of-concept¹

Advancing differentiated approaches for unmet needs in large underserved markets

Strategic partnership with Merck & Co. for treatment of Cognitive Impairment in Alzheimer’s Disease

Pipeline of partnering candidates targeting potassium (Kv) and sodium (Nav) ion channels

Well-capitalized balance sheet with multiple value-driving milestones

PTSD = Post-Traumatic Stress Disorder
¹ Wise et al 2020, Biological Psychiatry; Perkins et al 2021, Molecular Psychiatry
Hypercholinergic Disease States

- Anxiety
- Depression
- PTSD

Hypocholinergic Disease States

- Alzheimer’s
- CIAS
- ADHD

Normal Activity

Bionomics

BNC210

Hypercholinergic Disease States

- Ca^{2+}

Ca^{2+} binds to orthosteric sites

Allosteric drugs bind to distinct sites in the transmembrane domain to restore normal function

Normalizing effect utilizing Allosteric Modulation

Targeting Distinct CNS Conditions with Neurotransmitter Imbalance

Cholinergic = System associated with memory, selective attention, and emotional processing cognitive functions

PTSD = Post-Traumatic Stress Disorder

CIAS = Cognitive Impairment Associated with Schizophrenia

ADHD = Attention Deficit Hyperactivity Disorder
NAMs have self-limiting activity determined by the cooperative interaction between the compounds binding at the allosteric and orthosteric sites e.g. BNC210 and acetylcholine.

**Action of BNC210**

**Depends on**

Acetylcholine

Neurotransmission

and Allosteric

Modulation of

α7 nAChR
EEG response to nicotine is achieved through activation of nicotinic receptors in the brain.

The major populations targeted are α4β2 and α7 receptors.

Oral dosing with 2,000 mg BNC210 for 7 days reduced nicotine-induced EEG power in the α2 band.

Reduction in the EEG response is due to negative allosteric modulation of the α7 nAChR by BNC210.

BNC210 Target Engagement in Brain at Nicotinic Receptor in Humans

Demonstration of Target Engagement in Humans:

*BNC210 reduced nicotine-induced EEG responses*

n= 24 healthy volunteers

Bionomics

nAChR = Nicotinic Acetylcholine Receptor
Focused CNS Pipeline with Meaningful Catalysts on the Horizon

<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>PRE-IND</th>
<th>PHASE 1</th>
<th>PHASE 2A</th>
<th>PHASE 2B</th>
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<td>+MDMA derivative EMP-01 for PTSD</td>
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<td>Memorandum of Understanding to explore combination treatment regimen for PTSD</td>
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* nAChR = nicotinic acetylcholine receptor

Bionomics
BNC210 Addresses the Shortcomings of Existing PTSD Therapies

**BNC210**

- **Potential to treat** Anxiety, Depression, PTSD and Other Stress-Related Disorders

**BNC210 vs. Current Therapies (Potential Advantages*)**

<table>
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<tr>
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<th>No Sedation</th>
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*B*Based on data from preclinical studies, Phase 1 & 2 clinical trials

1. Includes Valium and certain other benzodiazepines
2. Includes Prozac and certain other SSRIs (Selective Serotonin Reuptake Inhibitors) / SNRIs (Serotonin-Norepinephrine Reuptake Inhibitors)

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**Proof of Biology**

- In healthy subjects (anti-panic) and GAD patients (anti-anxiety)

**Large Market Potential**

- For treatment of multiple psychiatric indications

**Demonstrated Target Engagement**

- At nicotinic receptor in healthy subjects

**Strong Safety Database**

- In humans – 12 clinical trials, exposure in ~400 subjects

**Novel orally-administered First-in-class**

- Negative allosteric modulator of the α7 nicotinic acetylcholine receptor
People with PTSD and anxiety disorders have amplified fear responses to trauma- or stress-related stimuli and impaired fear extinction.

BNC210 enhanced fear extinction following conditioned response training.

BNC210 enhanced emotional recovery following a CCK-induced panic attack.

CCK4 = Cholecystokinin Tetrapeptide
BNC210 Significantly Reduced Panic Symptoms in Humans: CCK-4-Induced Model

**Evaluation conducted in 15 healthy volunteers who experienced a CCK-4-induced panic attack.**

**Total Symptoms:** 37.7% reduction (p<0.05)

**Symptom Intensity:** 52.7% reduction (p<0.05)

**Reduction** in the total number of panic symptoms and panic symptom intensity - measured with the panic symptom scale.

*BNC210 = Cholecystokinin Tetrapeptide*
BNC210 Phase 2 Trial in Generalized Anxiety Disorder (GAD) Demonstrated Acute Anxiolytic Activity

- Amygdala activation is an imaging surrogate for anxiety
- Connectivity between the Amygdala and Anterior Cingulate Cortex (ACC) is very strong in high anxiety


GAD = Generalized Anxiety Disorder
JORT = Joystick Operated Runway Task
fMRI = Functional Magnetic Resonance Imaging
BNC210 Targets Multi-Billion Dollar Markets . . .

. . . And PTSD Represents a Significant Unmet Need

- 70% of people will experience a traumatic event in their lifetime, but most people recover normally
- PTSD results from exposure to actual or threatened death, serious injury or sexual violence
- PTSD affects up to 8% of adults during their lifetime\(^1\)
- PTSD is a global mental health problem that is associated with significant morbidity and mortality and shows up in all facets of peoples’ lives
- No newly approved pharmacotherapy in almost two decades
- Medications with a novel mechanism of action that can address the pathophysiology of PTSD are needed

BNC210 is Well Positioned in PTSD and Beyond

Key Milestones Towards Continuing Development of BNC210 for the Treatment of PTSD

- *Previous Phase 2 RESTORE PTSD Trial missed primary CAPS-5 endpoint at 12-weeks*
- *Liquid suspension formulation with large food effect resulted in low blood exposure, compliance and high variability*
- *Pharmacometric analysis of Phase 2 PTSD data showed potential for significant patient benefit with adequate drug exposure achieved*
- *Novel proprietary spray dry solid dose formulation developed which eliminates food effect and achieves adequate exposures*
- *Positive FDA Type C Meeting feedback on BNC210 PTSD program*
- *FDA granted Fast Track designation for BNC210 in PTSD*
- *Determined Phase 2b PTSD trial dosing of BNC210*
- *Start of Phase 2b PTSD trial projected for mid 2021*

2018
- Anti-depressant and anti-anxiety trends seen at earlier (4-week) time points
- Excellent safety profile

2019

2020

2021

Bionomics
Significant Learnings from Previous Phase 2 PTSD Trial

Population pharmacokinetic modelling was done looking at the prior Phase 2 outpatient trial liquid suspension formulation.

**Pharmacokinetic Modelling:**

- **Phase 2 PTSD Trial**
  - BNC210 Suspension
  - Out-patient setting
  - 600 mg b.i.d
  - 300 mg b.i.d
  - 150 mg b.i.d

- **8-Day MAD PK Trial**
  - BNC210 Suspension
  - In-clinic setting, HVs
  - 600 mg b.i.d
  - 300 mg b.i.d
  - 150 mg b.i.d

**Target Exposure:** $AUC_{0-12} = 25$ mg.hr/L

**Pharmacometric Analysis:**

- **EXPOSURE-RESPONSE CURVE (BASELINE CAPS-5 TOTAL SCORE OF 30)**
  - $AUC_{90}$ 25 mg.hr/L

**BNC210** plasma levels substantially lower than expected using liquid suspension formulation.

**RESPONSE:** $\Delta$ from Placebo

**EXPOSURE:** $AUC$ (mg.hr/L)

**AUC Values (plasma exposure) = CAPS-5 Reduction (p<0.01)**
Novel spray dry formulation overcome food effect and has dose linear exposure.

**New Tablet Formulation**

- **Liquid Suspension (300 mg)**
  - Fasted
  - High Fat Meal

  Vs.

- **Solid Dose Tablet (300 mg)**
  - Fasted
  - High Fat Meal

**BNC210 Tablet formulation**

- **Achieves target**
  - AUC > 25 mg.hr/L with 900 mg doses b.i.d.

**AUC (mg.hr/L) Mean ± SD**

- **Phase 2 PTSD Trial**
  - Liquid Suspension formulation
  - Out-patient setting

- **8-Day MAD PK Trial**
  - Liquid Suspension formulation
  - In-clinic setting, HVs

- **7-Day PK Trial**
  - New tablet formulation
  - In-clinic setting, HVs

**Target Exposure: AUC_{0-12} = 25 mg.hr/L**

**Bionomics**

- b.i.d = Administered twice daily
- MAD = Multiple Ascending Dose
BNC210 Phase 2b PTSD Trial to Start Mid-2021

Phase 2B 1:1 RANDOMIZED DOUBLE-BLIND PLACEBO-CONTROLLED BNC210 MONOTHERAPY IN PTSD PATIENTS ~200 Subjects

OUTPATIENT BID DOSING

WEEK 1 2 3 4 5 6 7 8 9 10 11 12 FOLLOW-UP

BNC210 900 mg oral tablet

PLACEBO

SECONDARY ENDPOINTS

Symptom cluster severity scores for CAPS-5 (Criterion B, C, D & E); PCL-5; HAM-A; MADRS; CGI-S/CGI-I; CGI-S/PGI-I; SDS; ISI

PRIMARY ENDPOINT

Investigator-rated PTSD symptoms on CAPS-5 Total Symptom Severity Scores in change from Baseline to Week 12 compared to placebo

PHASE 2B

Single registrational-supporting trial for monotherapy treatment in PTSD

KEY INCLUSION CRITERIA

Female and male (18 – 75 years) Current PTSD diagnosis CAPS-5 ≥ 30 at Screening and Baseline (& ≤ 25% decrease Screening to Baseline)

~25 Sites US-based

Top-line Data in 1H’2023

Full Eligibility Criteria = CAPS-5 Total Symptom Severity Score ≥ 30 at Screening and Baseline (and ≤ 25% decrease in score from Screening to Baseline)

CAPS-5 = Clinician-Administered PTSD Scale for the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5)
PCL-5 = PTSD Checklist for DSM-5
HAM-A = Hamilton Anxiety Rating Scale
MADRS = Montgomery-Asberg Depression Rating Scale
CGI = Clinical Global Impressions
PGI = Patient Global Impressions
SDS = Sheehan Disability Scale
ISI = Insomnia Severity Index

Bionomics
BNC210 and MDMA Derivative (EMP-01) for PTSD

Joint Feasibility Assessment with:

EmpathBio

EMP-01 = 3,4-Methylenedioxymethamphetamine (MDMA) derivative

Memorandum of Understanding with EmpathBio’s MDMA Derivative

- Initial collaborative framework of preclinical studies to collectively explore a combination drug treatment regimen with BNC210 and EMP-01
- MDMA-assisted psychotherapy has demonstrated significant symptom improvement in PTSD patients
- FDA has granted a Breakthrough Therapy designation to MDMA-assisted psychotherapy.
- EmpathBio is developing MDMA derivatives that may permit the entactogenic effects of MDMA to be separated from some of the known adverse effects.
- To explore the possibility of a combination treatment regimen warranting clinical evaluation
BNC210 Targets Multi-Billion Dollar Markets...

...And Acute Treatment of SAD Represents a Significant Unmet Need

Social Anxiety Disorder (SAD), or Social Phobia, is an acute onset of anxiety distinct from general anxiety

Often disguised as “Fear of Public Speaking” that includes anxiety from everyday social and performance situations

A disorder that substantially impacts people’s daily lives

- Recognized as one of the most prevalent mental health conditions today affecting >25M Americans
- No fast-acting FDA-approved medications for, as-needed treatment of SAD
- Medications with the right pharmacokinetic profile and a novel mechanism are needed


Opportunity for BNC210

✓ Unmet medical need in large patient population
✓ Advancement in care
✓ No branded competition
✓ Ability to achieve large market share
BNC210 Addresses the Shortcomings of Existing Social Anxiety Disorder Therapies

**BNC210**

- **Potential for Acute Treatment of Anxiety in Social Anxiety Disorder Patients**
- **Prescribed Off-Label**
  - Benzodiazepines
  - Beta blockers
- **Fast Acting**
- **No Sedation**
- **No Withdrawal Syndrome**
- **No Memory Impairment**
- **No Drug/Drug Interactions**

### BNC210 vs. Current Therapies

(Potential Advantages*)

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BNC210’s Rapid Onset of Action is Uniquely Positioned for SAD Patients

✓ Emerging Regulatory Landscape and Unmet Need

• No FDA-approved medications for fast-acting, as-needed treatment of SAD

• Benzodiazepines prescribed off-label have significant side effects of sedation, cognitive impairment and potential for addiction

• Exponentially increasing unmet need based on improving awareness and evolving social dynamics

• Buy-in from FDA on simplified public speaking challenge endpoint to evaluate the reduction in anxiety levels vs. placebo based on actions of CNS peer proceeding with registrational Phase 3 trial endpoint

✓ Rapid Onset of Action with BNC210 Formulation

• Potential for reducing anxiety following acute treatment of GAD patients and following induction of panic

• Acute anxiolytic efficacy of BNC210 equivalent to lorazepam without sedative properties and addiction liability

• Formulation ideal for acute dosing – rapidly absorbed to high concentrations within a short period of time

**Average max concentrations reached in ~45 – 105 min. across the dose range**
BNC210 Phase 2 Trial Planning Underway

✓ Conducting preliminary background analysis around planning and study design

✓ Ability to significantly leverage public CNS peer’s trial design for its ongoing Phase 3 in Social Anxiety Disorder

✓ Potential to conduct a rapid and cost-effective trial with the ability to generate compelling a data signal

✓ Anticipate further clarity on advancing Phase 2 trial design in near future with potential to be underway in 2H2021

CNS Peer Reference Trial Design

Screening

Single placebo dose (single blind) → LSAS ≥ 70

Public speaking challenge

SUDS ≥ 75

Doses TBD (double blind)

DRUG

Placebo

Public speaking challenge

LSAS = Liebowitz Social Anxiety Scale
SUDS = Subjective Units of Distress Scale
Ongoing Strategic Collaboration with Merck & Co.


- MSD (a tradename of Merck & Co., Inc., Kenilworth NJ USA) Collaboration Update:
  - Phase 1 safety clinical trials of the lead molecule in healthy subjects have been completed and there are ongoing plans for further biomarker studies.
  - A backup molecule that showed an improved potency profile in preclinical animal models versus the current lead molecule is advancing into Phase 1 clinical trials.

- Agreement covers research on BNC375 and related compounds.

- BNC375 demonstrated potent memory enhancing properties in animal models – both episodic and working memory improved.

- Targeting cognitive impairment in Alzheimer’s, Parkinson’s and other conditions.
BNC375 is Bionomics’ Novel Partnering Candidate for Cognitive Impairment in Alzheimer’s Disease and other disorders.

Restores cognitive deficits in animal assays & models with Equivalent Efficacy to standard of care Aricept (Donepezil)

Broad dosing range (up to 1000x)

Effective in rat assays of cognition (Novel Object Recognition) Reverses scopolamine deficit

Effective in non-human primate assay of cognition (Novel Object Recognition) Reverses scopolamine deficit

Efficacious in African Green Monkey model of Alzheimer’s Disease (develop plaques with age)

Snapshot of Early BNC375 Studies

Emerging CNS Pipeline for Partnering
Promising therapeutic strategy for improving cognitive dysfunction and negative symptoms

Potential in schizophrenia and other illnesses such as Autism Spectrum Disorder and Alzheimer’s Disease

Bionomics’ molecules target Kv3.1/3.2 ion channels on parvalbumin positive, gabaergic interneurons in the pre-frontal cortex

Lead Compound BL-76 Fully Reverses PCP-induced Cognitive Deficit in Mice in the T-maze

~600 COMPOUNDS SYNTHESIZED
3 CHEMICAL SERIES DEVELOPED
2 SERIES PATENTED

Lead Compound BL-76
Back-up Compounds

2 Patents Published

Potential in schizophrenia and other illnesses such as Autism Spectrum Disorder and Alzheimer’s Disease

Bionomics
Pan Nav Inhibitors: Potential Non-Addictive Reduced Side-Effect Chronic Pain Therapies

**Disease-Related Genomics**

**BNO Pan Nav inhibitors**
Small molecules with functional selectivity for voltage-gated sodium channels: Nav1.7, Nav1.8, and potentially Nav1.9

**Gain & Loss-of-function mutations in Nav1.7, 1.8 and 1.9**

**Associated with human pain syndromes where extreme pain or no pain is experienced**

**1000+ compounds synthesized**

**3 chemical series developed**

**3 series patented**

**Lead candidate identified**
BL-017881
- 100% pain reduction (100 mg/kg)
- No side effects (300 mg/kg)
- 40x selectivity over hERG
- CNS penetrant

**3 patents published**

3 Patents Published
**Bionomics Outlook**

- Balanced business model with potential for numerous value-driving clinical milestones over the next 24 months
- BNC210 in on track for start of Phase 2b in mid-2021 with Fast Track designation from FDA for PTSD; novel tablet formulation achieves blood exposure projected from pharmacometric analysis
- Rapid onset of action of novel BNC210 tablet formulation enables initiation of Phase 2 for acute treatment in Social Anxiety Disorder - Already established clinical proof-of-concept
- Strategic partnership with Merck for treatment of Cognitive Impairment in Alzheimer's Disease with two compounds in clinical development
- Pipeline of partnering candidates targeting potassium and sodium ion channels for treatment of schizophrenia and pain, respectively
- Well-capitalized balance sheet

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**PTSD** = Post-Traumatic Stress Disorder

Errol De Souza PhD
Executive Chairman

- More than 35 years experience in biotech, big pharma and academia
- Previous President & CEO of multiple public (Biodel, Synaptic) & private (Neuropore, Archemix) biotech companies
- Founder of Neurocrine Biosciences
- Previous SVP Aventis Pharmaceuticals
- Previous Head of CNS Diseases, DuPont Merck
- Multiple public and private boards

Connor Bernstein
Vice President Strategy & Corporate Development

- 10 years experience in Life Sciences Investment Banking in strategic advisory, M&A, and equity and debt financings
- Broad execution expertise with closed deals representing >US$38B in aggregate value
- Formerly with Apeiron Investment Group assisting various Biotech companies in finance, strategy, corporate development and investor relations
- Prior Healthcare Investment Banking roles include RBC Capital Markets, Perella Weinberg Partners, Guggenheim Securities and Piper Jaffray

Adrian Hinton
Acting Chief Financial Officer

- Over a 43 year career at Deloitte (Adelaide)
- Retired in 2018 as Principal Audit and Assurance Group
- Broad-based knowledge of contemporary accounting and audit issues in a wide range of industries
- Experience in preparing Due Diligence reviews, investigative accounting reports and review of profit forecasts

Liz Doolin
Vice President Clinical Development

- 25 year international career in drug discovery, clinical and life sciences research
- Joined Bionomics in 2008
- Extensive clinical operations and regulatory experience
- Oncology and CNS drug development
- Strong biotechnology research and manufacturing background
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<thead>
<tr>
<th>BOARD OF DIRECTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Errol De Souza PhD</td>
</tr>
<tr>
<td>Executive Chairman</td>
</tr>
<tr>
<td>• More than 35 years experience in biotech, big pharma and academia</td>
</tr>
<tr>
<td>• Previous President &amp; CEO of multiple public (Biodel, Synaptic) &amp; private (Neuropore, Archemix) biotech companies</td>
</tr>
<tr>
<td>• Founder of Neurocrine Biosciences</td>
</tr>
<tr>
<td>• Previous SVP Aventis Pharmaceuticals</td>
</tr>
<tr>
<td>• Previous Head of CNS Diseases, DuPont Merck</td>
</tr>
<tr>
<td>• Multiple public and private boards</td>
</tr>
<tr>
<td>Alan Fisher</td>
</tr>
<tr>
<td>Non-Executive Director</td>
</tr>
<tr>
<td>• 24 years at accounting firm Coopers &amp; Lybrand as lead Advisory Partner – Melbourne Corporate Finance Division</td>
</tr>
<tr>
<td>• Last 22 years as founder of his own Corporate Advisory company specializing in M&amp;A business restructurings, strategic advice and capital raisings for small cap companies</td>
</tr>
<tr>
<td>• Non-Executive chairman – Centrepoint Alliance Ltd &amp; IDT Aust.</td>
</tr>
<tr>
<td>• Non-Executive Director and chair of Audit and Risk committee of Thorney Technology</td>
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<tr>
<td>David Wilson</td>
</tr>
<tr>
<td>Non-Executive Director</td>
</tr>
<tr>
<td>• Chairman &amp; Founding Partner of WG Partners</td>
</tr>
<tr>
<td>• Over 30 years’ experience in investment banking in City of London</td>
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<tr>
<td>• Previous CEO of Piper Jaffray Ltd</td>
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<tr>
<td>• Previous Joint Head of UK Investment Banking Group, ING Barings</td>
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<tr>
<td>• Previous head of Small Companies Corporate Finance, Deutsche Bank</td>
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<tr>
<td>• Previous Head of Small Companies Corporate Broking, UBS</td>
</tr>
<tr>
<td>Jane Ryan PhD</td>
</tr>
<tr>
<td>Non-Executive Director</td>
</tr>
<tr>
<td>• Over 30 years of international experience in the pharmaceutical and biotechnology industries</td>
</tr>
<tr>
<td>• Worked in Australia, the US and the UK with companies including Peptech, Roche, Cambridge Antibody Technology and Biota Holdings</td>
</tr>
<tr>
<td>• Led many successful fundraising campaigns and Licensing initiatives inclusive of a $230m US government contract</td>
</tr>
<tr>
<td>• Chair of the Advisory Board of the ithree Institute at the University of Technology Sydney (UTS)</td>
</tr>
</tbody>
</table>

Bionomics
Srinivas Rao PhD  
Non-Executive Director

- Chief Scientific Officer at ATAI Life Sciences AG
- Over 19 years of professional experience in pharmaceutical and biotechnology industries
- Has held the titles of Chief Scientific, Medical, or Executive Officer at companies ranging from Venture backed start-ups to vertically-integrated publicly traded pharmaceutical companies
- PhD in neurobiology form Yale Graduate School
- M.D. from Yale School of Medicine

Mitchell Kaye  
Non-Executive Director

- COO BVF Partners
- Founding member of Xmark Opportunity Partners LLC
- Founding member of Brown Simpson Asset Management LLC
- Founder of MedClaims Liaison LLX
- Previous Managing Director Navigant Capital Advisors, Head of Navigants Financial Institutions restructuring Solutions team

Aaron Weaver  
Non-Executive Director

- Managing Director at Apeiron Investments focused on the life sciences sector
- Snr General Counsel supporting fundraising & IR at ATAI Life Sciences AG
- Qualified Chartered Financial Analyst (CFA) and a registered solicitor in the UK
- Previously an investor banker at Credit Suisse in London within the Capital Markets Solutions team
- Previous capital markets solicitor at Allen & Overy LLP
Strategy and Value Proposition & Stock and Financial Information
**Partnerships**
- Leverage Merck partnership for Alzheimer’s through milestones & royalties
- Partner pre-clinical ion channel programs for pain and cognitive deficits
- Realize value of legacy oncology assets through partnering and/or external funding

**BNC210**
- Fund internal development for the treatment of PTSD to Phase 2b
- Develop for other anxiety-, stress- and depression-related indications such as Social Anxiety Disorder

**Finance**
- Leverage Australian R&D Tax Incentives to extend cash runway
- Expand global institutional investor base
- Reduce internal cash burn through focus on BNC210 PTSD development and out-sourcing model
BNC210: Market Potential and Summary of Clinical Trials
BNC210 Targets Multi-Billion Dollar Markets with Unmet Need: US Market Potential

- PTSD: 8.7-9M (US$4.7b)
- MDD + Anx: 8.8-5M (US$3.2b)
- BP+Anx: 3.2-3.5M (US$1.5b)
- Panic: 6.5-7M (US$4.4b)
- SAD: 17M (US$2.5b)
- Agitation: 7.8M (US$2.3b)
- GAD: 7M (US$2.7b)

- Innovative, first-in-class
- Unmet need in large patient populations
- Advancement in care
- Limited branded competition
- Ability to achieve large market share

1. 3.4-4% prevalence >18yrs., ~25% of patients diagnosed and treated
2. 6.7% prevalence, ~50% co-morbid anxiety, ~50% diagnosed and treated
3. 2.9% prevalence, 50% co-morbid anxiety (range in literature 25 to 75%), ~50% diagnosed and treated
4. 2.7% prevalence, ~50% diagnosed and treated
5. 6.8% prevalence, 15-20% diagnosed and treated
6. 3.1% GAD prevalence, assumes ~25% diagnosed and treated, ~50% of SSRI patients treated are partial responders or relapsers

Post-Traumatic Stress Disorder (PTSD)  Major Depressive Disorder (MDD)  Bipolar Disorder (BP)  Social Anxiety Disorder (SAD)  Generalized Anxiety Disorder (GAD)
<table>
<thead>
<tr>
<th>Protocol Number</th>
<th>Phase</th>
<th>Description</th>
<th>Subjects Enrolled / Administered BNC210</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>BNC210.001</td>
<td>1</td>
<td>Safety and Tolerability of Single Ascending Doses in Healthy Volunteers</td>
<td>83/67</td>
<td>Australia</td>
</tr>
<tr>
<td>BNC210.002</td>
<td>1</td>
<td>Safety and Tolerability of Single Ascending Doses in Healthy Volunteers</td>
<td>83/67</td>
<td>US</td>
</tr>
<tr>
<td>ICP-2143-101</td>
<td>1</td>
<td>Safety and Tolerability of Single Ascending Doses in Healthy Volunteers</td>
<td>83/67</td>
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<tr>
<td>BNC210.003</td>
<td>1b</td>
<td>Lorazepam &amp; BNC210 Comparison in Healthy Volunteers</td>
<td>24/22</td>
<td>France</td>
</tr>
<tr>
<td>BNC210.004</td>
<td>1b</td>
<td>Panic Attack Model in Healthy Volunteers</td>
<td>60/59</td>
<td>France</td>
</tr>
<tr>
<td>BNC210.005</td>
<td>1b</td>
<td>Safety and Tolerability of Multiple Ascending Doses and EEG Target Engagement Study with Nicotine in Healthy Volunteers</td>
<td>56/44</td>
<td>France</td>
</tr>
<tr>
<td>BNC210.006</td>
<td>2a</td>
<td>Imaging and Behavioral Study In Generalized Anxiety Disorder Patients</td>
<td>27/25</td>
<td>UK</td>
</tr>
<tr>
<td>BNC210.007</td>
<td>2</td>
<td>Post-Traumatic Stress Disorder</td>
<td>193/143</td>
<td>Australia</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>US</td>
</tr>
<tr>
<td>BNC210.008</td>
<td>2a</td>
<td>Agitation in the Elderly in Hospital Setting</td>
<td>38/18</td>
<td>Australia</td>
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<tr>
<td>BNC210.009</td>
<td>1</td>
<td>Single Dose Pharmacokinetics of BNC210 Solid Dose Formulation in Healthy Volunteers</td>
<td>11/11</td>
<td>Australia</td>
</tr>
<tr>
<td>BNC210.010</td>
<td>1</td>
<td>Single Dose Pharmacokinetics of BNC210 Solid Dose Formulation in Healthy Volunteers</td>
<td>11/11</td>
<td>Australia</td>
</tr>
<tr>
<td>BNC210.011</td>
<td>7</td>
<td>7-Day Pharmacokinetics of BNC210 Solid Dose Formulation in Healthy Volunteers</td>
<td>10/10</td>
<td>Australia</td>
</tr>
</tbody>
</table>

Summary of BNC210 Clinical Trials: Excellent Safety and Tolerability Profile in Healthy Subjects and Patients
**Study Design**
- Multi-center, randomized, double-blind, placebo-controlled
- BNC210 150 mg, 300 mg, 600 mg and placebo (1:1:1:1) (liquid suspension formulation taken twice daily, b.i.d.)
- 12-week treatment period
- 193 participants
- 20 US sites / 6 Australian sites

**Key Selection Criteria**
- Current diagnosis of PTSD as defined by CAPS-5 (Clinician-Administered PTSD Scale for DSM-5)
- Concomitant use of one anti-depressant medication allowed

**Key Study Objectives**
- To assess the effects of BNC210 on investigator-rated symptoms of PTSD measured by CAPS-5
- To assess the safety and tolerability of BNC210 in subjects with PTSD
No overall effect on primary endpoint of CAPS-5 total severity score at 12 weeks
Australian patients had a greater improvement over placebo than US patients
- CAPS-5 statistically significant at Week 4 in Australians (p<0.05)

**Evidence of antidepressant effect in high dose treatment group in total population**
- CAPS-5 Criterion D overall (negative alterations in cognitions and mood) statistically significant at Week 1 (p<0.05)
- CAPS-5 Criterion D, Question 2 (persistent and exaggerated negative beliefs or expectations) statistically significant at Week 1 (p=0.001)
- CAPS-5 Criterion D, Question 4 (persistent negative emotional state) statistically significant at Weeks 4 and 8 (p<0.05)

**Evidence of anxiolytic effect in high dose treatment group in the total population**
- Trend towards improvement on CAPS-5 Criterion E (marked alterations in arousal and reactivity), Question 3 (hypervigilance)
- Trend towards improvement on CAPS-5 Criterion E, Question 4 (exaggerated startle response)

**BNC210 was safe and well tolerated in patients with PTSD**
- No trend for increased adverse events with treatment
- No evidence of cognitive impairment
- No evidence of suicidal ideation or behavior worsening

**Potential reasons why clinically significant effects and trends seen at 4 Weeks did not translate into significant primary endpoint on CAPS-5 at 12 Weeks**
- Inadequate overall blood exposure of BNC210
- Lower compliance with liquid suspension formulation which needed to be taken with food
### BNC210 Phase 2b Trial for Treatment of Post-Traumatic Stress Disorder Patients

<table>
<thead>
<tr>
<th>Phase 2b Post-Traumatic Stress Disorder</th>
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</thead>
<tbody>
<tr>
<td><strong>Design</strong></td>
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<tr>
<td><strong>Participants</strong></td>
</tr>
<tr>
<td><strong>Eligibility</strong></td>
</tr>
<tr>
<td><strong>Sites</strong></td>
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<tr>
<td><strong>Doses</strong></td>
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<tr>
<td><strong>Primary efficacy endpoint</strong></td>
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<tr>
<td><strong>Secondary endpoints</strong></td>
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<tr>
<td><strong>Safety &amp; tolerability endpoints</strong></td>
</tr>
<tr>
<td><strong>Status</strong></td>
</tr>
</tbody>
</table>

**CAPS-5** = Clinician-Administered PTSD Scale for the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5); **PCL-5** = PTSD Checklist for DSM-5; **HAM-A** = Hamilton Anxiety Rating Scale; **MADRS** = Montgomery-Asberg Depression Rating Scale; **CGI-S/CGI-I** = Clinical Global Impressions; **PGI-S/PGI-I** = Patient Global Impressions; **SDS** = Sheehan Disability Scale; **ISI** = Insomnia Severity Index
Oncology Assets: Build Value Through External Funding
Multiple modes of BNC105 anti-cancer action have been identified:
- Tumour starvation by selective disruption of tumour vasculature
- Induction of cancer cell death by upregulation of pro-apoptotic proteins
- Suppression of tumour growth by inhibition of cancer cell proliferation
- Modulation of the tumour microenvironment
- Tumour immunomodulation with a significant reduction in PD-L1 expression

BNC105 clinical dose and schedule have been established in four Phase 1 and 2 clinical trials
- BNC105 has been generally well tolerated in clinical trials in patients with solid tumours (including renal cell cancer, ovarian cancer, colorectal cancer and mesothelioma) and liquid tumours (chronic lymphocytic leukemia) (including in combination with other chemotherapeutics)
### Bionomics’ Oncology Assets

<table>
<thead>
<tr>
<th></th>
<th>Preclinical</th>
<th>Phase 1</th>
<th>Phase 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BNC105:</strong> a multi-modal, small molecule tubulin polymerization inhibitor</td>
<td><strong>Solid Cancers</strong>&lt;br&gt;COLORECTAL: in combination with nivolumab; externally funded; Phase 2 completed&lt;br&gt;RENAL: in combination with everolimus; Phase 2 completed; biomarker-based Phase 2/3 ready&lt;br&gt;MESOTHELIOMA: monotherapy; Phase 2 completed&lt;br&gt;OVARIAN: in combination with gemcitabine + carboplatin; Phase 1 completed; Phase 2 ready&lt;br&gt;ADVANCED SOLID TUMOURS: monotherapy dose escalation; Phase 1 completed</td>
<td><strong>Blood Cancers</strong>&lt;br&gt;CHRONIC LYMPHOCYTIC LEUKEMIA: in combination with ibrutinib; externally funded; Phase 1 completed&lt;br&gt;ACUTE MYELOID LEUKEMIA: preclinical data available; Phase 1/2 ready</td>
<td>-</td>
</tr>
<tr>
<td><strong>BNC101:</strong> a first-in-class humanized monoclonal antibody to LGR5, a cancer stem cell receptor</td>
<td><strong>Solid Cancers</strong>&lt;br&gt;COLORECTAL: monotherapy dose escalation; Phase 1 completed; Phase 2 ready&lt;br&gt;PANCREATIC: in combination with SOC; preclinical data&lt;br&gt;COLORECTAL: in combination with anti-PD-1; preclinical data&lt;br&gt;ANTIBODY DRUG CONJUGATE: preclinical data</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Study ID</td>
<td>Indication</td>
<td>Design</td>
<td>Intervention</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------------------------------------------</td>
<td>---------------------------------</td>
<td>-------------------------------------------------------------------</td>
</tr>
<tr>
<td>BNC105P.001</td>
<td>Advance Stage Solid Tumours</td>
<td>Ph 1; Dose escalation</td>
<td>BNC105P monotherapy</td>
</tr>
<tr>
<td>B2P2M2</td>
<td>Advanced Malignant Pleural Mesothelioma</td>
<td>Ph 2; Single arm</td>
<td>BNC105P monotherapy</td>
</tr>
<tr>
<td>ANZGOG-1103</td>
<td>Partially Platinum Sensitive Relapsed Ovarian Cancer</td>
<td>Ph 1; Dose escalation</td>
<td>BNC105P + carboplatin/gemcitabine (with sequential BNC105P monotherapy)</td>
</tr>
<tr>
<td>GU09-145</td>
<td>Metastatic Clear Cell Renal Cell Cancer</td>
<td>Ph 1/2; Randomized two arm</td>
<td>BNC105P + everolimus vs everolimus monotherapy (with sequential BNC105P monotherapy)</td>
</tr>
<tr>
<td>CA209-99U</td>
<td>Microsatellite Stable Refractory Colorectal Cancer</td>
<td>Ph 2</td>
<td>BNC105P + nivolumab</td>
</tr>
<tr>
<td>D14234</td>
<td>Relapsed/Refractory Chronic Lymphocytic Leukemia</td>
<td>Ph 1; Dose escalation + expansion</td>
<td>BNC105P + ibrutinib</td>
</tr>
</tbody>
</table>

EFS = event-free survival; MTD = maximum tolerated dose; PFS = progression-free survival; PK = pharmacokinetics; RP2D = recommended Phase 2 dose
LGR5 is a cancer stem cell receptor overexpressed in a number of solid cancers such as colorectal, pancreatic, breast and lung cancers, and has a role in tumour growth and survival.

BNC101 binds to LGR5 with high affinity and selectivity and internalizes the receptor.

BNC101 clinical dose and schedule were established in a Phase 1 trial in patients with metastatic colorectal cancer (CRC) - the recommended Phase 2 dose (RP2D) was identified:

- BNC101 was safe and well tolerated with no dose-limiting toxicities (DLTs)
- Co-localization of BNC101 and LGR5 was demonstrated in patient tumour tissue

**Future development:**

- Phase 2 ready: BNC101 in combination with standard of care treatment for gastro-intestinal cancers overexpressing LGR5
- BNC101 has the potential to be developed as an Antibody-Drug-Conjugate (ADC) therapeutic or in combination with CAR-T therapy
Exclusive Agreement to license Bionomics’ BNC101 oncology drug candidate to Carina Biotech for the development of Chimeric Antigen Receptor T cell (CAR-T) therapy, which harnesses the body’s immune system to fight cancer.

- Bionomics is eligible to receive up to A$118 million in clinical & development milestones plus royalty payments if Carina fully develops and markets the new therapy. In the event that Carina sub-licenses the CAR-T treatment, Bionomics is eligible to share in the sub-licensing revenues in early clinical development and receive a substantial double-digit portion of the revenues in later stages of clinical development.

- Bionomics retains BNC101 for other types of therapies.