

6-2018-4545 | New Small Molecules for the Treatment of Neurological Conditions  
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## Background

Neuro-protective drugs products of all types protect the brain and peripheral nervous system neurons from degeneration and injury by promoting neuronal survival, proliferation and differentiation. These products can be used in the treatment of neurological diseases such as Parkinson's disease, Alzheimer's disease, traumatic brain injuries, stroke ,psychiatric disorders and peripheral nerve injuries.

There is a high prevalence rates of neurodegenerative disease and the lack of specific treatment option. In addition, a large pharmaceutical pipeline exist for neurodegenerative disorders, consisting of approximately 1,500 products in active development.

The majority of pipeline products from 2010 are novel active pharmaceutical ingredients, with only a small proportion of products being either generics, or repositioned from other indications - most of which are at Phase I.

This indicates progress in terms of different molecules being developed as therapeutic agents within the neurodegenerative pipeline. With the high prevalence rates of neurodegenerative disease and the lack of specific treatment options, the opportunities are tremendous for the entry of novel neuroprotective drugs.

## Our Innovation

The unique family of methylene-cycloalkylacetate-based molecules (MCAs) that modulate neuronal cell properties, and operate as acceptable pharmacophores for development of novel neurotropic (neurite outgrowth inducing) lead compounds. Our findings indicate that the alkene element, integrated within the cycloalkylacetate core, is indispensable for neurotropic activity. This discovered lead compounds may be improved towards development of a neurotropic drug.

## Key Features

The desired MCA drug can be successfully constructed through the simple and straightforward sequence of synthetic transformations from commercially available starting materials.

## Development Milestones

- The MCAs lead compounds need further neuropharmacological characterizations for neuroprotection, neuroplasticity and nootropic activities.
- POC in animal models of Alzheimer's, Parkinson's, Traumatic Brain and Peripheral Nerve Injuries.
- Optimization, the lead compounds may be further improved by chemical synthesis to introduce additional pharmaceutical beneficial properties.

## For additional reading

Methylene-Cycloalkylacetate (MCA) Scaffold-Based Compounds as Novel Neurotropic Agents.; Lankri D, Haham D, Lahiani A, Lazarovici P, Tselikhovsky D.

ACS Chem Neurosci. 2018 Apr 18;9(4):691-698. doi: 10.1021/acschemneuro.7b00473. Epub 2017 Dec 29.

## Patent Status

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