

Study tracks 'traffic jams' on brain-cell highways

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(PhysOrg.com) -- The highways that Simon Fraser University biologist Michael Silverman studies aren't found on any Google map. They're the microscopic transport pathways that allow 'goods and services' to travel inside brain cells, called neurons. But it isn't always a smooth ride.

Silverman and his cellular neuroscience research team are investigating how disruptions along these cellular highways may play a critical role in the development of Alzheimer's and other [neurodegenerative diseases](#).

“Just as a city depends on the proper function of roads, vehicles, and traffic signals, inside the cell there's a network of tracks with molecular [motor proteins](#) capable of moving cargo essential for life,” explains Silverman.

“Alzheimer's and other neurodegenerative diseases are very complex disorders, yet one view holds that a crippling of the transport system leads to the deterioration of neurons.”

Silverman's lab uses sophisticated microscopy techniques to make movies of cargo molecules trafficking inside of living neurons. Then by duplicating disease conditions in the lab's brain-cell culture model, researchers are able to assess how transport is disrupted.

By understanding the faulty signals caused by Alzheimer's disease, his team hopes to design strategies to keep cellular cargo on the move and help neurons to stay alive longer.

Silverman is part of a diverse group of academics at SFU - from fields as wide-ranging as biology, psychology, kinesiology, health sciences, and engineering science - whose teaching and research are focused on the field of neuroscience.

The research is funded by a four-year \$480,000 grant from the Canadian Institutes of Health Research (CIHR).

Provided by Simon Fraser University

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