MITHRIDION, INC

Building a High Value CNS drug company

Executive Summary – 10/2011

At A Glance
- Wisconsin C-corporation
- Equity/debt funding to date: $8.8m
- WI State TDF Loan: $0.2m
- Certified QNBV in Wisconsin for investor tax credits

Unmet Clinical Need
- Numerous neurodegenerative diseases - symptomatic drugs poorly effective, no disease-modifying drugs
- 26 million Alzheimer's disease sufferers worldwide, growing fast
- 1% of population with schizophrenia – major opportunity to treat cognitive impairment
- Several Orphan Drug opportunities

Clinically Validated Targets
- Validated in Phase II AD and schizophrenia by Lilly's xanomeline

Current Markets (2009)
- Alzheimer's $7.4bn (+12%)
- Psychosis $23.1bn (+2%)

Intellectual Property
- Several families of US and PCT patents or applications
- Worldwide exclusive license

Management Team
- Trevor M Twose, CEO
- Wayne P Hoss, Director, Toledo
- Prof William S Messer, Jr, CSO
- Patti A Twose, Operations Director

Board of Directors
- Trevor M Twose (CEO/Chair)
- Wayne P Hoss PhD
- John Neis MBA
- Frederick A Robertson MD MBA
- Paul M Weiss PhD MBA

Scientific Advisers
- Prof Daniel A Rich
- Franklin P Bymaster

Professional Advisers
- Foley & Lardner (Legal)
- Perkins Coie (IP)
- BDO (Audit/tax)

Investors
- Venture Investors LLC (Madison, WI)
- State of Wisconsin Investment Board
- Wisconsin Investment Partners
- Rocket Venture Fund (Toledo, OH)
- WARF (Madison, WI)
- Rosetta Partners (Lake Forest, IL)
- Biopons, Inc (Fitchburg, WI)

Mission
Mithridion discovers and develops drugs for serious chronic neurodegenerative diseases, including orphan diseases, and schizophrenia.

The Opportunity
Mithridion designs and develops "first-in-class" small molecule drugs to address major unmet medical needs, such as to improve memory and cognition, stop the disease processes for which no currently effective drug exists and stop neuron loss. We are actively targeting certain orphan diseases that offer unique clinical, technical, personalized medicine, market and regulatory opportunities, as well as more common diseases. Neurodegenerative diseases including Alzheimer's disease (AD) are devastating conditions affecting >5 million Americans and 26 million people worldwide and are $ multi-billion markets, growing rapidly fuelled by an aging population and the 'baby boom' generation.

Product Pipeline
- Strong and growing pipeline with several partnering opportunities (see page 2).
- MCD-386CR is potentially a first-in-class drug targeted at Progressive Supranuclear Palsy (PSP) and several neurodegenerative diseases for treating cognitive impairments and blocking disease processes.
- MCD-386/glycopyrrolate is targeted at Autosomal Dominant Alzheimer's Disease (ADAD), potentially as a preventative therapy for genetically-defined presymptomatic mutation carriers at near 100% risk of developing ADAD.
- MI-08-016/035 are new chemical entity drug candidates with pharmacology close to that of MCD-386, and are targeted for partnering for more common neurodegenerative diseases.
- A new drug candidate MI-10-022 is targeted for development with a partner as a potential first-in-class monotherapy, addressing major unmet needs in schizophrenia. Through its novel mechanism of action MI-10-022 potentially treats so-called positive (psychosis), negative (emotional) and cognitive symptoms of schizophrenia; this differentiates it from current anti-psychotic drugs, which treat only positive symptoms. MI-10-022 has broad potential in CNS disorders.
- Oral controlled release and transdermal delivery options are available for all three drug candidates, with (preclinical proofs-of-concept established).

Business Model
Mithridion's strategy is to develop drug candidates for rare diseases in house, then project-manage pre-IND studies and Phase I and early Phase II clinical trials, using contract research companies. Mithridion will seek partners for regulatory-driven development for rare disease indications, and for all stages of development for major market opportunities such as sporadic AD and schizophrenia. We seek to create great value, then to realize it for shareholders as licensing fees and royalties, and/or a liquidity event. We are currently actively seeking partners with the resources and expertise to develop and market our drugs in the major target markets.

Management Team
The management team is led by an entrepreneur with extensive large and small pharmaceutical company experience, including start ups and IPOs, Mithridion has a strong group of scientific, industry and professional advisors.

Scientific Rationale

- Activate muscarinic cholinergic function vital for memory and cognition
- Selectively activate M1 subtype (MCD-386) or M1 and M4 (MI-10-022), while avoiding activating M2 and M3
- Activate multiple modes of disease-modifying actions, including α-secretase to reduce Aβ production, and inhibit GSKIIIβ to reduce Tau phosphorylation
- Selectively activate M4 for anti-psychotic actions
- Clinically validated by Lilly's xanomeline in AD and schizophrenia,

MCD-386 Pharmacology

- Selective for M1 receptor in in vitro functional tests ('functionally selective')
- Improves cognitive function in vivo in animal models of cholinergic deficiency and cognitive flexibility for PSP, ADAD and other diseases
- Preclinical proof-of-principle of multiple modes of potential disease-modifying actions
- Engages key signaling pathways in lab animal models in vivo

MCD-386CR Clinical Development

- Open US FDA IND
- Controlled release oral tablet formulation developed
- Completed Phase I single ascending dose and multiple dose safety, tolerability and PK studies including food effect, metabolism, elderly subject
- FDA Orphan Drug status for PSP
- Seeking partners

MCD-386/Glycopyrrolate Combination

- Preclinical proof-of-concept
- Hi-dose to maximize potential disease-modifying actions
- Targeting ADAD, with potential for prevention in pre-symptomatic ADAD
- Seeking partners

MI-08-016/035

- Preclinical proof-of-concept
- Ready for IND-enabling studies
- NCE for sporadic AD - same pharmacology as MCD-386
- Fresh intellectual property
- Seeking partners

MI-10-022 Series

- >1 potential candidate drug
- MI-10-022 selected as candidate
- Potent, selective M1/M4 agonist
- Preclinical proof-of-concept
- Ready for IND-enabling studies
- Efficacious in animal models of cognition and psychosis – potential mono-therapy for schizophrenia with unique first-in-class profile and mechanism of action
- Seeking partners

Scientific Background and Mithridion's Product Pipeline

Cholinergic Function and Cognition

Acetylcholine, (ACh) is a neurotransmitter and neuromodulator vital for arousal, attention, memory and cognition. Certain of its actions are mediated by activation of muscarinic receptors. In laboratory animal models, brain-penetrating muscarinic receptor agonists enhance, and muscarinic antagonists impair, memory and cognition. In many neurodegenerative diseases, cholinergic neurons are lost, causing a cholinergic deficiency syndrome.

Five Muscarinic Receptor Subtypes

M1 muscarinic receptors are vital for memory and cognition. M4 is involved in the control of psychosis. M2 slows down the heart, and M3 causes sweating, salivation, tear production, and gastrointestinal tract effects, including diarrhea. Mithridion's small-molecule drugs selectively activate M1 and M4 muscarinic receptors, to improve memory and cognition, stop neurodegeneration, and treat psychosis, while avoiding side effects caused by activation of M2 and M3 receptor subtypes.

Pharmacology of Mithridion's Drug Candidates

In preclinical tests of cholinergic function, MCD-386 and MI-10-022 activate M1 receptors, only weakly activate M3 receptors, and do not activate M2 receptors. MCD-386 had negligible activity on M4 receptors, while MI-10-022 strongly activates M4 receptors. MCD-386 and MI-10-022 improved memory function in animal models, including models of ADAD and PSP, at doses that did not cause untoward effects. MI-10-022 was powerfully antipsychotic by a novel mechanism different from current anti-psychotic drugs.

Potential Disease-Modifying Action

Mithridion has demonstrated preclinical proof-of-concept that MCD-386 and MI-10-022 activate several pathways that potentially will slow or halt the disease process in AD: activating α-secretase and decreasing apoptosis in cultured cells in preclinical laboratory models, decreasing Aβ in vivo, thereby potentially preventing neuron death. M1 agonists are known to inhibit GSKIIIβ and reduce pathological tau phosphorylation, a feature of many neurodegenerative diseases. The MCD-386/glycopyrrolate combination enables higher doses of MCD-386 to be administered to maximize disease-modifying actions.

Clinical Validation of Target by Xanomeline

In Phase II clinical trials, Lilly's xanomeline had beneficial effects on disease symptoms in both AD and schizophrenia. This first generation drug validated this therapeutic approach, and defined the key challenges: to improve agonist activity, but above all, to achieve better selectivity to avoid side effects.

MCD-386/MCD-386CR Clinical Trials

An IND for MCD-386 successfully cleared FDA. A controlled release formulation has been developed and Phase Ib trials were completed successfully. To date 55 human subjects have participated in Phase I trials. MCD-386CR was well-tolerated and a good understanding was obtained of pharmacokinetics and metabolism.

MI-10-022 in Preclinical Development

This M1/M4 agonist has demonstrated the potential for cognition enhancing, anti-psychotic and disease-modifying actions in laboratory animal models and is being prepared for IND-enabling studies, including CMC work and toxicology studies.