Neuren Pharmaceuticals
AGM
28 May 2009
Agenda

1. Chairman’s introduction
2. Key achievements in 2008/2009
3. Perseis Therapeutics
4. Glypromate® trial results
5. NNZ-2566
6. Corporate strategy
Key achievements in 2008/09

- **Early completion of Glypromate® trial**
  - Glypromate® trial was completed with 325 patients in December 2009
  - Glypromate® had no observable effect in patients undergoing cardiopulmonary bypass surgery and development has been discontinued

- **NNZ-2566**
  - Additional US Army funding confirmed to support continued clinical development
  - US IND is open and clinical trial sites are being prepared to start recruitment in Q3, 2009

- **Perseis Therapeutics**
  - A company has been established to commercialise Neuren IP in the TFF 1, TFF3 and Growth Hormone fields

- **Operations**
  - Larry Glass to take over as CEO of Neuren Inc and Neuren Pharmaceuticals
  - Parmjot Bains to step down from Co-CEO role in Neuren to manage Perseis Therapeutics
  - Pipeline and IP protection maintained through year
Company Shareholders and Management

• 2 Founding Shareholders
  – Neuren Pharmaceuticals contribution of the TFF 1, TFF 3 and Growth Hormone IP
  – BCRT providing NZD$1.18M year 1 seed funding

• CEO Dr Parmjot Bains
Antibody Therapeutics

- Trefoil Factors (TFF 1 and 3) and Growth Hormone are critical regulators of cell functions leading to breast cancer progression
- Clinically validated targets, expression correlated with disease/outcome
- Polyclonal antibody proof of principal obtained
- Monoclonal antibody production is underway
Trefoil Factors 1,3

- Members of the trefoil factor family
- Produced as estrogen regulated local growth factors
- Local increased expression in mammary, prostate, gastric, liver and pancreatic carcinoma
- Independent predictive/prognostic factors in carcinoma
Antibody neutralisation of TFF-3 reduces xenograft tumour volume
Presence of anti-hGH IgY (polyclonal antibody) in media significantly decrease cell viability of cancer cells

*p-value <0.001*
Development Objectives

Seed Funding (Yr 1)

- Monoclonal antibody in-vivo proof of concept at the end of year 1 in the three targets

Milestone

- Phase I/II Human Clinical Signal

Outlicensing/ co-development/ external capital
Market Potential

• Promising candidates for molecularly targeted cancer therapeutics
  – Oncology third largest pharmaceutical market expected to grow to $60bn in 2010
  – Molecularly targeted drugs (mAbs) are a validated approach (e.g. Biogen-Idec/Roche's MabThera, OSI/Genentech/ Roche's Herceptin and Novartis' Glivec)
  – Are likely to constitute a significant proportion of the top 20 anticancer drugs by 2014
  – Avastin 2008 Sales US$2.9Bn with 17% increase year on year
  – Herceptin 2008 Sales US$1.8Bn with a 7% increase year on year

• Targeting a large and unmet need
  – Target up to 90% of breast cancers
  – Addresses critical niche indications, such as tamoxifen resistance

• Opportunities for early partnerships, as confirmed by EU pharma deal for TFF-1

Early Stage Deal Potential

USD

Bio Out-L to ‘BigCo’
Payments in Early Stage Deals since 2003

Glypromate® trial results

• Trial was completed early and on budget in December 2008 with 325 patients recruited

• Only a small proportion of patients (approximately 20%) showed cognitive decline at 12 weeks compared to before surgery and virtually all decline observed was minimal

• Accordingly, there was no significant “injury” for Glypromate® to treat

• To the contrary, approximately 80% of patients in both the placebo and Glypromate® groups actually showed improvement in cognitive function post surgery

• No difference in incidence of adverse events

• Mortality rate was 0.59% for Glypromate® group vs. 3.59% for placebo group (p=0.067; not statistically significant . . . but interesting)

• Glypromate® development has been discontinued in favour of NNZ-2566
**NNZ-2566**

- **NNZ-2566 Phase II trial in Moderate-Severe TBI**
  - Phase II trial (260 moderate to severe TBI patients) to be initiated Q3 2009
  - Interim analysis after 100 patients completed expected Q2 2010
  - Top-line results expected by Q2 2011
  - With strong positive results, single pivotal trial is possible; could commence 2011
  - Possible rolling NDA submission under Fast Track procedures beginning in 2013

- **US IND**
  - IND opened in March 2009
  - Fast Track designation requested; approval considered virtually certain
  - FDA indicated that a single pivotal trial is possible with strong Phase II results
  - FDA requested inclusion of female patients; additional studies required

- **Operational progress**
  - 7 sites confirmed (of 12 total expected); IRB submissions completed
  - CROs selected and contracts negotiated
  - Clinical trials manager on board full time (Geneva Foundation employee)
  - Start up investigators meeting in July
  - Patient enrollment expected to begin in August
NNZ-2566 TBI protocol overview

• 260 acute TBI patients (Glasgow Coma Scale 4-12)
• Stratified 2:1 moderate (GCS 9-12) to severe (GCS 4-8)
• Randomized 2:1 drug to placebo
• Administration of drug within 8 hours of injury
• 3 cohorts - 20 mg/kg bolus followed by 1, 3 or 6 mg/kg/hr infusion for 72 hrs.
• Interim efficacy analysis at 100 patients
• Endpoints
  – Primary: safety
  – Secondary
    • Efficacy: Glasgow Outcome Scale-Extended; ADL; neurocognitive function; mood (all at 30 and 90 days);
    • Biological effect: continuous EEG (non-convulsive seizures, epileptiform discharge); biomarkers of inflammatory, apoptotic and necrotic gene expression; intracranial pressure
    • Pharmacokinetics
Opportunity in TBI

- 1.5 million head injuries per year in the US
- 850,000 mild-moderate, 155,000 severe
- $50b in direct and indirect costs
- No approved therapy
- Few drugs in development, none for mild-moderate
Corporate Strategy

• Focus on NNZ-2566 program, leveraging US Army funding to accelerate development

• Aggressively seek project-specific funding (e.g. Perseis, US Army) to enhance shareholder value

• Progress other programs only with access to non-dilutive grants and partnerships

• Continue lean, quasi-virtual operating structure
Update on Army Funding

- Neuren was invited to submit a proposal to the US Army Medical Research & Materiel Command (USAMRMC) including:
  - Phase II trial in patients with moderate to severe traumatic brain injury (TBI)
  - Proof of concept study in patients with mild TBI
  - Additional studies required to initiate a pivotal trial
    - Segment I and II reproductive toxicology studies
    - Phase I safety/pharmacokinetic study in female volunteers
    - Thorough QTc (cardiovascular safety) study
- Total funds requested: US$14.2m incremental to $4.5M awarded to date
- Proposal was peer reviewed by an independent expert panel from the Army, Veterans Affairs, NIH, academia and industry
- Proposal has been approved by the panel and Army program managers
- Negotiating final Cooperative Agreement—award expected by early June
- Agreement will be in effect from Q2 2009 to Q3 2011
- Authorisation received to incur pre-award costs
- New funding is in addition to the previously announced US$4.5m award to the Geneva Foundation under the Congressionally Directed Medical Research Program (CDMRP)
- Cooperative Agreement plus CDMRP funding expected to cover ~85% of total costs

- Funding is for development up to pivotal trial, not just Phase II
Anticipated Milestones: 2009 - 2011

• **NNZ-2566**
  – Initiation of Phase II trial Q3 2009
  – Interim analysis after 100 patients completed expected Q2 2010
  – Top-line results expected by Q2 2011

• **Perseis**
  – Proof of principle for monoclonal antibodies by mid 2010
  – Licensing/development of at least one antibody target by mid 2010

• **Motiva**
  – Initiation of Phase IIb trial in post-stroke apathy and depression (grant application pending)
  – Initiation of Phase IIa trial in apathy and depression in Parkinson’s disease (grant application pending)

• **NNZ-2591/NRPs**
  – Establish license or collaboration agreement
Neuren Contact Information

Larry Glass, CEO
Tel: +1 (301) 941 1830
Fax: +1 (301) 920 1915

Neuren Pharmaceuticals Inc and Hamilton Pharmaceuticals Inc USA
3 Bethesda Metro Center, Suite 700
Bethesda, Maryland 20814
USA

Dr Parmjot Bains, CEO
Tel: +61 (2) 9880 8630
Fax: +64 (9) 361 7981

Perseis Therapeutics Limited

Neuren Pharmaceuticals Limited

Level 2, 57 Wellington Street,
Freeman’s Bay, Auckland
New Zealand

PO Box 9923
Newmarket, Auckland
New Zealand