# Protein that directs cholesterol traffic identified

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(Medical Xpress) -- A protein that directs traffic within human cells has been identified as playing a key role in the accumulation of so-called "bad" cholesterol, according to a new study.

Little is known about how this bad cholesterol is transported inside a cell, notes Associate Professor Rob Yang, a member of a UNSW research team writing in the journal Cell Reports.

"Cholesterol is carried around our bloodstream, packaged in particles called lipoproteins,

Cholesterol from the low-density lipoproteins - also known as 'bad' cholesterol - enters our cells and deposits at different locations through a poorly-understood maze of transport routes," says Professor Yang, and ARC Future Fellow in the UNSW School of Biotechnology and Biomolecular Sciences.

The lead author on the paper was Postdoctoral Research Fellow Robin Du. Other authors were Abdulla Kazim and Associate Professor Andrew Brown.

The team found that the protein – known as Hrs - plays a specific role in directing how and where low-density lipoproteins are deposited. The researchers showed in experiments that reducing the amount of Hrs causes cholesterol to accumulate in endosomes, a cellular compartment usually containing little cholesterol.

“This discovery provides a better understanding of how cells handle cholesterol,” he says. “Misdirection of cholesterol will cause it to accumulate in the wrong places in a cell, resulting in disturbed cholesterol metabolism and eventual cell death.

“This will in turn contribute to the development of heart disease, and a number of neurological disorders including Alzheimer’s disease and Parkinson’s disease.”

The team is now trying to identify other factors that may co-operate with Hrs to help direct cholesterol traffic, and in turn may point towards new therapeutic strategies against heart and neurodegenerative diseases.

Provided by University of New South Wales