

**Neurodyn Inc.
Denis G. Kay (Lead PI)****Organization and Team Overview**

Neurodyn Inc. (www.Neurodyn.ca) is focused on the development of treatments of early stage neurological diseases. Neurodyn maintains two subsidiary companies for its validation work. CNS CRO (www.CNSCRO.com) offers a suite of proprietary, slowly progressive neurological disease models, which we believe more accurately reflect human CNS disease pathogenesis. The current lack of relevant preclinical research tools is recognized to be one of the most important impediments to developing effective therapies for CNS disease. NeuroQuest Inc. (www.NeuroQuest.ca) provides synthetic and medicinal chemistry capability as well as electrophysiology. This de-risked business model allows the Company to maintain a continuum of product development opportunities through its pipeline, which are out-licensed or divested to industry after early value-added inflection points.

Neurodyn has three therapeutic candidates in pre-clinical development:

ND 602: A biologic progranulin, which is a secreted growth factor-like protein with demonstrated neuroprotective potential, for Parkinson's disease (PD). In a treatment study, Neurodyn has demonstrated significant neuroprotection and preservation of locomotor function in a chronic progressive animal model of PD. ND 602 has also shown efficacy in motor neuron disease (amyotrophic lateral sclerosis and spinal muscular atrophy) and Alzheimer's disease models. Thus it exhibits broad protection in a pre-clinical setting against the development of a number of neurological diseases.

ND 1004: A natural product being developed for the treatment for early stage PD. ND 1004 has demonstrated in-vivo pre-clinical efficacy in acute (MPTP and MPP+) models as well as Neurodyn's proprietary chronic progressive PD model, where efficacy was demonstrated for up to 1 year following disease induction.

NQ 1065: A First in class state dependent neuromodulator, showing neuronal state dependent and Nav 1.7 specificity, being prepared for a topical, orphan status neuropathic pain condition. This NCE is based on human clinic validated natural BioActives.

Neurodyn has an experienced team of scientific and business professionals:

Ken Cawkell LLB, President & CEO Ken is the principal founder and investor of Neurodyn. He has been actively involved in the biotech field serving on the Boards of several public and private biotech companies in addition to his duties as President of Neurodyn.

Denis G. Kay PhD, CSO A company co-founder, Denis is an acknowledged expert in animal model development and characterization and has substantial experience in pre-clinical development.

Jackalina M. VanKampen PhD, Director of Preclinical Development Jackalina has built her career studying the pathogenesis of PD, and was recruited from the Department of Molecular Neuroscience at the Mayo clinic.

Harold A. Robertson PhD, FRSC, Director of Clinical Development An internationally recognized expert in PD, Harry has made fundamental contributions to understanding disease pathogenesis, in addition to participating in clinical trials involving transplantation technology as well as early diagnosis of PD.

Bob Cervelli MSc, Executive Director A serial entrepreneur in the life sciences sector Bob has founded or help found a number of companies in the areas neurological drug discovery, cancer therapy, vaccine enhancement and consumer health products.

Bob Bechard MBA, MSc., Director Bob has more than 16 years venture capital experience having executed and managed investments in Canada, the US and Europe. He has served on the Boards of more than 25 biotech companies and provides guidance on corporate strategy, and financing.

Opportunity Overview

Currently, no therapeutic agents that have demonstrated the ability to definitively slow or stop the progression of PD. Neurodyn Inc. has demonstrated that decreased neuronal progranulin expression (a secreted growth factor like protein) is an early event in the development of an animal model of Amyotrophic Lateral Sclerosis-Parkinsonism Dementia Complex of the western Pacific (ALS-PDC), suggesting that PGRN may have some involvement in the neurodegenerative process.

An understanding of the functions of progranulin and regulation of its expression, in the adult central nervous system is slowly emerging. The investigation of progranulin knockout mice has demonstrated that the protein suppresses inappropriate neuro-inflammation within the CNS, promotes cell survival signaling and demonstrates additional neuroprotective functions.

In-vivo preclinical studies undertaken by Neurodyn have demonstrated the ability of lentiviral driven progranulin (ND 602) to significantly slow the progression of PD, preserve normal levels of motor activity and rescue dopamine producing cells in the brain. At present we know of no other therapeutic candidates that exhibit such a broad spectrum of neuroprotective activities. Over the next two years Neurodyn will continue to develop ND 602, through a primate study of safety and efficacy, as well as the design of a first in man study a Phase I/II in PD patients. The Company is seeking a strategic / financial partner to assist in this development

Details of MJFF Grant

Aim & Rationale: Determine the therapeutic actions of ND 602 at a clinically relevant time point in a progressive rodent model of PD.

Background: Neurodyn has developed compelling in vitro evidence of its neuroprotective effects in a variety of models including MPTP-induced cytotoxicity. The Company has completed a series of pre-clinical assessments of PGRN efficacy in animal models of Alzheimer's disease (hu-amyloid transgenic), ALS (ALS-PDC, mSOD1, Zebrafish - FUS1), spinal muscular atrophy (Zebrafish - SMN1) and PD (acute & sub-chronic MPTP challenge, in part with the initial support of MJFF). Protection against disease development was demonstrated in each of these diverse models, suggesting that PGRN is capable of exerting broad neuroprotection.

Here, we examined the impact of ND 602 introduced post disease induction, on the preservation of locomotor activity and control as well as on neuronal survival in a chronic progressive animal model of PD.

We used the chronic MPTP/Probenecid model that produces many of the pathological hallmarks and motor deficits characteristic of PD, making it a better choice for testing neuroprotective therapies. Animals were treated with ND 602 following 5 weeks of chronic MPTP intoxication at a time point when an approximately 50% loss of TH positive neurons was demonstrated in the substantia nigra.

Animals were tested for locomotor deficits immediately following MPTP exposure (when ND 602 treatment was introduced) as well as 5 weeks later. Following sacrifice, substantia nigra and striatum were assessed for evidence of ND 602 protection from the neurotoxin.

The results of these studies continue to strongly support the potential of PGRN as a disease modifying treatment for PD.

Results and Potential Next Steps

Despite the presence of disease at the time of ND 602 administration, the treatment resulted in:

- the preservation of dopamine producing cells in the substantia nigra,
- protection from the increased rate of cell death normally observed in the experimental Parkinson's disease.
- the preservation of normal levels of motor activity, as well normal control of motor function.

The next steps in the development of ND 602 will be to determine safety, dosing level and efficacy in a chronic Primate model of PD. Neurodyn will also design a first in man study, a Phase I/II in PD patients, and is seeking a strategic / financial partner to assist in this work.

Intellectual Property Status

Neurodyn's patent portfolio includes 20 patents either granted or in prosecution covering numerous jurisdictions for our preclinical animal models, as well as ND 602 (treating neurodegenerative diseases with Progranulin), and NQ1065 (treatment of neuropathic pain and terpenoid analogues for treating neurological conditions). A list of patent applications is available upon request.