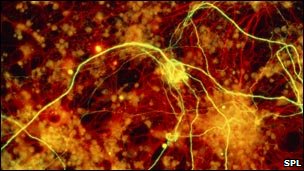
14 March 2011 Last updated at 00:09

**BBC**

**Brain disorder 'messaging clue'**



Scientists say they have discovered a "maintenance" protein that helps keep nerve fibres that transmit messages in the brain operating smoothly.

The University of Edinburgh team says the finding could improve understanding of disorders such as epilepsy, dementia, MS and stroke.

In such neurodegenerative disorders, electrical impulses from the brain are disrupted.

This leads to an inability to control movement, and muscles wasting away.

The brain works like an electrical circuit, sending impulses along nerve fibres in the same way that current is sent through wires.

These fibres can measure up to a metre, but the area covered by the segment of nerve that controls transmission of messages is no bigger than the width of a human hair.

Signal failure

The scientists discovered that the protein Nfasc186 is crucial for maintaining the health and function of the segment of nerve fibres - called the axon initial segment (AIS) - that controls transmission of messages within the brain.

They found that the AIS and the protein within it are important in ensuring the nerve impulse has the right properties to convey the message as it should.

Professor Peter Brophy, director of the University of Edinburgh's Centre for Neuroregeneration, said: "Knowing more about how signals in the brain work will help us better understand neurodegenerative disorders and why, when these illnesses strike, the brain can no longer send signals to parts of the body."

Dr Matthew Nolan, of the university's Centre for Integrative Physiology, said: "At any moment tens of thousands of electrical impulses are transmitting messages between nerve cells in our brains.

"Identifying proteins that are critical for the precise initiation of these impulses will help unravel the complexities of how brains work and may lead to new insights into how brains evolved."

The work was funded by the Wellcome Trust and the Medical Research Council.

Metro (UK)

March 14, 2011 Monday   
Edition 1;   
Scotland

**Protein aid for** **brain disorders**  
**BYLINE:** Kirsteen Paterson  
  
**SECTION:** NEWS; Pg. 23  
  
**LENGTH:** 177 words

A KEY protein could aid treatment of disorders from epilepsy and dementia to multiple sclerosis and stroke, it was claimed yesterday.

Edinburgh University researchers say the substance, named neurfacin, is crucial for maintaining the health and function of nerve fibres that control the transmission of messages in the brain.

It is hoped the study could help direct research into certain disorders in which electrical impulses from the brain are disrupted.

The brain works like an electrical circuit, sending impulses along nerve fibres.

These can measure up to a metre but the area covered by the segment of nerve that controls transmission of messages is no more than the width of a human hair.

However, muscle functions can be seriously impacted by a disruption in the delivery chain.

Prof Peter Brophy, of the university's centre for neuroregeneration, said: 'Knowing more about how signals in the brain work will help us better understand neurodegenerative disorders and why, when these illnesses strike, the brain can no longer send signals to parts of the body.'

The Sun (England)

March 14, 2011 Monday   
Edition 1;   
Scotland

**Boost on stroke link**  
**SECTION:** NEWS; Pg. 19  
  
**LENGTH:** 91 words

SCOTS experts have found a key protein in the brain that could help find a cure for strokes.

Scientists at the University of Edinburgh said the protein, called neurofacin, is crucial for maintaining the health and function of nerve fibres.

They in turn control transmission of messages to the brain.

But if disrupted it can affect people's ability to control movement - a characteristic of strokes.

Prof Peter Brophy, from the uni, hailed the breakthrough.

He said: "It will help us to better understand neurodegenerative disorders and why they strike."

**MAIL ONLINE**

**Scientists discover brain protein that could unlock vital understanding of strokes**

By [Daily Mail Reporter](http://www.dailymail.co.uk/home/search.html?s=y&authornamef=Daily+Mail+Reporter)  
**UPDATED:** 12:59, 14 March 2011



Scientists have identified a key protein that helps the brain transmit information - a breakthrough that could aid our understanding of strokes.

The University of Edinburgh team said the protein, neurofacin, is crucial for maintaining the health and function of the segment of nerve fibres that controls transmission of messages within the brain.

The brain works like an electrical circuit, sending impulses along nerve fibres and when impulses from the brain are disrupted it can lead to an inability to control movement, characteristic of conditions such as epilepsy, multiple sclerosis and strokes.

Dr Matthew Nolan, of the university's Centre for Integrative Physiology, said: 'At any moment tens of thousands of electrical impulses are transmitting messages between nerve cells in our brains.

'Identifying proteins that are critical for the precise initiation of these impulses will help unravel the complexities of how brains work and may lead to new insights into how brains evolved.'

It is hoped that the study, published in the journal Neuron, will help scientists better understand how neurodegenerative illnesses strike.

Professor Peter Brophy, director of the university's Centre for Neuroregeneration, said: 'Knowing more about how signals in the brain work will help us better understand neurodegenerative disorders and why, when these illnesses strike, the brain can no longer send signals to parts of the body.'

The research is funded by the Wellcome Trust and the Medical Research Council.