



# KalGene PHARMACEUTICALS

## AND ITS PARTNERS BRING AN INNOVATIVE, COLLABORATIVE APPROACH TO TACKLE ALZHEIMER'S DISEASE

For companies working to treat dementia the costs are high — but more than worth the toll paid by patients living with the disease.

**A**s life expectancies around the globe continue to go up, the accompanying steady rise in senior populations has given way to a newly intensified global focus on dementia in recent years. Dr. Margaret Chan, director-general of the World Health Organization, underscored the urgency of current and future needs in her 2015 address to the first WHO Ministerial Conference on Global Action Against Dementia, warning of the “tidal wave of dementia coming our way”. Adding, “I can think of no other disease where innovation, including breakthrough discoveries, is so badly needed.”

A year earlier, public research agencies in the UK had pledged more than £200 million to the cause and last November Bill Gates personally invested \$50 million in the Dementia Discovery Fund expressing on his blog, “Of all the disorders that plague us later in life, one stands out as a particularly big threat to society: Alzheimer’s.”

A big part of that threat is the associated costs of caring for afflicted patients. Until we discover a way to prevent the disease, the health system costs to care for and support patients bear the brunt of the impact. In 2017, the US spent \$259 billion on hospital, hospice and long-term care for dementia patients. This is expected to increase to \$1 trillion by 2050.

An estimated 46 million people worldwide suffer from dementia. According to the Alzheimer’s Society of Canada some



Dr. T. Nathan Yoganathan, KalGene president, and Dr. Danica Stanimirvic, director of the NRC, Translational Bioscience Department, on the signing of the NRC KalGene collaborative Alzheimer’s disease partnership.

564,000 Canadians suffered from dementia in 2016 and by 2031 that number will nearly double to 937,000. The associated costs to the health care system for treatment, care and support is estimated at \$10.4 billion and will grow to \$16.6 billion by 2031.

Clearly the need to improve treatment and to pursue the eventual prevention of Alzheimer’s disease is immense—both from an economic and social perspective. Industry response has been to step up

research efforts to accelerate the development process. In the US, National Institute of Health funding has increased in the past five years from \$503 million per year to \$1.391 billion per year.

While Canada’s public research agencies are working to increase current research funding levels of just under \$50 million, the private sector is stepping up to bridge the gaps and support promising new technologies with the potential to change the way we treat the disease.

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KalGene Pharmaceuticals and NRC team.

One such company is KalGene Pharmaceuticals, a privately held company working in partnership with leading clinician-scientists and academic institutions. The company has taken the roadless-travelled approach to its clinical program, looking to slow down disease progression by developing a treatment that can penetrate the blood-brain barrier. This breakthrough puts KalGene on the road to success according to president and chief scientific officer Dr. T. Nathan Yoganathan.

“A major obstacle to treating neurodegenerative diseases like Alzheimer’s is delivering therapeutics past the blood-brain barrier,” says Dr. Yoganathan. “Using technology licensed from the National Research Council of Canada, we’re overcoming that obstacle. As a result, our development candidate is able to pass through the blood-brain barrier, rapidly inducing CSF-amyloid-beta clearance. Studies to date have indicated dramatic plaque removal.”

KalGene has worked closely with the McGill center for Ageing over the past 2 years to characterise the therapeutic molecule in a battery of test resembling the proposed clinical study. They have received contributions from Weston Brain Foundation, Ontario Brain Institute, Brain Canada and CQDM for this study.

KalGene’s preclinical success has not gone unnoticed. Late last year, the firm received significant financial support from a syndicated investment led by Lumira Capital. Also participating in the transaction were Angès Québec, Angès Québec Capital, Accel-Rx Health Sciences Accelerator and a number of Canadian family offices.

“We know so much more now about this terrible disease than we did just a few

years back,” says Jacki Jenuth, partner at Lumira Capital. “Kalgene will benefit tremendously from these new insights especially as it relates to patient recruitment with their partners at McGill.”

For François Gilbert, CEO of Angès Québec and Angès Québec Capital, KalGene’s novel approach was key to their decision. “We were impressed by the quality of the science behind KalGene and their approach to Alzheimer’s treatments,” he says. “We know that important challenges lie ahead in this race to tackle Alzheimer’s disease, but we are confident that the KalGene team has what it takes to succeed.”

Dr. Yoganathan shares that optimism largely because of KalGene’s ability to attract and work with key partners, including the National Research Council of Canada and McGill University, where a number of the lead clinicians and researchers are located. “The scientists there deserve a lot of credit for what we’ve accomplished,” he says. “No doubt, their contributions have allowed us to move forward.”

Accel-Rx sees the work that KalGene is doing as exemplary of the potential of Canada’s health sciences environment to nurture and grow a vibrant sector. “When our ecosystem aligns—scientific expertise, industry-led strategy, private capital—it provides a catalyst for companies like KalGene to drive hard to deliver on tremendous promise,” says Natalie Dakers, president & CEO, Accel-Rx. “When promising therapies are commercialized, ultimately it’s the patient who wins.”

“We are extremely confident with our approach—and that we are carrying out our work in the right place,” says Dr. Yoganathan. “The national ecosystem in which we conduct our research, with

its government support, with the participation of talented scientists from other institutions, with the financial support of private and public foundations, is an ecosystem ideal for the breakthroughs we need to confront and eventually overwhelm this terrible disease.”

The company expects to conduct the first clinical trial of its Alzheimer’s therapeutic candidate at McGill University in 2019. Safety studies are expected to last about three months and the efficacy studies a little less than a year.

### PUBLIC-PRIVATE PARTNERSHIPS PROVE PROMISING

As researchers continue to grapple with the Alzheimer’s puzzle, countries around the world are increasingly looking towards public-private partnerships as the most effective strategy to stave off a health tsunami that will surpass cancer and heart disease as the population ages. Recalling the model to battle polio in the mid-20th century, nations are combining the funding strength of the public sector, research breakthroughs of academia and the developmental/commercial acumen of the biopharmaceutical industry to accelerate the path to treatment and care.

*Anthony Boone is a writer and communications professional with experience in the health sciences and clean tech sectors.*

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