



Investor Presentation

11 January 2016

Forward looking statements

This presentation contains forward looking statements that involve risks and uncertainties. Although we believe that the expectations reflected in the forward looking statements are reasonable at this time, Neuren can give no assurance that these expectations will prove to be correct. Actual results could differ materially from those anticipated. Reasons may include risks associated with drug development and manufacture, risks inherent in the regulatory processes, delays in clinical trials, risks associated with patent protection, future capital needs or other general risks or factors.

Company snapshot

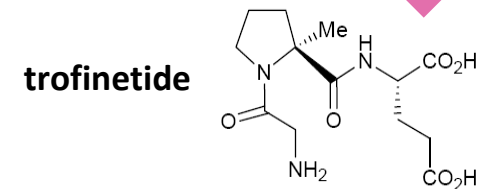
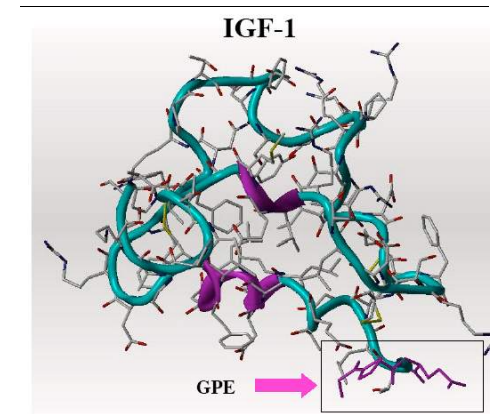
- ▣ Stock code ASX: NEU – market cap approximately A\$200 million
- ▣ Developing treatments for chronic and acute neurological conditions
 - Large markets with no therapies currently available
 - Orphan drug designation and potential for abbreviated regulatory pathways
- ▣ Lead drug candidate trofinetide
 - In development for Rett syndrome, Fragile X syndrome, Traumatic Brain Injury and Concussion
 - Excellent safety and tolerability profile to date
 - Pattern of clinical improvement observed in both Rett syndrome and Fragile X syndrome Phase 2 trials
 - Clinical effects consistent with its known biological actions on brain function
- ▣ Key strategic relationships
 - US Army Medical Research & Materiel Command
 - International Rett Syndrome Foundation (Rettsyndrome.org)
 - FRAXA and National Fragile X Foundation

Strategy

- Demonstrate the therapeutic benefit of trofinetide in human subjects in both acute and chronic conditions
- Potential to establish a “gateway” to autism and other neurodevelopmental disorders
- Criteria for selecting therapeutic targets
 - Significant unmet need and commercial opportunity with no approved drugs
 - Regulatory advantages – candidates for *Fast Track*, *Orphan Drug*, *Breakthrough Therapy*
 - Strong support from advocacy groups and other stakeholders
- Realising value
 - Generate clinical data with trofinetide in Phase 2 clinical trials
 - Define optimum pathway towards New Drug Applications
 - Optimise manufacturing process for commercial product supply
 - Engage with potential partners

Scientific foundation

- ❑ **IGF-1** is a naturally occurring growth factor in the brain
- ❑ Glypromate (**GPE**) separates from IGF-1 in the brain
- ❑ IGF-1 and GPE maintain and restore equilibrium in the brain
- ❑ **Trofinetide** is a synthetic analogue of GPE with a longer half-life, better stability and suitability as an oral medication
- ❑ **Trofinetide** influences the processes in impaired development and injury of the brain
 - Inflammation
 - Microglial function
 - Synaptic plasticity (inter-neuronal communication)
- ❑ **NNZ-2591** is in the same class of peptides, with higher bioavailability and potential for a solid oral dosage form
- ❑ **Trofinetide** and **NNZ-2591** both potentially treat a wide range of neurological conditions



Current trofinetide development programs

ACUTE

(Injury)

Moderate to severe
Traumatic Brain Injury (TBI)
Phase 2 trial results due April 2016

Mild TBI (Concussion)
Phase 2 trial enrolling

CHRONIC

(Neurodevelopmental)

Rett syndrome
Phase 2 trial completed

Fragile X syndrome
Phase 2 trial completed

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Trofinetide in Rett syndrome

- Non-inherited mutation in a gene on the X chromosome - 1 / 10,000 females
- Most physically disabling of the autism spectrum disorders - symptoms include:
 - Intellectual disability, loss of speech and motor control
 - Compulsive hand movements
 - Disorders of breathing and cardiovascular function
 - Muscle rigidity
 - Seizures
- Profound disability and financial burden for patients and families
- No approved treatments available
- Trofinetide in Rett syndrome:
 - Successful Phase 2 trial with a defined pathway towards New Drug Application
 - Orphan Drug designations granted by FDA and EMA
 - Fast Track designation granted by FDA

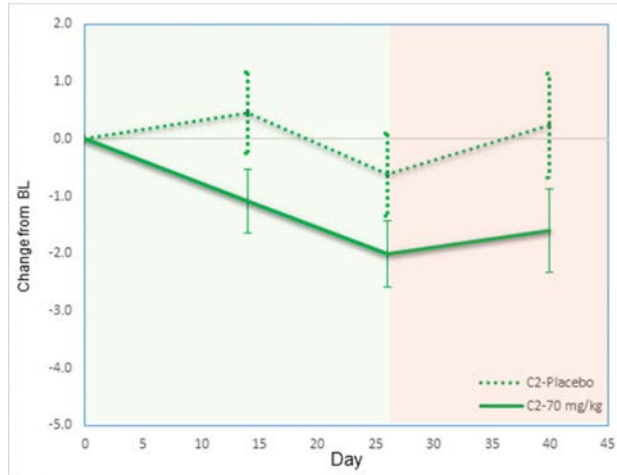


Phase 2 trial highlights

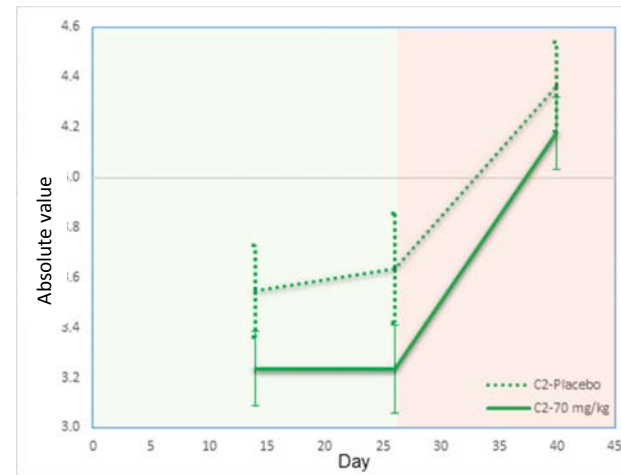
- Double-blind, placebo-controlled Phase 2 trial of 28 days of treatment with two dose levels (35 mg/kg and 70 mg/kg of body weight twice daily)
- 56 subjects aged 16 to 45 years randomized, with 53 subjects completing the trial
- Both dose levels were well tolerated and no safety concerns were identified
- Higher dose exceeded the pre-specified criteria for improvement in core efficacy measures compared with placebo
- Both doses showed trends of increasing effect with duration of treatment
- The clinical improvement in the trial encompassed core symptoms of Rett syndrome and was observed in both clinician and caregiver assessments

Core efficacy measures that met target

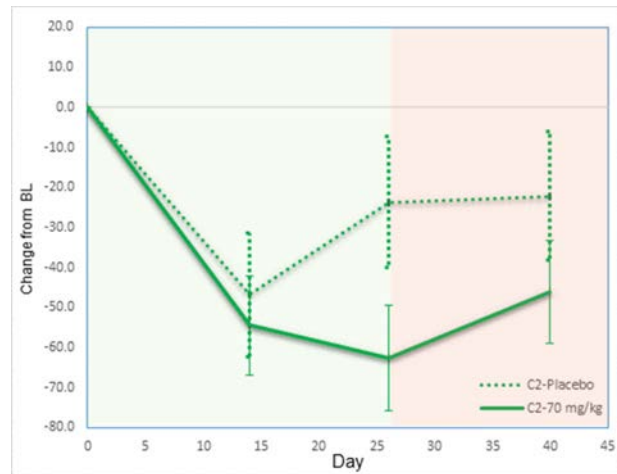
Motor Behavior Assessment Change Index



Clinical Global Impression of Improvement



Caregiver Top 3 Concerns



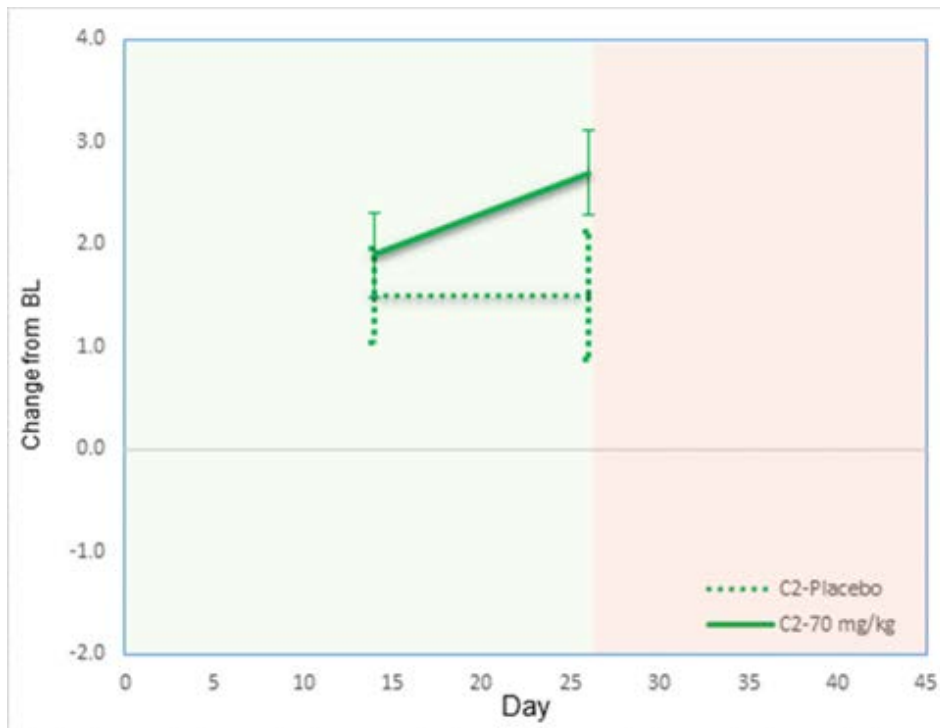
- Analysis of group mean values
- Solid line is 70mg/kg, dotted line is placebo
- The two different shaded areas indicate the treatment period and the period post-cessation of treatment
- A negative value on the y-axis indicates clinical improvement

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Subject-level efficacy analysis

Mean subject-level efficacy score



- ❑ Solid line is 70mg/kg, dotted line is placebo
- ❑ The two different shaded areas indicate the treatment period and the period post-cessation of treatment
- ❑ A positive value on the y-axis indicates clinical improvement
- ❑ Changes in all 6 core efficacy measures for each subject were combined in an efficacy score
- ❑ Mean efficacy scores were then compared with placebo

Remaining development for Rett syndrome

- Meaningful guidance in all areas of development program from FDA meeting
- Neuren and FDA committed to reach agreement quickly on primary efficacy endpoint for pivotal trials, to be derived from the Motor Behavior Assessment (MBA)
 - MBA has been used to assess over 1,100 children, adolescents and adults with Rett syndrome enrolled in the Rett Natural History Study, a study sponsored by the NIH
 - MBA demonstrated clinical improvement after 28 days' dosing in Neuren's Phase 2 trial
- Neuren designing a single Phase 3 clinical trial to support a New Drug Application for trofinetide to treat Rett syndrome
- In 2016, Neuren will conduct a pediatric Phase 2 trial, supported by funding of up to US\$1 million from key advocacy group, rettsyndrome.org
 - test higher doses for 6 weeks in children and adolescents with Rett syndrome
 - confirm the optimum dose levels for the subsequent Phase 3 trial

Trofinetide in Fragile X syndrome

- Inherited mutation on the X chromosome – full mutation causes Fragile X syndrome
 - 1 / 4,000 males and 1 / 6,000 females estimated to have full mutation
 - More severe in males, ~50% of females have some features of the syndrome
- The most common inherited cause of intellectual disabilities and the most common known cause of autism - symptoms include:
 - Intellectual disabilities
 - Anxiety and unstable mood
 - Seizures (approximately 1 in 4)
 - Attention deficit, hyperactivity and autistic behavior



- No approved treatments available

- Trofinetide in Fragile X syndrome:

- Consistent pattern of clinical improvement in Phase 2 trial
- Orphan Drug designations granted by FDA and EMA
- Fast Track designation granted by FDA

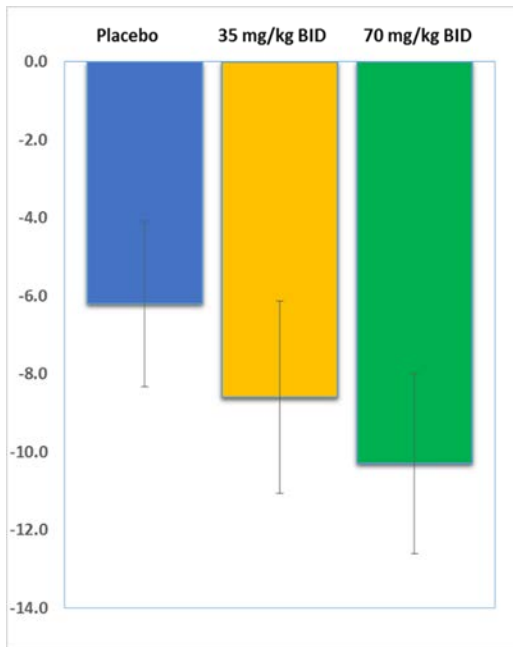


Phase 2 trial highlights

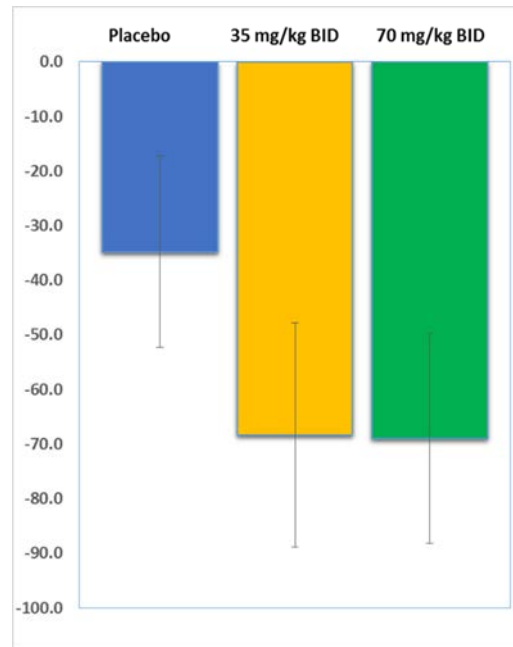
- Double-blind, placebo-controlled Phase 2 trial of 28 days of treatment with two dose levels (35 mg/kg and 70 mg/kg of body weight twice daily)
- 70 subjects aged 12 to 45 years received treatment, with 68 subjects completing the trial
- Both dose levels were well tolerated and no safety concerns were identified
- Higher dose exceeded pre-specified targets and demonstrated a consistent pattern of clinical improvement, observed in both clinician and caregiver assessments
- Improvements across a range of core symptoms of Fragile X syndrome were captured by Fragile X-specific measures as well as by the Aberrant Behavior Checklist (ABC)
- Improvements observed with the low dose were less consistent and did not meet pre-specified targets, but there was evidence of a dose response
- Next step to study longer treatment, higher doses, younger subjects
- Drug development plan to be discussed with FDA in H1 2016

Core efficacy measures that met target

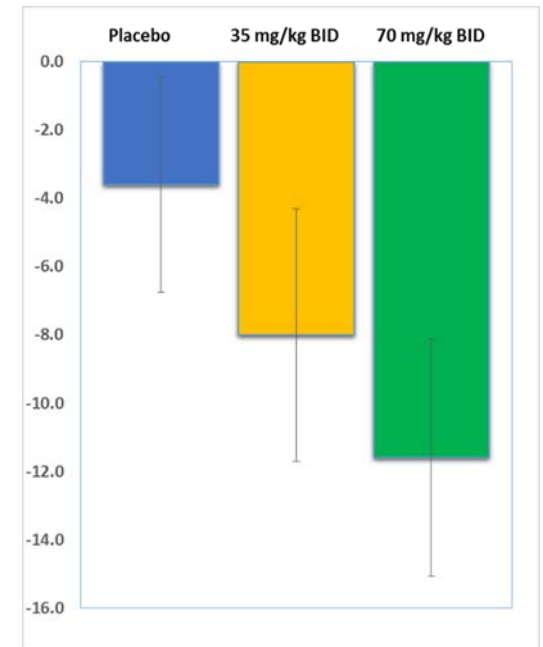
Fragile X Syndrome Rating Scale



Fragile X Domain Specific Concerns



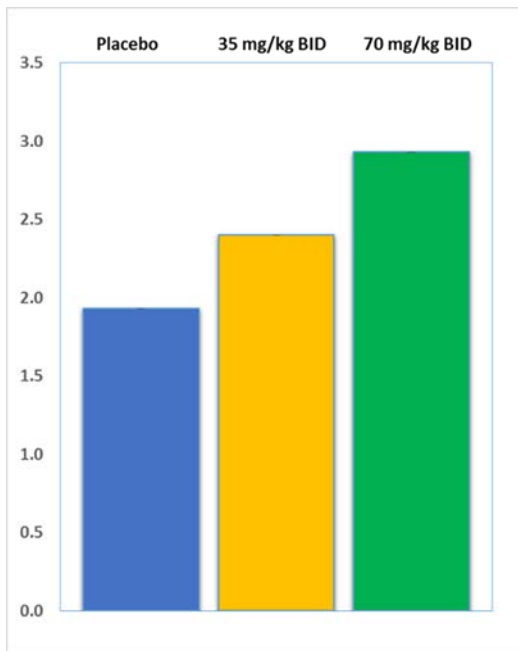
Aberrant Behavior Checklist (ABC) Total Score



- ❑ Analysis of mean clinical responses at end of treatment for each treatment group
- ❑ A negative value on the y-axis indicates clinical improvement

Subject-level efficacy analysis

Mean of individual subject scorecards



- A positive value on the y-axis indicates clinical improvement
- Changes in all 5 core efficacy measures at end of treatment were combined in an efficacy score for each subject
- Mean efficacy scores were then calculated for each treatment group

Trofinetide in Traumatic Brain Injury (TBI)

- > 1.5 million head injuries annually in the US alone; >75% are mild (Concussion)
- Leading cause of death and disability, especially in young and elderly
- Serious health and economic effects of Concussion in sporting codes
- Partnership funding of ~US\$25 million received from US Army
- Phase 2 trial (“INTREPID”) in moderate to severe TBI
 - Safety and efficacy of treatment with intravenous NNZ-2566 for 72 hours
 - Enrolment of 260 subjects completed; top-line results expected in April 2016
 - “Fast Track” designation granted by FDA
- Phase 2 trial in mild TBI (Concussion)
 - Safety and efficacy of treatment with two dose levels of oral NNZ-2566 for 7 days
 - 132 subjects with mild TBI to be enrolled at US military training facility and civilian hospitals
 - Trial timeline under review

Other development activities for trofinetide

- Manufacturing process for pivotal trials, New Drug Application (NDA) and commercial supply
 - Optimisation and scale-up of API synthesis
 - Commercial finished drug product
 - Investment will be completed in H2 2016
- Chronic toxicity studies required for NDA's will commence in H1 2016
- Investments in manufacturing and toxicity studies will benefit NDA's for all trofinetide indications

Trofinetide commercial exclusivity

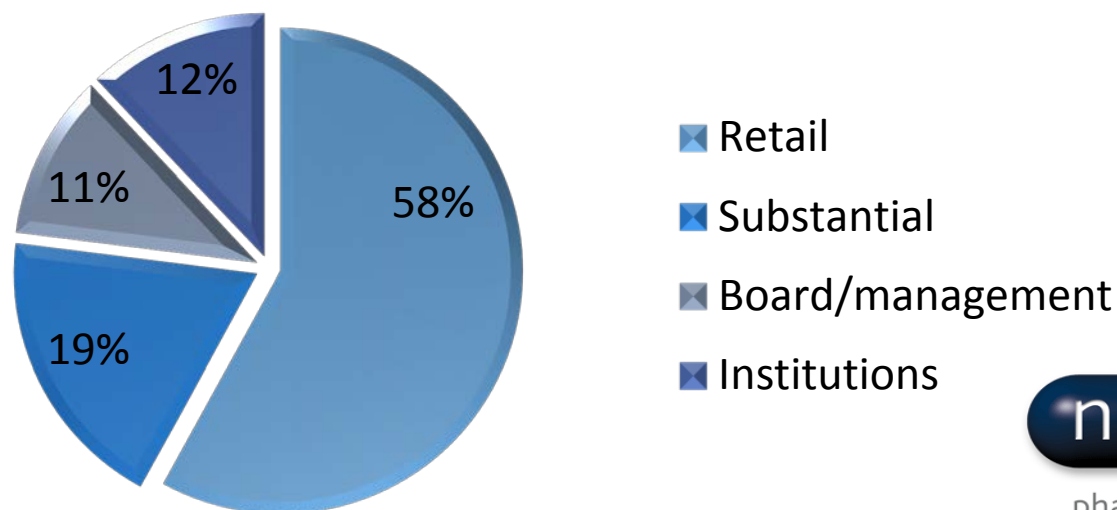
- Issued composition of matter patents for trofinetide owned by Neuren
 - US – expires 2022, potential to extend to 2026
 - Europe – expires 2022, potential to extend to 2027
- Exclusivity periods from orphan drug designation for trofinetide in Rett syndrome and Fragile X syndrome
 - US – 7 years from marketing authorization, potentially plus 6 months if approved for pediatric use
 - European Union – 10 years from marketing authorization, potentially plus 2 years if approved for pediatric use
- Method of treatment applications for trofinetide in autism spectrum disorders
 - Issued US patent for Rett syndrome – expires 2032
 - Other applications pending in US, Europe and other territories

Second drug candidate: NNZ-2591

- Like trofinetide, NNZ-2591 has demonstrated potential utility across a broad range of neurological conditions
- Cyclic dipeptide with higher oral bioavailability, improved stability and potential for oral solid dosage form
- Shown efficacy in pre-clinical models of Parkinson's disease, stroke, traumatic brain injury, peripheral neuropathy, Fragile X syndrome, memory impairment and multiple sclerosis
- Issued composition of matter patents in US, Europe and Japan, expiring in 2024, with potential to extend to 2029
- Issued US patents for methods of treating Parkinson's disease, peripheral neuropathy and cognitive impairment; international applications pending for method of treating autism spectrum disorders

Shareholdings and financial position

Cash reserves at 30 November 2015:	A\$17.6m
Shares outstanding:	1.76 billion
Options/EPR's outstanding:	79 million
Closing price 8 January 2016:	11.5 cents
52 week range:	7.4 cents – 18.5 cents



Neuren milestones for 2016

Commence Rett syndrome pediatric Phase 2 trial	Q1 2016
Top-line results for <i>INTREPID</i> Phase 2 trial	April 2016
FDA meeting on Fragile X syndrome remaining development	H1 2016
Complete Rett syndrome pediatric Phase 2 trial	Q4 2016
Complete commercial manufacturing optimisation and scale-up	H2 2016