ALTERITY THERAPEUTICS LTD
Form 6-K
April 10, 2019

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 6-K

REPORT OF FOREIGN PRIVATE ISSUER PURSUANT TO RULE 13a-16 OR

15d-16 UNDER THE SECURITIES EXCHANGE ACT OF 1934

For the month of April 2019

Alterity Therapeutics Limited

(Name of Registrant)

Level 3, 460 Bourke Street, Melbourne, VIC 3000, Australia

(Address of Principal Executive Office)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F.

Form 20-F x Form 40-F ¨

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1): __

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7): __

Indicate by check mark whether by furnishing the information contained in this Form, the registrant is also thereby furnishing the information to the Commission pursuant to Rule 12g3-2(b) under the Securities Exchange Act of 1934.

Yes ¨ No x

If "Yes" is marked, indicate below the file number assigned to the registrant in connection with Rule 12g3-2(b): 82- _____

This Form 6-K is being incorporated by reference into the Registrant's Registration Statements on Form F-3 (File No. 333-220886) and Form S-8 (File No. 333-228671).

Alterity Therapeutics Limited

6-K Items

1. Investor Presentation – April 2019

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Alterity Therapeutics Limited
(Registrant)

By: /s/ Geoffrey Kempler
Geoffrey Kempler,
Executive Chairman

April 10, 2019

Investor Presentation April 2019 Mr Geoffrey Kempler CEO and Chairman Dr David Stamler Chief Medical Officer & SVP Clinical Development

This presentation may contain some statements that may be considered “Forward - Looking Statements”, within the meaning of the US Securities Laws. Thus, any forward - looking statement relating to financial projections or other statements relating to the Company’s plans, objectives, expectations or intentions involve risks and uncertainties that may cause actual results to differ materially. For a discussion of such risks and uncertainties as they relate to us, please refer to our 2018 Form 20 - F, filed with US Securities and Exchange Commission, in particular Item 3, Section D, titled “Risk Factors.’’ FORWARD LOOKING STATEMENTS

AN ALTERNATE FUTURE We exist to create an alternate future for people living with neurodegenerative diseases. An alternate, healthier life. We’re here to disrupt the trajectory for people with these debilitating diseases. Improving Lives

Alterity is developing first - in - class therapies to treat neurodegenerative diseases. Our lead drug candidate, PBT434, has demonstrated pre - clinical evidence as a first - in - class therapy for the treatment of Parkinsonian disorders and is well advanced in its Phase 1 clinical program. RW2

INVESTMENT PROPOSITION Well funded clinical stage drug development company following up to $44M strategic investment led by Life Biosciences LLC allowing accelerated and focused clinical development Strong and highly experienced board and management team with significant R&D and commercialisation experience including 3 drug approvals by US FDA PBT434 is a novel drug candidate targeting key proteins implicated in neurodegeneration of Parkinson's disease and atypical parkinsonism PBT434 is completing its Phase 1 clinical trial program First therapeutic target selected – Multiple System Atrophy (MSA), a form of atypical parkinsonism, is a devastating disease with no approved treatments FDA Orphan Drug designation for PBT434 for the treatment of MSA received. Significant market potential for MSA alone – estimated peak sales of U S$750M

STRATEGIC INVESTMENT Strategic lead investor in a capital raise up to of approx. A$44.5 million. The funding will accelerate the Company’s drug development programs. Life Biosciences is a private US biopharmaceutical company focused on the development of novel therapies, technologies and drugs to address age - related decline. Provides funding through end of Phase 2

Therapeutic Focus

Parkinsonism is a general term for a group of symptoms in Parkinson's disease such as slowness of movement, stiffness and tremor Parkinsonian disorders include idiopathic Parkinson disease (PD) and atypical forms such as progressive supranuclear palsy (PSP), multiple system atrophy (MSA), and corticobasal degeneration (CBD), among others The atypical forms have a limited response to current drugs that target the symptoms of PD such as levodopa The first target selected by Alterity is for the treatment of MSA, a highly debilitating disease with no approved treatments PARKINSONIAN DISORDERS REPRESENT A SUBSTANTIAL UNMET MEDICAL NEED

MSA is a rapidly progressive neurodegenerative disorder leading to severe disability and impairment in quality of life Sporadic (not inherited), typically presents in 50s to 60s Orphan disease: Prevalence 5 per 100,000 in the U.S. Patients have a variable combination of Parkinsonism, which responds poorly to levodopa Autonomic failure: Orthostatic hypotension, bladder dysfunction, erectile dysfunction, constipation Cerebellar impairments: impaired gait and speaking MSA patients have neuron loss in multiple brain regions Pathological hallmark of MSA is the accumulation of - synuclein within neurons and glial support cells MULTIPLE SYSTEM ATROPHY (MSA) A form of Atypical Parkinsonism

Single - and Multiple - Ascending Dose study to be completed Q2’19 Recruiting healthy adult and elderly volunteers Primary goal is to evaluate the safety and tolerability of PBT434 Secondary goals include assessing pharmacokinetic measures to understand how PBT434 is absorbed and metabolized by the body PHASE 1 CLINICAL TRIAL PROGRAM ADVANCING

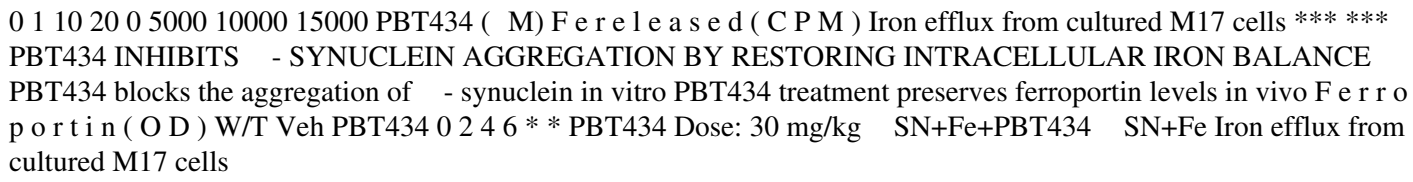
January 2019, US Food and Drug Administration (FDA) granted Orphan Drug Designation for PBT434 for the treatment of MSA. Orphan Drug designation entitles Alterity to seven years of market exclusivity for the use of PBT434 in the treatment of MSA and qualifies the sponsor of the drug for various development incentives of the Orphan Drug Act 1983, including tax credits for qualified clinical testing. FDA ORPHAN DESIGNATION FOR MSA

Alpha ( ) - synuclein is an intracellular protein critical for neurotransmission - synuclein accumulates and aggregates in many neurodegenerative diseases and is implicated in pathology PBT434 blocks - synuclein accumulation and aggregation, preserves neurons and improves function in animal models of synucleinopathy (Parkinson’s disease, MSA) PBT434 also prevents tau accumulation and improves function in animal models of tauopathy Link between increased brain iron and the synucleinopathies Phase 2 data in Parkinson’s disease patients with a related compound supports proof of concept Clear development path for symptomatic therapy in atypical parkinsonism Current symptomatic therapy has limited benefit Potential path for disease modifying therapy THERAPEUTIC STRATEGY PBT434 is an excellent drug candidate for treating neurodegenerative diseases Brain penetrant Established manufacturing process Strong preclinical evidence

- Synuclein is an intracellular protein, abundantly expressed in the brain Critical for normal function of neurons Soluble, in highest concentration at presynaptic nerve endings Key regulatory protein involved in neurotransmission Enables neurotransmitter release by facilitating synaptic vesicle fusion to pre - synaptic membrane IMPORTANCE OF - SYNUCLEIN AS DISEASE TARGET MAb to - synuclein stains red Increasing Industry & Research Prioritization

Science and Technology

- SYNUCLEIN AS TARGET FOR PBT434 - synuclein fibrillizes readily Factors regulating its production and conformation are relevant to disease pathogenesis and treatment Homeostasis of iron is disrupted in PD and atypical parkinsonism - synuclein is highly conserved in vertebrates but only humans develop synucleinopathy Human - synuclein mRNA contains an Iron responsive element Lee and Trojanowski, 2006 The iron responsive element (IRE) of - synuclein is a 5' - untranslated region of mRNA predicted to form a single RNA stem loop The stem loop shows striking similarity to the 5' - UTRs of mRNAs encoding ferritin and ferroportin from Friedlich, Tanzi, et al. 2007


0 1 10 20 0 5000 10000 15000 PBT434 (M) F e r e l e a s e d (C P M) Iron efflux from cultured M17 cells *** ***
PBT434 INHIBITS - SYNUCLEIN AGGREGATION BY RESTORING INTRACELLULAR IRON BALANCE
PBT434 blocks the aggregation of - synuclein in vitro PBT434 treatment preserves ferroportin levels in vivo F e r r o p o r t i n (O D) W/T Veh PBT434 0 2 4 6 * * PBT434 Dose: 30 mg/kg SN+Fe+PBT434 SN+Fe Iron efflux from cultured M17 cells

ALPHA - SYNUCLEIN PATHOLOGY AND PBT434 MECHANISM OF ACTION PBT434 reduces - synuclein accumulation, aggregation and preserves neurons Fe Fe Native, unfolded protein Fe Fe Fe Fe Fe Fe Fe Fe Fe Fe Fe Fe Fe Fe Fe Fe Fe Fe Aggregation of fibrillar protein Fe Fe Fe Fe Fe Fe Fe Fe Fe Fe Fe Fe Fe Fe Fe Fe Fe H 2 O 2 Fe OH • Cell Death N N O R R O R R Fe Ferroportin Fe Fe Fe Fe Fe Fe Fe Transferrin Normal Iron trafficking Cytoplasm Extracellular Accumulation H 2 O 2 Fe Ineffective autophagy NH 2 HO HO Dopamine PBT434 exports Fe from cell Oxidative Stress 17

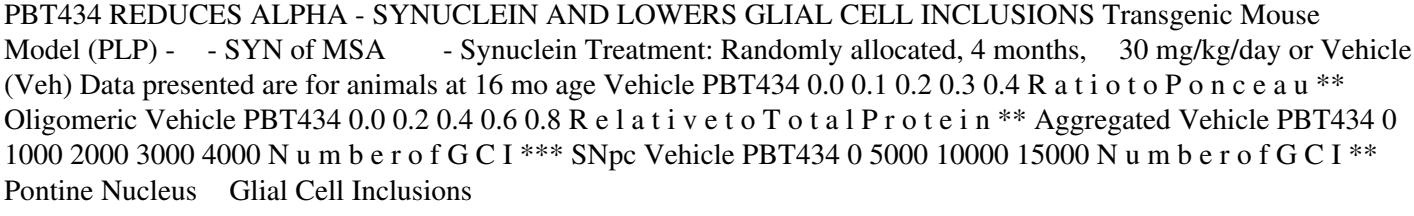
PBT434 LOWERS - SYNUCLEIN, PREVENTS NEURONAL DEATH AND IMPROVES MOTOR FUNCTION IN TRANSGENIC ANIMAL MODEL OF PARKINSON'S DISEASE Preserves neurons in S. nigra T o t a l S N p c n e u r o n s W/T Vehicle PBT434 0 4000 8000 ** Finkelstein et al. Acta Neuropath Comm (2017) 5:53 - Synuclein aggregation Treatment randomly allocated • 4 - 8 months of age • 30 mg/kg/day (via feed) Assessments done in blinded manner h A 5 3 T - s y n Vehicle PBT434 0 2 4 6 ** Foot Clasping % C l a s p i n g Vehicle PBT434 0 50 100 **

STRATEGY SUPPORTED BY PROOF OF CONCEPT WITH DEFERIPRONE 6 MONTH PLACEBO CONTROLLED DATA IN PARKINSON'S DISEASE PATIENTS Brain Iron by MRI Motor Function – UPDRS III Devos et al. Antiox. and Redox Signaling. 2014; 21: 195 S. nigra DFP PBO S. nigra Deferiprone • Indicated for Treatment of Iron Overload • Black Box for neutropenia and agranucloctyosis • Iron Binding Affinity Kd=10 - 36 Reducing excess iron associated with improved motor function DFP PBO Improvement Worsening

PBT434 HAS OPTIMAL IRON BINDING AFFINITY FOR EFFICACY AND SAFETY Agent/Protein Kd for Fe 3+ - Synuclein 10 - 5 PBT434 10 - 10 Ferritin 10 - 22 Transferrin 10 - 23 Deferiprone 10 - 36 Davies et al. PLoS ONE. 2011; 6; 1; e15814. doi.org/10.1371/journal.pone.0015814 Aisen P and Listowsky I. Ann Rev Biochem 1980 49: 357 - 393 Aisen P, Leibman A, Zweier J. J Biol Chem. 1978; 253:1930 - 1937 Kline MA and Orvig C. Clin Chem (1992); 38: 562 - 565 Stronger binding

LINK BETWEEN IRON AND SEVERITY OF PD Gotz et al. Ann N.Y. Acad Sci. 2004 However, biochemical studies have reported increased iron content in the nigra in PD, 2 - 4 with the changes most marked in severe disease (PD) 5 Martin, et al. Neurology 2008;70:1411 – 1417 Iron concentrations increase with disease severity

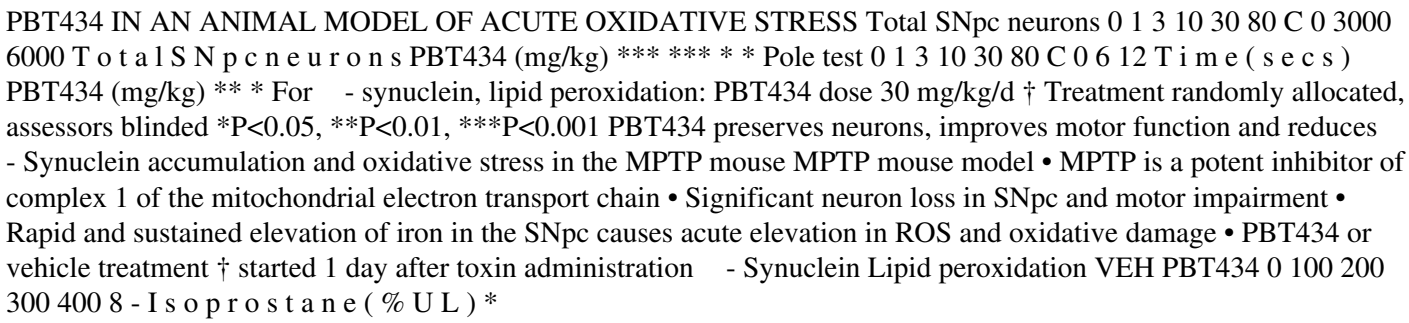
BRAIN IRON INCREASED IN PARKINSON’S DISEASE PATIENTS Substantia nigra (T) Substantia nigra (pc) Cerebellum n = 24 n = 13 nmol iron/g of human brain n = 9 n = 7 * n = 3 n = 8 * 0 10000 20000 30000 AND IN MULTIPLE SYSTEM ATROPHY PATIENTS Cerebral cortex Caudate nucleus Putamen (M) Putamen (L) Globus pallidus (M) Globus pallidus (L) Substantia nigra (T) Cerebellum n = 11 n = 8 n = 8 n = 8 n = 9 n = 8 n = 12 n = 8 n = 11 n = 8 * nmol iron/g of human brain n = 9 n = 6 * 0 10000 20000 30000 n = 10 n = 8 * n = 10 n = 8 * Healthy Patients Dexter . Brain.1991;114 Langkammer. PLoS ONE 11(9): e0162460. 2016 Specialized MRI Technique (QSM) to Non - invasively Quantify Brain Iron (PD Patient)


PBT434 REDUCES ALPHA - SYNUCLEIN AND LOWERS GLIAL CELL INCLUSIONS Transgenic Mouse Model (PLP) - - SYN of MSA - Synuclein Treatment: Randomly allocated, 4 months, 30 mg/kg/day or Vehicle (Veh) Data presented are for animals at 16 mo age Vehicle PBT434 0.0 0.1 0.2 0.3 0.4 R a t i o t o P o n c e a u ** Oligomeric Vehicle PBT434 0.0 0.2 0.4 0.6 0.8 R e l a t i v e t o T o t a l P r o t e i n ** Aggregated Vehicle PBT434 0 1000 2000 3000 4000 N u m b e r o f G C I *** SNpc Vehicle PBT434 0 5000 10000 15000 N u m b e r o f G C I ** Pontine Nucleus Glial Cell Inclusions

PBT434 PRESERVES NEURONS AND IMPROVES MOTOR FUNCTION Transgenic Mouse Model (PLP) - - SYN of MSA Treatment: Randomly allocated, 4 months, 30 mg/kg/day or Vehicle Vehicle PBT434 0 2 4 6 8 T i m e t o d e s c e n d t h e P o l e (s) * Pole Test after 4 months treatment 30 mg/kg at 16 months Vehicle PBT434 0 10 20 30 40 T i m e o n t h e r o d (s) ** Rotarod after 4 months treatment 30 mg/kg/day at 20 months W/T Veh PBT434 2000 3000 4000 5000 6000 T o t a l N S N p c n e u r o n s P=0.001 S. Nigra Neurons at 16 months

Brain Iron is also Increased in Tauopathies

PROGRESSIVE SUPRANUCLEAR PALSY (PSP) A form of Atypical Parkinsonism Cerebral cortex Caudate nucleus Putamen (T) Substantia nigra (T) Cerebellum n = 13 n = 11 n = 14 n = 11 n = 13 n = 11 n = 12 n = 7 nmol iron/g of human brain n = 8 n = 7 * 0 10000 20000 30000 * Healthy Patients Dexter et al . Brain. 1 991;114:1953. Brain Iron increased compared to Healthy controls


PBT434 IN AN ANIMAL MODEL OF ACUTE OXIDATIVE STRESS
Total SNpc neurons
0 1 3 10 30 80
C
0
3000
6000
T o t a l S N p c n e u r o n s
PBT434 (mg/kg)
*** *** * *
Pole test
0 1 3 10 30 80
C
0
6
12
T i m e (s e c s)
PBT434 (mg/kg)
** *
For - synuclein, lipid peroxidation: PBT434 dose 30 mg/kg/d † Treatment randomly allocated, assessors blinded *P<0.05, **P<0.01, ***P<0.001
PBT434 preserves neurons, improves motor function and reduces - Synuclein accumulation and oxidative stress in the MPTP mouse
MPTP mouse model • MPTP is a potent inhibitor of complex 1 of the mitochondrial electron transport chain • Significant neuron loss in SNpc and motor impairment • Rapid and sustained elevation of iron in the SNpc causes acute elevation in ROS and oxidative damage • PBT434 or vehicle treatment † started 1 day after toxin administration
- Synuclein Lipid peroxidation
VEH
PBT434
0
100
200
300
400
8 - I s o p r o s t a n e (% U L) *

Market Opportunity and Company Information

29 I 3 STRATEGY PARTNERS CONFIDENTIAL COMMERCIAL OPPORTUNITY *Does not include spontaneous use in PD. Severely debilitating, fatal illnesses with no current treatments are ripe for new entrants targeting what may be the actual cause of the disease. SUBSTANTIAL UNMET NEED Motivated by efficacy in treating the disease and not just the symptoms, clinicians intend to offer PT434 to most of their patients with MSA. STRONG INTENT TO PRESCRIBE Given similar efficacy, clinicians will likely prefer PBT434's once or twice daily oral administration vs. the monthly IV infusions or injections required for alpha - synuclein antibodies that come to market. EASE OF USE Inhibition of iron - mediated protein accumulation and aggregation is a novel mechanism of action that may ultimately prove in clinical practice to impact more than motor symptoms. UNIQUE MOA $505 - 757M potential commercial opportunity for PBT434 in MSA*

Capital Structure Name Position Geoffrey Kempler CEO & Chairman Lawrence Gozlan Non - Executive Director Peter Marks Non - Executive Director Dr David Sinclair Non - Executive Director Tristan Edwards Non - Executive Director Brian Meltzer Non - Executive Director Board Management Team CORPORATE OVERVIEW Geoffrey Kempler CEO & Chairman Founded Prana Biotechnology in 1997 , Mr Kempler has extensive experience in investment and business development and has been responsible for the implementation of Alterity's strategic plan and technology commercialisation. Mr Kempler is a qualified psychologist. David Stamler, M.D. Chief Medical Officer & Senior VP, Clinical Development Former VP, Clinical Development and Therapeutic Head, Movement Disorders, Teva Pharmaceuticals and Chief Medical Officer, Auspex Pharmaceuticals. Part of Teva's US$3.5 billion acquisition of Auspex . Led development of AUSTEDO (deutetrabenazine) for treatment of Huntington disease (approved by FDA - April 2017) and tardive dyskinesia, also in 2017. James Kerr VP, Chemistry, Manufacturing and controls Previously CMC leadership at Auspex / Teva . Senior member of leadership team responsible for budget management and operational direction of CMC team. Prior to Auspex , was Senior Director, CovX Operations at Pfizer WRD. Margaret Bradbury, Ph.D. VP, Nonclinical Development Previously Non - Clinical leadership at Auspex / Teva . At Teva , led non - clinical development of several neuroscience programs. At Auspex Pharmaceuticals, led strategic planning and program management in Huntington Disease chorea from IND through NDA filing. Kathryn Andrews CFO Highly experienced biotechnology CFO and CPA. Joined Prana in 2014 Ordinary Shares on issue 860,837,432 Share price (9/04/19) $0.049 Market Capitalization $AUD 42 million Net Cash (31/12/18) $8.4M Additional Funds (Life Bio) $11.4M

INVESTMENT SUMMARY • Proven track record in taking new drugs through to market. Team responsible for 3 new drugs approved by FDA • Lead drug candidate PBT434 has the potential as a disease modifying treatment and is currently completing a phase 1 clinical trial program • First disease target selected – MSA, a highly debilitating disease with no treatment options. Orphan Drug designation received from the US FDA. • Well funded and backed by major life science investors

Contact Geoffrey Kempler IR@alteritytherapeutics.com Tel: +61 3 9349 4906 RW12