Bionomics

CREATING INNOVATIVE THERAPIES FOR SERIOUS HUMAN DISEASES.

Corporate Presentation

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Bionomics Overview

Bionomics is a global, clinical stage biopharmaceutical company leveraging its proprietary ion channel platform technologies to discover and develop a deep pipeline of best and first in class novel drug candidates focused on the treatment of serious ion-channel targeted central nervous system disorders and anti-cancer therapies.

- **Strategic partnership with Merck & Co., (MSD):**
  - Cognition therapeutic candidate entered clinical development and triggered US$10M milestone payment in deal valued up to US$506M in upfront, research and milestone payments plus additional royalties on net sales of licensed drugs
  - Merck & Co., equity investment in October 2015, 4.5% ownership

- **Lead candidate, BNC210, is a novel, orally-administered, first-in-class, modulator of α7 nicotinic acetylcholine receptor, in development for the treatment of anxiety and depression:**
  - Positive data from Phase 2 trial in Generalized Anxiety Disorder (GAD) patients reported in September 2016
  - Phase 2 trial in Post Traumatic Stress Disorder (PTSD) ongoing in Australia and US. Data anticipated H2, CY2018

- **Two clinical stage oncology assets positioned for monetization as strategic focus shifts to therapeutic candidates targeting ion channels:**
  - **BNC101** is a first-in-class anti-LGR5 antibody targeting cancer stem cells, in development for the treatment on colon cancer and other solid tumours
    - Ongoing Phase 1 trial in colon cancer patients, recommended Phase 2 dose identified with no safety or tolerability concerns; biomarker data in CY2017
  - **BNC105** in development for the treatment of both solid and blood cancers
    - Novartis funding biomarker study in renal cancer, US investigator initiated clinical trial in patients with Chronic Lymphocytic Leukemia and Keytruda combination trial in melanoma patients (grant funded)
- **Financials: Market Cap** ~AUD221.7M as at 6 October 2017; **Cash** at 30 June 2017 A$42.87M; **FY17 revenue and other income** A$28.25M; **Operating loss after tax** A$6.75M (30 June 2017)

Clinical Progression of Cognition Drug Candidate in Merck Collaboration Provides Technical Validation

Partnership with Merck & Co in cognition generated US$20M in upfront payment in 2014, research funding 2014-2017 and US$10M first clinical milestone in February 2017

Deal valued up to US$506M in upfront, research and milestone payments plus additional royalties on net sales of licensed drugs

BNC210 Overview: Novel, Best-in-Class Modulator of α7 Nicotinic Acetylcholine Receptor

Mechanism of Action	• Negative allosteric modulator of α7 nicotinic acetylcholine receptor, a ligand gated ion channel
Target Indications	• Anxiety (Generalized Anxiety Disorder or GAD & Post Traumatic Stress Disorder or PTSD) • Potential for other CNS indications
Ongoing Clinical Trials	• Phase 2b multi-centre trial in PTSD initiated Q2 2016 calendar year
Completed Clinical Trials	• 6 completed Phase 1 trials in > 200 healthy subjects • Demonstrated safety and tolerability; no sedation, cognitive impairment or impaired motor co-ordination; suppressed symptoms of CCK4 induced panic; target engagement in human brain demonstrated • ***Phase 2 in GAD patients*** met co- primary endpoints; low dose BNC210 outperformed Lorazepam, measured by cerebral perfusion and degree of amygdala activation • Secondary endpoint met; high and low dose BNC210 outperformed Lorazepam in an anxiety provoked behavioural task

BNC210: Next Generation Drug Candidate with Potential to Treat Anxiety & Depression

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 and other BZD	X	X	X	✓	✓	X
Prozac and certain other SSRI/SNRI	✓	X	✓	X	X	✓

Anxiety Treatments

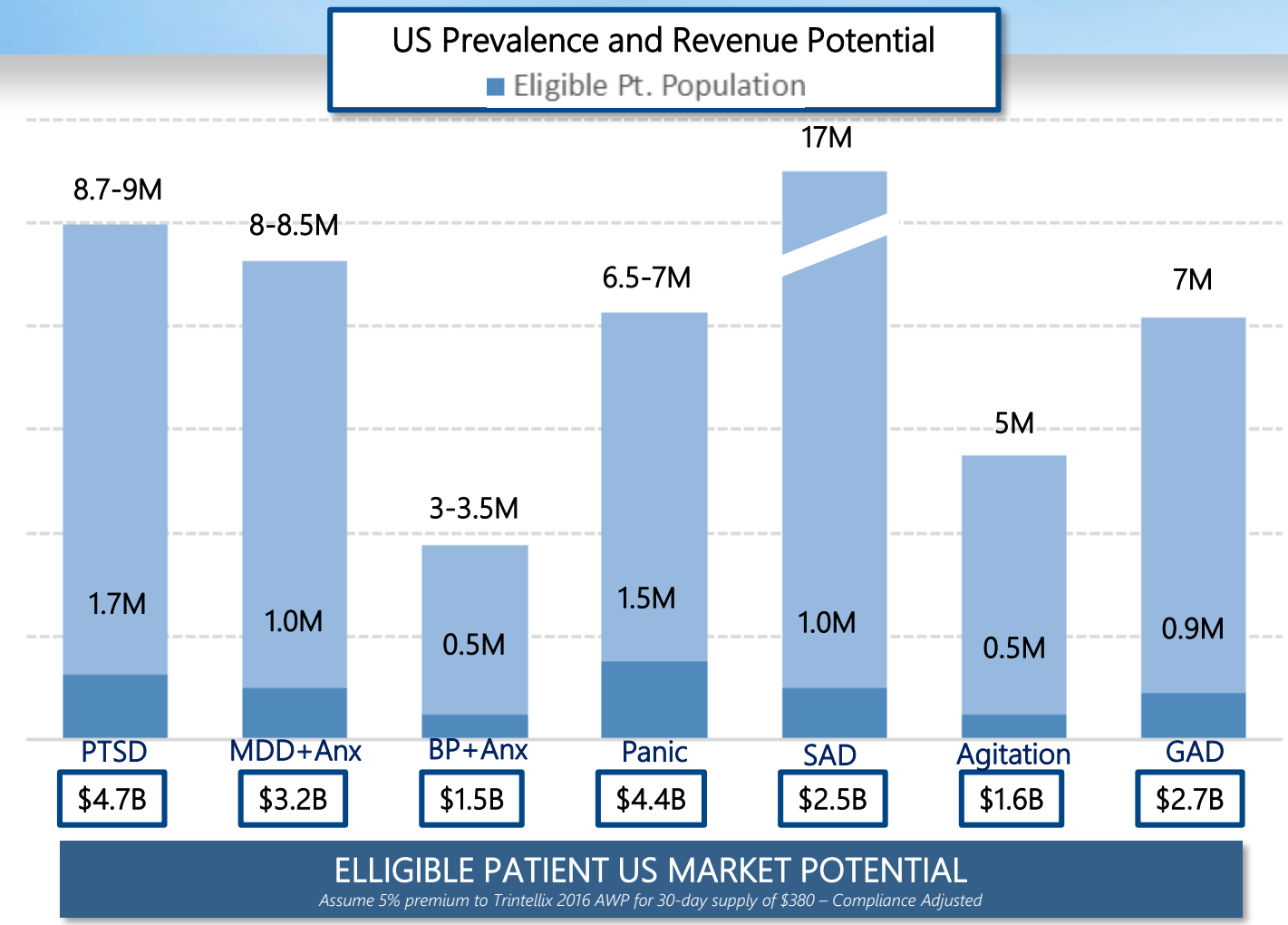
- Dominated by benzodiazepines
- Associated with sedation, abuse liability, tolerance and cognitive disturbances
- Not recommended for long-term treatment

Depression Treatments

- SSRIs and SNRIs used to treat depression and anxiety
- Modest efficacy, late onset of action, discontinuation, weight gain, sexual dysfunction and increased thoughts of suicide in adolescents
- Many have black box warnings

*Based on data from preclinical studies and Phase 1 clinical trials.

BNC210 Targets Multi-Billion Dollar Markets with Unmet Need



- ✓ *Innovative, first-in-class*
- ✓ *Unmet need in large patient population*
- ✓ *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% dementia prevalence >40yrs., ~9% agitation patients diagnosed and treated
[7] 3.1% GAD prevalence, assumes ~25% diagnosed and treated, ~50% of SSRI patients treated are partial responders or relapsers

Insufficient PTSD Treatment Landscape

An estimated 2.8M benzodiazepine scripts are written off-label for the management of PTSD symptoms

- Sertraline (Zoloft) and paroxetine (Paxil) are only FDA approved anti-depressants drugs for PTSD.
- VA/DoD recommend fluoxetine (Prozac) & venlafaxine (Effexor) as first-line treatments.
- VA/DoD 'Practice Guideline for PTSD' recommends *against* the use of benzodiazepines (BZDs) such as Valium for PTSD.
- Evidence is mounting on harms associated with chronic benzodiazepine use in PTSD patients.
- Despite lack of efficacy, addictive potential and other harms associated with chronic use, BZDs are still over-prescribed.
- There is 50% increase in overall mortality rates associated with long-term benzodiazepine use in PTSD patients– overdosing, sudden unexplained deaths, car crashes, falls.
- VA has several initiatives in place to reduce use of BZDs among patients with PTSD.
- BNC210 may represent a potential opportunity to displace current therapies and expand market.

Phase 2 Trial in Post Traumatic Stress Disorder (PTSD) – Ongoing in Australia and US, Data Anticipated Mid CY18

restore

Subjects	• 192 PTSD Patients
Protocol	• Double-blind, placebo controlled, randomized, multi-centre • 4 arms, 1 placebo, 3 BNC210 dose level treatment arms • 12 weeks, twice daily oral treatment
Primary Objective	• To determine whether BNC210 causes a decrease in symptoms of PTSD as measured by CAPS-5
Secondary & Exploratory Endpoints	• To determine the effects of BNC210 on anxiety (HAM-A), depression (MADRS) and cognitive functions • Correlation of genotype and imaging pharmacodynamics markers

PTSD is a risk factor for depression, alcohol or substance abuse, absenteeism/unemployment, homelessness, violent acts, suicidal thoughts and suicide

Outlook & Milestones

- Continue recruiting patients in ongoing Phase 2 trial of BNC210 in patients with PTSD with data expected in 2H18.
  - Explore partnership options and pathways for broader Phase 2 development of BNC210.
- Work closely with MSD, enabling MSD to reach milestones and demonstrate Bionomics' strength in drug discovery.
  - ✓ Cognition therapeutic candidate entered clinical development triggering a US$10M milestone payment in February 2017.
- Add additional strategic partnerships, monetize "off strategy" clinical stage oncology assets
- Phase 1 BNC101 trial results in patients with colon cancer Q2 and Q3 2017
  - ✓ 2Q17: Recommended Phase 2 dose level with no safety or tolerability issues identified, patient numbers at this dose level expanded. Biomarker data in 3Q17.
- Financials: Market Cap as at 6 October 2017 ~A221.7M; Cash at 30 June 2017 A$42.87M
  - ✓ Well funded to complete ongoing clinical trials

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