

Phosphorylation of kinesin light chain and calsyntenin-1/alcadein mediated axonal transport and processing of APP in Alzheimer's disease

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Principal Investigators

Chris Miller

Institution

King's College London, Institute of Psychiatry

Contact information of lead PI

Country

United Kingdom

Title of project or programme

Phosphorylation of kinesin light chain and calsyntenin-1/alcadein mediated axonal transport and processing of APP in Alzheimer's disease

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Alzheimer's Research UK

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€ 354,186

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01/10/2012

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3.7

Keywords

Research Abstract

Neurons comprise cell bodies and wire-like processes called axons and dendrites that connect to each other at structures called synapses. There are up to 100 billion neurons and 100 trillion synapses in the human brain and this network enables the computing of information. Most

neuronal proteins are made in the cell body and since axons and dendrites require proteins to function, they have to be transported from the cell body into and through the axons and dendrites to the synapse. This transport of protein “cargoes” involves “molecular motors” that run on “rails” and utilize a “fuel” called ATP. One key axonal motor is kinesin which moves along microtubule “rails”. As such, axonal transport is like a train journey with an engine (kinesin) using fuel to move cargoes along rails. We now know that axonal transport goes wrong in Alzheimer’s disease but it is not clear which aspect is defective. Like a train journey, there could be a problem with the engine, fuel supply, rails, signaling or even the cargoes themselves. We have discovered a new signaling pathway that has major implications for defective axonal transport in Alzheimer’s disease. This project is to study further, its role in Alzheimer’s disease.

Further information available at:

Types:

Investments < €500k

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United Kingdom

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