Bionomics – Corporate Presentation

June 2024

Developing treatments for patients with underserved CNS disorders

Bionomics

Nasdaq: BNOX

Please Take a Moment to Review the Safe Harbor Statement

Factors Affecting Future Performance

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Bionomics is an Advanced Clinical Stage CNS-focused Biotech Company with Multiple Value-Creating Milestones

Leading expertise in ion channels with a pipeline of best-in class allosteric modulators

BNC210	**Ph3-ready α7 NAM with novel MoA and highly differentiated profile suitable for acute and chronic dosing in multiple CNS indications**
PTSD and Social Anxiety Disorder	• No new treatment for decades • Significant socioeconomic impact • Blockbuster potential
Alzheimer's Disease and Schizophrenia	Clinical stage partnership with Merck on α7 PAM valued ~US$500M in regulatory and clinical milestones

2024-2026
Milestone Rich Development Plan

Q3 2024

Initiation of SAD Ph3

Q3 2024

FDA EoPh2 PTSD Meeting

FDA PTSD breakthrough designation decision

Q4 2024

Initiation of late-stage PTSD study

2025-2026

SAD Ph3 readout

Potential Merck Ph2 milestone

PTSD Ph3 trial readout

EoP2 = end of Phase 2; FDA = U.S. Food and Drug Administration; NAM = Negative Allosteric Modulator; PAM = Positive Allosteric Modulator, PTSD = post-traumatic stress disorder; SAD = social anxiety disorder.

Management Team with Proven Track Record and Significant Expertise

Innovative thinking, nimble mindset, successful NDAs, drug launches, capital raises and strategic deals

Spyros Papapetropoulos, MD, PhD
President & CEO

Allergan · Biogen · Cavion · Pfizer · University of Miami · SwanBio Therapeutics · teva · vigil Neuro · Acadia Pharmaceuticals · Massachusetts General Hospital

Tim Cunningham, CPA, MBA
CFO

Danforth Advisors · IBM · Organogenesis · pwc · KPMG

Mark A Smith, MD, PhD
Acting Chief Medical Officer

teva · Shire · DuPont

Julie Kerner, PhD
SVP, Business Operations and Early Commercialization

AVROBIO · ALIADA Therapeutics · WAVE Life Sciences · Biogen · DRG Part of Clarivate · Fulcrum Therapeutics

Liz Doolin, M.Sc.
SVP, Clinical Development

ag · British Biotech · *New World Bio Limited*

Matthew Brennan, MBA
VP, Business Development

IPSEN Innovation for patient care · fog pharma · vigil Neuro · Warp Drive Bio · SANOFI · FLATIRON

Bionomics Focused CNS Pipeline Targets Major Unmet Needs

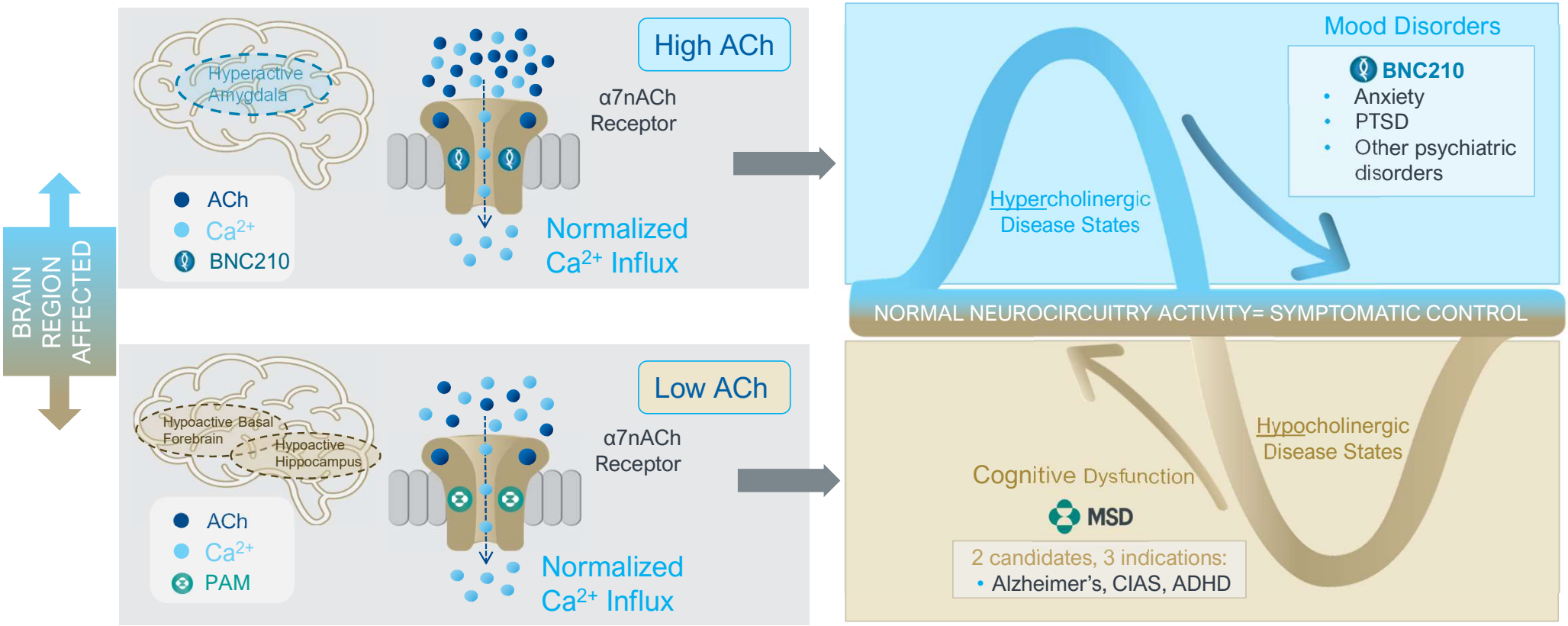
FDA Fast Track Designations for PTSD and Social Anxiety Disorder programs entering Phase 3

Program	Indication	Pre-Clinical / Phase 1 / Phase 2 / Phase 3	Status
BNC210 α7 receptor NAM	Post-Traumatic Stress Disorder (PTSD)	Phase 2 / Phase 3	✓ Phase 2 completed • FDA meeting H2 2024
BNC210 α7 receptor NAM	Social Anxiety Disorder (SAD)	Phase 2 / Phase 3	✓ Phase 2 completed ✓ EoP2 completed
BNC210 α7 receptor NAM	CNS Indication(s)	Pre-Clinical	To be disclosed
MK-4334 α7 receptor PAM	Cognitive Deficit in Alzheimer's and Schizophrenia	Phase 1 (MSD)	Phase 1 safety & biomarker studies ongoing
Nav1.7/1.8 Inhibitors Series Lead	Chronic Pain	Pre-Clinical	Partnering Asset
Kv3.1/3.2 Activators Series Lead	Cognitive Impairment	Pre-Clinical	Partnering Asset

NAM = Negative Allosteric Modulator; PAM = Positive Allosteric Modulator.

FDA Fast Track designation

Restoration of Neurotransmitter Balance Through Allosteric Modulation of the α7 Nicotinic Acetylcholine (nACh) Receptor



ACh = Acetylcholine; ADHD = Attention Deficit Hyperactivity Disorder; Cholinergic = System associated with memory, selective attention, and emotional processing cognitive functions; CIAS = Cognitive Impairment Associated with Schizophrenia; PTSD = Post-Traumatic Stress Disorder.

BNC210: Potential Best- and First-in-Class α7 Nicotinic Receptor Small Molecule Negative Allosteric Modulator in Development for the Treatment of Neuropsychiatric Disorders

Unique and differentiated MoA with high confidence in rationale and probabilities of success

Chronic administration for PTSD and other indications
Rapid and durable anxiety relief with acute administration (~60 min onset, half-life 4-5 hrs)

Non-sedating, non-habit forming, not cognition impairing*

Clinically Meaningful Effects

- Reduction of PTSD symptom severity – Clinically significant effect sizes
- Reduction of anxiety in panic attacks, GAD & SAD - benzodiazepine-like without the side effects

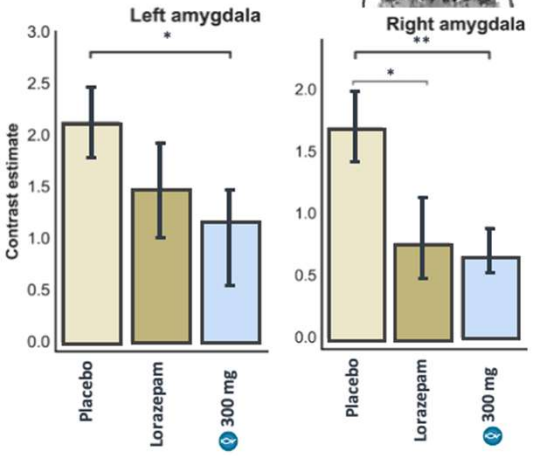
*Profile based on a safety database of ~600 subjects.
GAD = General Anxiety Disorder; MOA = Mechanism of Action; SAD: Social Anxiety Disorder; PTSD = Post-Traumatic Stress Disorder.

BNC210's Proof of Mechanism/Concept Phase 1b & Phase 2 Studies: Acute Dosing Paradigm

Positive clinical and biomarker data supports development in anxiety- and stress-related disorders

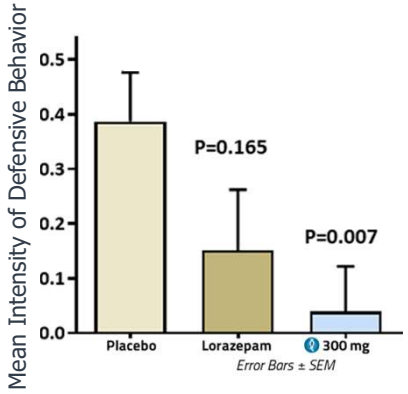
Ph2 GAD trial
BNC210 ↓ amygdala activation in GAD

Amygdala activation is an imaging surrogate for anxiety

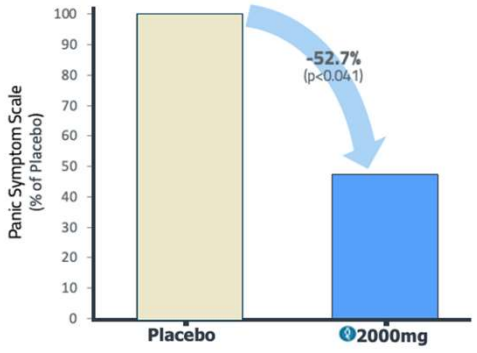


*P<0.05 **P<0.01

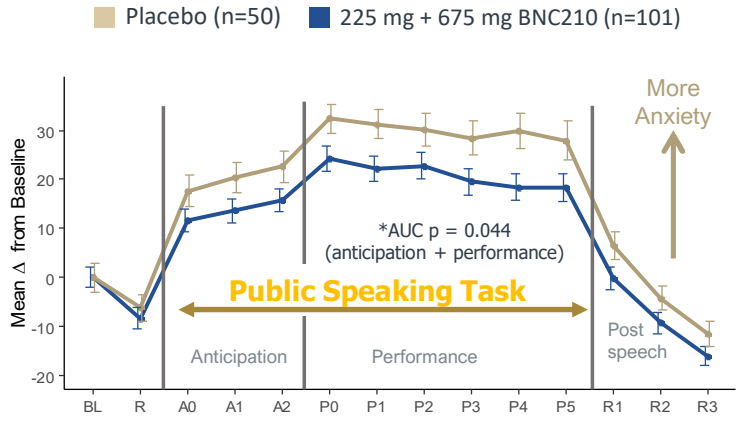
Ph2 GAD trial
BNC210 ↓ threat avoidance behaviour in GAD



Ph1b Panic Attack trial
BNC210 significantly ↓ CCK4-induced panic symptoms



Ph2 SAD trial - PREVAIL
BNC210 significantly* ↓ anxiety during public speaking

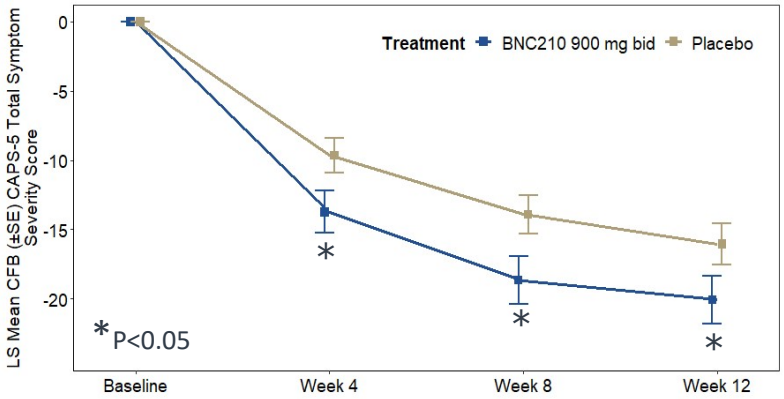


*Significance was achieved in a post-hoc area-under-the -curve (AUC) analysis

Chronic Administration of BNC210 Significantly Reduced PTSD Symptom Severity

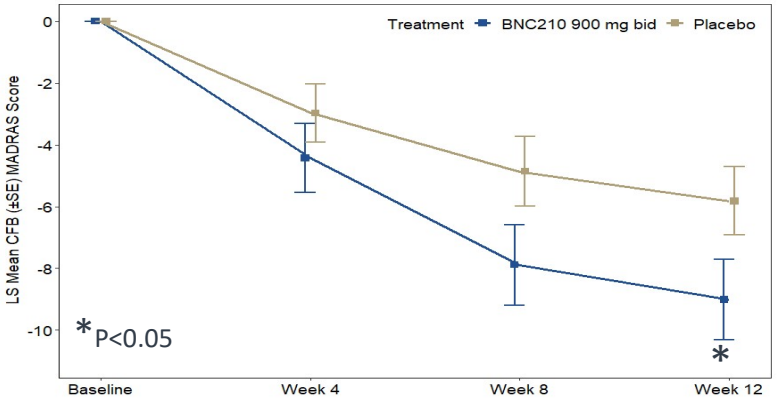
Primary and several secondary endpoints met with clinically meaningful improvement in several PTSD symptoms

Primary Endpoint: CAPS-5 Total Symptom Severity Scores

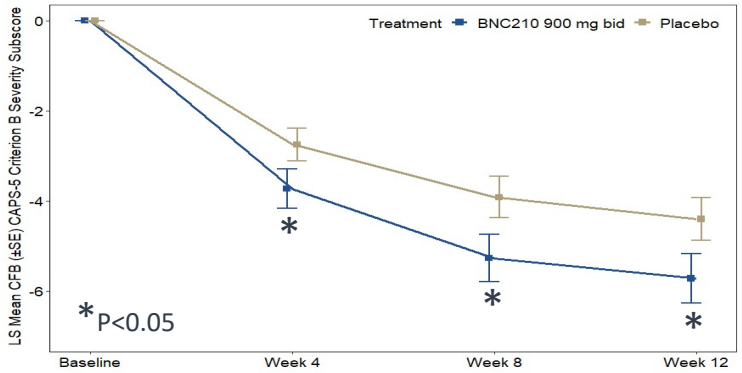


Lower values= symptom improvement

Secondary Endpoint: MADRS Depression Scores

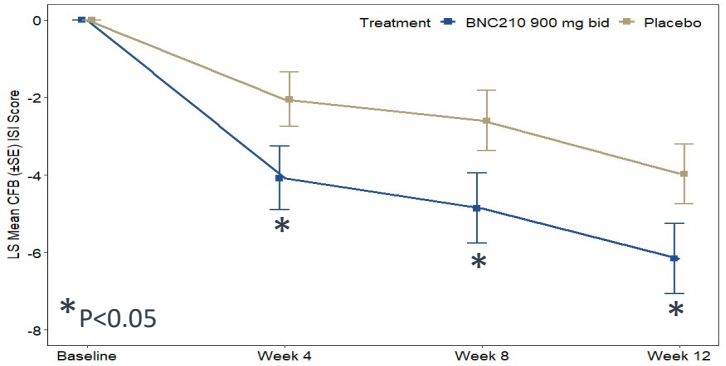


Secondary Endpoint: CAPS-5 Intrusion Criterion



Lower values= symptom improvement

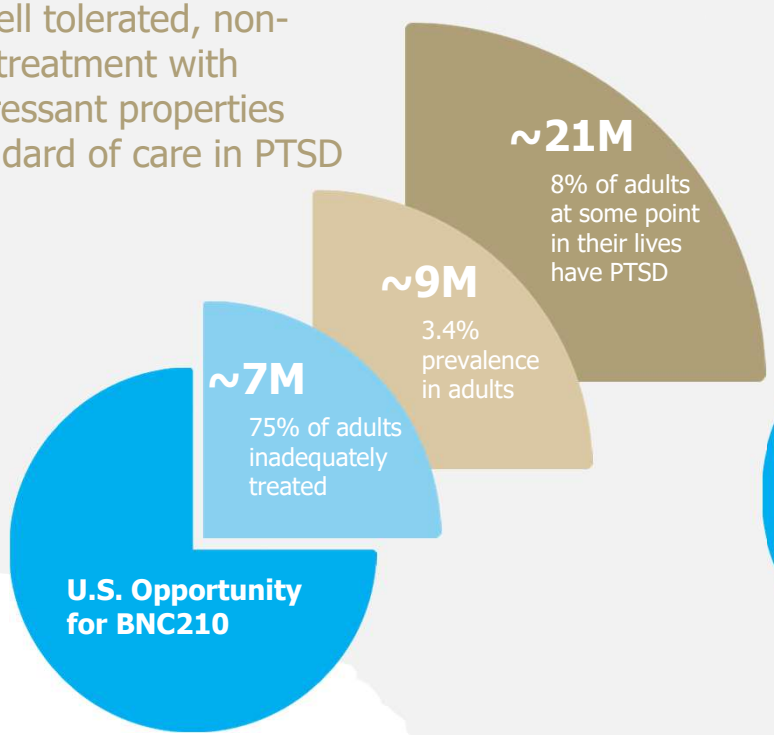
Secondary Endpoint: ISI Sleep Scores

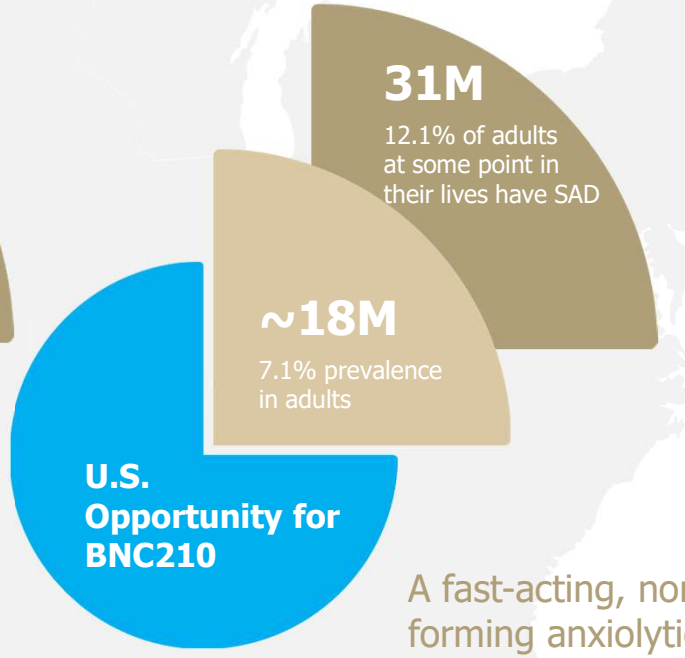


PTSD & Social Anxiety Disorder: Highly Prevalent Conditions with Significant Unmet Need

No new treatments for over 20 years, inadequately treated with approved SSRIs and limited competition

A novel, efficacious, well tolerated, non-scheduled, outpatient treatment with anxiolytic and antidepressant properties can transform the standard of care in PTSD





A fast-acting, non-sedating, non-habit-forming anxiolytic is considered the "holy-grail" for anxiety disorders

BNC210 has blockbuster potential in US annual peak sales

Based on 3rd party (Bluestar BioAdvisors) independent market analysis

Targeting a Large Segment of the Stress and Anxiety Market

Need for broad acting therapy with fast onset of action and improved safety profile compared to SoC

BNC210's Potential Advantages*[7]

	BNC210	Benzodiazepines† *Off-label use*	SSRIs / SNRIs§	Experimental Psychedelics
Fast Acting	✓	✓	X	X
No Sedation/No distortion of perception	✓	X	✓	X
No Withdrawal Syndrome	✓	X[1] ⚠	X[2,3]	X[8]
No Cognitive Impairment	✓	X[4]	✓	X[9,10]
No Suicidal Ideation/ Suicide Risk	✓	X[5]	X[6] ⚠	X[11,12]

⚠ FDA black box warning.

1. Soyka M. *N Engl J Med*. 2017. 2. Fava GA, et al. *Psychother Psychosom*. 2015. 3. Fava GA, et al. *Psychother Psychosom*. 2018. 4. Liu L, et al. *Front Psychiatry*. 2020. 5. Dodds TJ. *Prim Care Companion CNS Disord*. 2017. 6. Barbui C, et al. *CMAJ*. 2009. 7. Bluestar market research 2023. 8. Barbui C, et al. CMAJ. 2009. 9. Ward J, et al. J Clin Exp Neuropsychol. 2006. 10. Morgan CJ, et al. Addiction. 2012. 11. Wagner D, et al. Addiction. 2013. 12. Kim J, et al. Suicide Life Threat Behav. 2011.

*Potential benefits based on analysis of data from separate studies and not on results that might have been obtained from head-to-head studies. †Includes Valium and certain other benzodiazepines. §Includes Prozac and certain other SSRIs (Selective Serotonin Reuptake Inhibitors) / SNRIs (Serotonin-Norepinephrine Reuptake Inhibitors).

Summary & Next Steps

Clear evidence of efficacy demonstrated with path forward to registrational trials

BNC210 Summary

- Clear evidence of **clinically meaningful efficacy** across stress and anxiety disorders
- A fast-acting, non-sedating, non-habit-forming anxiolytic is considered the **"holy-grail" profile** for anxiety disorders
- **Only positive dataset in PTSD** with a novel MoA small molecule with a favorable safety and tolerability profile
- Opportunity for **single Ph3 trial** to registration **& Breakthrough Designation** in PTSD
- **Blockbuster** peak sales potential in PTSD and SAD
- **Strong IP coverage** extends beyond 2040

Next Steps

- Execute 1st Ph3 SAD Clinical Trial: First patient dosed expected in Q2 '24 and **readout in H2 2025**
- Meet with FDA to determine path forward in PTSD: **Q2 2024**
- Initiate Ph3 in PTSD in **Q4 2024**

Bionomics Pipeline Extends Beyond BNC210

Two Promising Preclinical Pipeline Programs with Lead Candidates Identified

BNOX Kv3.1 / Kv3.2 Ion Channel Activators

Small molecules for treatment of Cognitive Dysfunction and Negative Symptoms

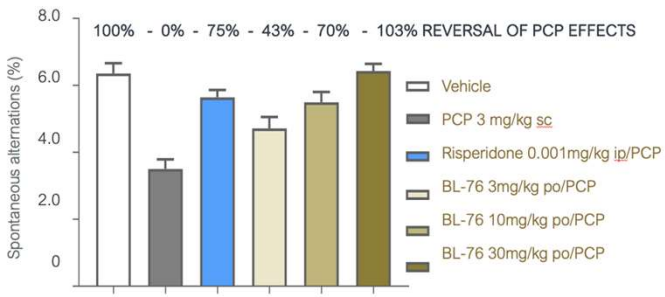
Bionomics' molecules target Kv3.1/3.2 ion channels on Parvalbumin (+), GABAergic interneurons in the PFC

Potential in schizophrenia, Autism Spectrum disorders and conditions with cognitive impairments

Lead Candidate Identified: BL-76

Two patented series with a multiple back-up compounds

Lead compound BL-76 fully reverses PCP-induced cognitive deficit in mice in the T-maze



BNOX Pan Nav Inhibitors

Small molecules with functional selectivity for voltage gated sodium channels: Nav1.7, Nav1.8 and potentially Nav1.9

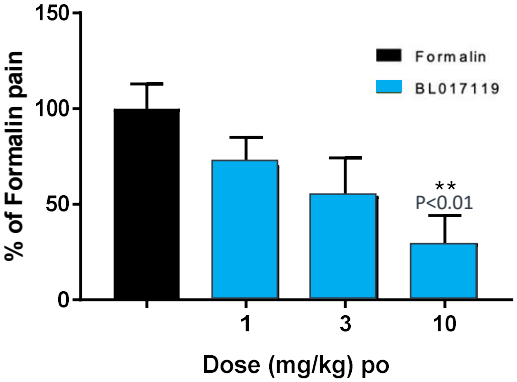
Potential non-addictive, reduced side-effect chronic pain therapies

Disease-related genetics: 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

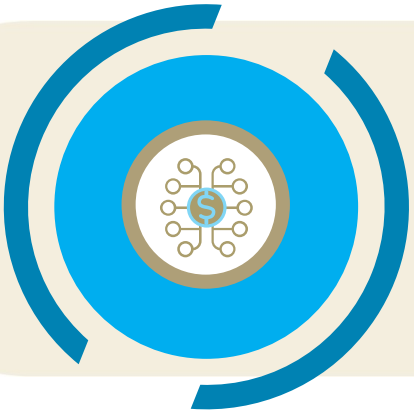
Lead Candidate Identified: BL-017881

Two Patented series with a multiple back-up compounds

Dose dependent pain reversal pain (up to 70%) in the formalin paw model in mice



Bionomics is Exploring Partnering Options for Late-Stage BNC210 Programs



Capital Markets/Equity Financing

- A capital raise of up to $70M was announced May 31st 2024 to enable seamless execution of our development plan in PTSD and SAD to important future milestones

Strategic Partnerships

- Focus on US co-development / co-commercialization for BNC210 in PTSD and potentially SAD
- Opportunity for full ex-US or regional licensing for BNC210

Thank you!