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SFU spin-off targets Alzheimer's with Merck partnership

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A Simon Fraser University spin-off company is taking aim at Alzheimer's disease in partnership with pharmaceutical giant Merck.

According to chemistry professor David Vocadlo, Alzheimer's is 'a serious societal concern' currently affecting more than 5.5 million North Americans. He is optimistic that research discoveries made in his SFU lab are the foundation for a breakthrough treatment that could slow or even stop the course of this fatal brain-wasting disease.

Vocadlo's Burnaby, B.C.

-based spin-off company, Alectos Therapeutics, recently announced an important research collaboration with Merck to identify and develop compounds to modify a key enzyme-O-linked N-acetylglucosaminidase (O-GlcNAcase)-that may contribute to Alzheimer's and other neurological disorders.

The deal is potentially worth \$289 million if all development and regulatory milestones are realized.

Alectos' technology builds on the findings of Vocadlo and his team of graduate students and post-doctoral researchers. After discovering how O-GlcNAcase works, they then showed it was feasible to generate selective molecules to modulate its action in the brain.

Explains Vocadlo: 'The brain is composed of billions of specialized cells known as neurons, each of which contains many proteins that carry out tasks enabling the neuron to work properly. It's similar to traffic in a large city-lots of vehicles moving things around to keep the city functioning smoothly.

'With Alzheimer's, a certain brain protein known as tau clumps together, which can kill neurons,' he says. It's akin to multiple car accidents occurring on different roads, leading to larger pileups: if they're not cleared quickly, they can paralyze the city.

'With Alzheimer's, these protein pileups accumulate and kill many neurons over time, progressively impairing brain function. We want to prevent these pileups and keep brain 'traffic' running smoothly. Our therapeutic goal is to diminish the activity of the O-GlcNAcase enzyme-the net effect being to prevent the protein tau from clumping.

Vocadlo anticipates the development of modulators targeting the enzyme will take a few years. He and Alectos co-founder Ernest McEachern caution that even if clinical trials proceed smoothly, it will likely still take several years to bring such a therapy to market.

Says University Industry Liaison Office director Ian Hand: 'Alectos is a true exemplar of how SFU spin-off companies are partnering with global leaders to bring revolutionary research innovations and exciting new products into the world.