



Halting Parkinson's with cell therapy

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SAFE HARBOUR STATEMENT



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There can be no assurance that any existing or future regulatory filings will satisfy the FDA's and other health authorities' requirements regarding any one or more product candidates nor can there be any assurance that such product candidates will be approved by any health authorities for sale in any market or that they will reach any particular level of sales. In particular, management's expectations regarding the approval and commercialisation of the product candidates could be affected by, among other things, unexpected clinical trial results, including additional analysis of existing clinical data, and new clinical data; unexpected regulatory actions or delays, or government regulation generally; our ability to obtain or maintain patent or other proprietary intellectual property protection; competition in general; government, industry, and general public pricing pressures; and additional factors that involve significant risks and uncertainties about our products, product candidates, financial results and business prospects. Should one or more of these risks or uncertainties materialise, or should underlying assumptions prove incorrect, actual results may vary materially from those described herein as anticipated, believed, estimated or expected.

LCT is providing this information as of the date of this presentation and does not assume any obligation to update any forward-looking statements contained in this document as a result of new information, future events or developments or otherwise.



The company

Strong financial foundation



Key statistics

Ticker code	ASX: LCT
Share price 14 February 2017	OTCQX: LVCLY
Share price range last 12 months	\$0.11
Shares on issue	\$0.048-0.13
Market capitalisation	570,606,391
Cash position 31 December 2016	\$63m
Net operating cash burn 6 months to 31 December 2016	\$8.6m
	\$2.4m

Share register at 13 February 2017

Top 20	56%
Total number of shareholders	2,632
Geographic shareholding split	
Australia	51%
New Zealand	35%
Japan	4%
Other	10%



Parkinson's disease

Parkinson's disease

- ❖ Parkinson's disease (PD) is a progressive neurological condition characterised by a loss of brain cells that produce dopamine (a neurotransmitter that conveys messages between brain cells to ensure effective movement and planning of movement) as well as a range of other types of neurons.

Parkinson's disease

- ❖ People with PD experience reduced and slow movement (hypokinesia and bradykinesia), rigidity and tremors
- ❖ 7–10 million people living with PD worldwide
- ❖ Incidence of PD increases with age, but 19% diagnosed aged 15–64 and withdraw from workforce

Opportunity for first Parkinson's disease-modifying drug

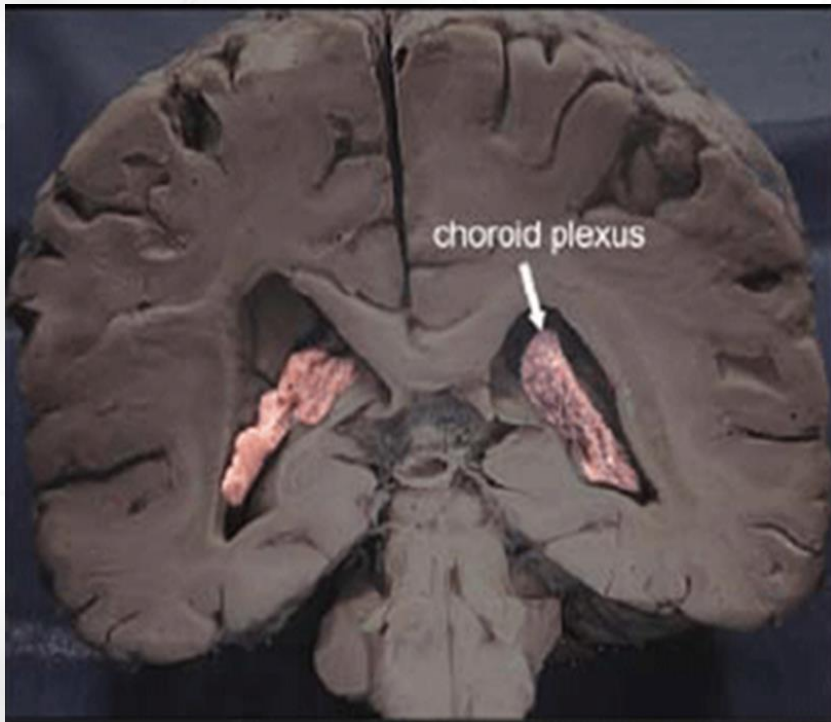


- ❖ Symptomatic treatments available
 - but have a limited duration of efficacy
- ❖ No disease modifying treatment or cure currently available
- ❖ PD drug sales totalled \$US 2.4B in 2014. All symptomatic treatments
- ❖ Levodopa – “gold standard” – 50 years old



NTCELL for Parkinson's disease

Product: NTCELL treatment is implantation of encapsulated choroid plexus cells into the brain



Choroid plexus:

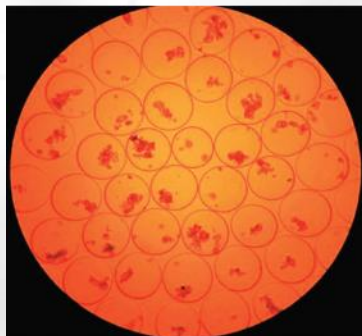
- Secretes cerebrospinal fluid (CSF)
- Provides neurotrophic factors
- Provides neuroprotective factors
- Removes toxin (drugs, metals, etc.)
- Clears waste products

NTCELL is encapsulated choroid plexus cells

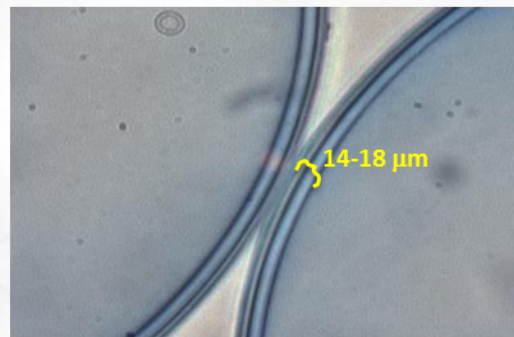


❖ Designated pathogen-free herd of Auckland Islands pigs

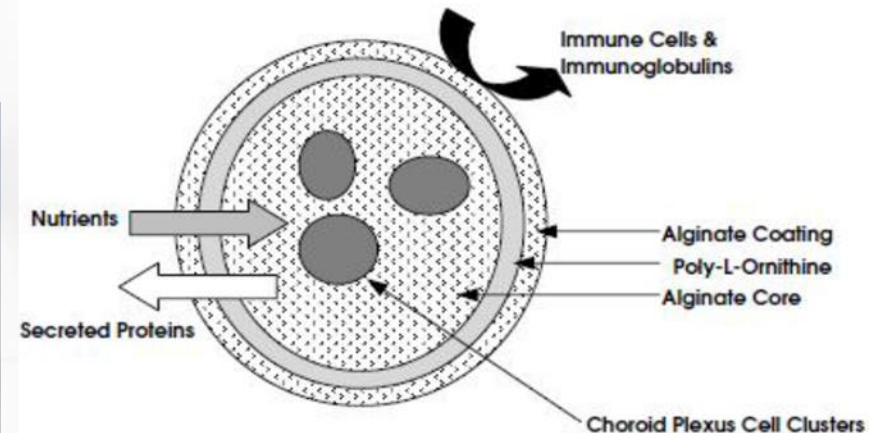
- Surgical removal of the brain from anaesthetised and exsanguinated pathogen-free animals
- Enzyme digestion by collagenase and protease to make choroid plexus (CP) cell-free clusters
- CP cell-free clusters entrapped in calcium-alginate gel, coated in positively charged poly-L-ornithine and then layered with an outer coat of alginate



NTCELL alginate microcapsules containing porcine choroid plexus cells



Diameter: ~ 600nm



The structure of the alginate microcapsules containing CP cells. The membrane excludes large globular proteins (>80,000 Da) and all cells, but nutrients, oxygen and carbon dioxide can diffuse freely and secreted proteins (<80,000 Da) can diffuse out.

Advantages of NTCELL for Parkinson's

NTCELL is encapsulated porcine choroid plexus cells

- **A "factory" approach** for nerve growth: not single drug intervention
- **Supply:** Porcine advantage over human
- **Brain:** immuno-privileged
- **Severe unmet medical need**
- **Cost to benefit:** focus on benefit – first disease modifying treatment
- **Plasticity:** NTCELL adapts to disease in vivo. PD first target due to acceptance of DBS procedure, identified site and endpoint
- **Advantage over stem cells:** No concern of tumorigenicity; A defined cell population rather than unknown mixed cell types; No current stem cell technology to generate choroid plexus cells



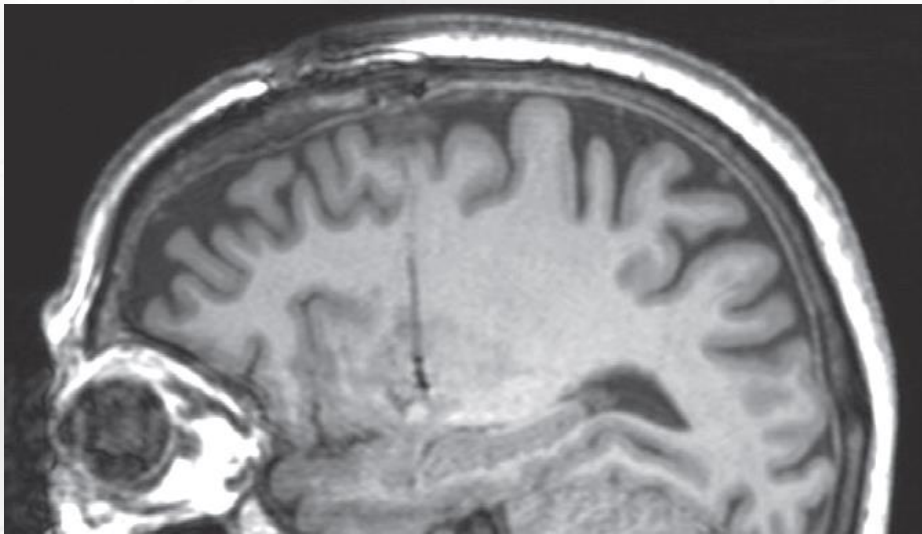
Clinical development

Phase I/IIa trial - NTCELL implantation procedure



❖ Protocol

- 4 PD patients previously selected for Deep Brain Electrode implantation
- 40 NTCELL microcapsules (c. 40,000 CP cells) implanted into the putamen on the side contralateral to that of the greatest clinical deficit
- Primary endpoint - safety



Sagittal MRI showing the cannula tract

Implanted NTCELL microcapsules are distributed through the putamen at the end of the tract

Phase I/IIa trial completed

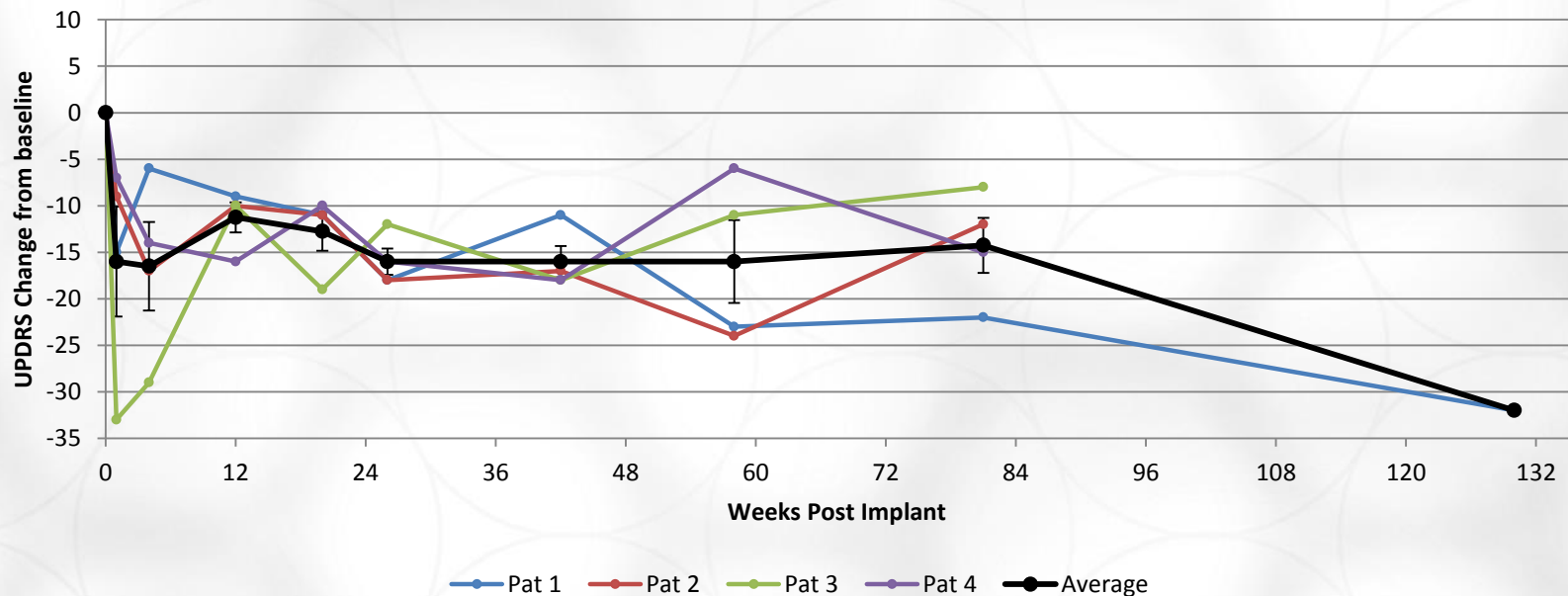
No safety issues



NTCELL "Improved every rating scale in first 4 patients"
Dr Barry Snow, Principal Investigator

- Decrease in UPDRS is clinically and statistically significant

**Total Unified Parkinson's Disease Rating Scale (UPDRS)
with patients off medication**



Phase I/IIa completed trial

NTCELL reversed progression of Parkinson's



- NTCELL treatment has stopped the progression of Parkinson's disease as measured by globally accepted and validated neurological rating scales in all four patients
- The 81 week post-implant data show there is a clinically and statistically significant improvement in the patients' neurological score from their pre-implant baseline in all four patients
- Improvement equivalent to approximately 3 to 5 years of PD remission
- Improvement maintained
- No safety issues

Phase IIb study

Group 1: Patients 1-6

4 dosed and 2 placebo, randomly assigned
40 NTCELL microcapsules ($\pm 5\%$) bilaterally
[total of 80 microcapsules], or placebo [sham surgery]

Group 2: Patients 7-12

4 dosed and 2 placebo, randomly assigned
80 NTCELL microcapsules ($\pm 5\%$) bilaterally
[total of 160 microcapsules], or placebo [sham surgery]

Group 3: Patients 13-18

4 dosed and 2 placebo, randomly assigned
120 NTCELL microcapsules ($\pm 5\%$) bilaterally
[total of 240 microcapsules], or placebo [sham surgery]

- Study will be unblinded upon completion of 26-week follow-up period
- Placebo patients will receive optimal dose of NTCELL

Accelerating the programme

3 October 2016	Completed implantation in group 1 patients
21 December 2016	Completed implantation of group 2 patients
February 2017	Approval to implant group 3 patients

- Maintain momentum at Auckland Hospital
- Saturday extra neurosurgical clinics targeting 2 patients each session
- 2 stereotaxic units commissioned
- Patients available due to success of Parkinson's NZ patient information meetings
- Five patients implanted in eight days

Phase IIb study endpoints

- The trial endpoints will answer the 3 questions raised by the Ministry of Health to qualify for provisional (fast track) consent to market:
 - Define efficacy and any placebo contribution
 - Define optimal dose of NTCELL implantation
 - Define initial target Parkinson's disease patient subgroup

Phase IIb planned study result

Q4 2017

- NTCELL phase IIb trial result 26 weeks after implant of last patient in Group 3
- Placebo patients will be offered implant with most effective dose of NTCELL
- Follow up open study of all patients in both phase I/IIa and IIb NTCELL clinical studies



The future is bright

Progress of competitors to NTCELL

Stem Cells

ISCO/Cyto Therapeutics initiated a 12 patient trial in Melbourne implanting neural stem cells from a pluripotent pathogenic cell line. Controversial differentiation and production QA and cost remain stem cell issues.

Vaccine

AFFiRiS has developed a vaccine (PD01A) to create antibodies to alpha syncline. Treatment to date is safe but “responders” antibodies do not last long.

Nilotinib

Anticancer drug that inhibits LRRK2 the most common gene defect in the 10% of PD cases that have a genetic link. Controversial, has side effects and placebo responses.

Human ventral mesencephalic tissue transplants

TRANSEURO initiated study with ethical and logistical, QA issues.

GDNF infusions

Medgenesis is undertaking a trial in UK with monthly brain infusions through 7 portals with ciliary derived nerve growth factor.

Twenty-year patent protection

LCT patent

Treatment of CNS disease with encapsulated inducible choroid plexus cells

- Published in USA and under PCT for rest of the world

United States Patent and Trademark Office

Application Number 62/162,390

Treatment of CNS disease with encapsulated inducible choroid plexus cells

Date 15/05/2015

Go to market strategy

- LCT's goal is to launch NTCELL as the first disease modifying treatment for Parkinson's disease in 2018
- First country of launch is New Zealand which is the most efficient approach to increasing the number of NTCELL treated patients
- This will expand the NTCELL quality, safety, and efficacy data necessary to fully globalise the product and allow submissions to FDA, EMA and Asian authorities
- LCT may seek a global commercialisation partner to fully realise the market potential of NTCELL

Regulatory strategy



Q4 2017 File NDA with NZ Medsafe (Ministry of Health) for provisional consent under Section 23 of Medicines Act to market NTCELL

Q1 2018 NTCELL market launch at Ascot Hospital, Auckland

Partnering strategy

Partnership or out-license would be required to expand NTCELL implantation capacity to supply sites outside New Zealand

Manufacturing technology, regulatory expertise and marketing would have to be supplied by a partner

LCT's immediate strategic goal of a profitable company does not depend on successful partnering, therefore it can assess any partnering interest on its merits

Expansion of NTCELL indications

Alzheimer's disease is the most attractive target

- Largest neurodegenerative disease market
- Choroid plexus is located in lateral ventricle which would be injection site
- 4 Alzheimer's clinical research clinics in New Zealand, established by Centre for Brain Research (Prof Richard Faull)
- In vivo human cell studies only preclinical investigation required

LCT personnel and advisors



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