Technology Commercialization Opportunity

QAAM-CI: Symptom Control and Disease Course Modification for Dementia

Inventor
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Executive Summary
The drug combination (QAAM-CI) (Quaternary Ammonium Anti-Muscarinic/Cholinesterase Inhibitor) is the first patented therapy of its type to provide a unique way to slow the progression and treat symptoms of common dementing disorders while eliminating adverse drug effects.

The Problem and Its Impact
Current courses of treatment such as rivastigmine, a Cholinesterase Inhibitor (CI) drug, are purely a symptomatic treatment and there is no treatment shown to alter the rate, or degree, of progression. The CI doses are limited by adverse effects that arise from an increase in the chemical acetylcholine outside the central nervous system (nausea, vomiting, slow heart rate, low blood pressure, urinary and fecal incontinence), while the beneficial effects (memory, mood, behavior and slowing disease progression) occur by increasing the acetylcholine within the central nervous system.

Alzheimer’s Disease, as well as other forms of dementia, are estimated to cost $157 billion to $215 billion annually in the United States, which is $41,000 to $56,000 per individual. (N Engl J Med 2013;368:1326-34.) In 2015 the number of people with Alzheimer’s Disease is 5.2 million and is expected to increase to 16 million by 2050. (Alzheimer’s Association. Latest Facts and Figures Report Feb 2015)
QAAM-CI takes advantage of a selective inhibition of acetylcholine outside the central nervous system to maximize the level of acetylcholine in the brain. This has shown previously unseen benefits in slowing the disease progression as seen in the rapidly progressing condition of Dementia with Lewy Bodies. In the graphed example of patient AL the rapid decline in the Mini Mental State Examination, a standard measure of cognitive function, is eliminated by QAAM-CI treatment and the benefit is sustained for over 5 years. Similar benefit is seen in a series of patients treated for 1-5 years with QAAM-CI.

![Cognitive Deterioration: MMSE Patient AL](chart.png)

**Keywords:** Cholinesterase Inhibitors, Dementia with Lewy Bodies, Alzheimer’s Disease

**Technology Readiness**
The two components of a combination drug dosage, QAAM-CI, are FDA approved drugs and are ready for formulation. A new molecular entity with enhanced bioavailability of the quaternary ammonium component has been synthesized and requires animal and human testing with submission for FDA approval. It is expected that the formulations and compound will qualify for “fast-track” consideration at the FDA.

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**Intellectual Property**
US Patent 8,097,633 cites the combined use of drugs in QAAM-CI for these conditions
US Patent 8,969,402 cites the use of QAAM-CI to alter the progression of cognitive diseases
US Patent 9,034,890 cites the use of QAAM-CI to alter the progression of cognitive diseases
US Patent 9,084,753 cites the combined use of drugs in QAAM-CI for these conditions

**Customers**
QAAM-CI is useful for symptomatic treatment of patients suffering from Dementia with Lewy Bodies, Alzheimer’s Disease, Parkinson’s Disease and other neurodegenerative dementias. As the only therapy of its type patented for altering the disease course, QAAM-CI should be used in persons who are found to be at risk of such diseases by clinical, imaging or biochemical markers of early disease. Health care organizations that bear risk for costs of care, government payers and physician likely will be intermediate consumers.

**Opportunity**
The inventor is looking for strategic partners with interest and proven ability to commercialize QAAM-CI into a new pharmaceutical product that can alter the disease course of neurodegenerative diseases while treating symptoms of the disease.

**Contact**
Those interested this opportunity should contact: Mr. William E. Bond, Director of Intellectual Property Management at RIT (585) 475-2986 bill.bond@rit.edu