

# Targeting proteins – towards new treatments for Parkinson's



Chris

## Project information

Lead researcher	Professor Chris Moody
Location	University of Nottingham
Cost	£120,894 over 24 months
Start date	October 2010
Type of project	Project grant
Project code	G-1002

## Project background

Much of the human body is made up of proteins. Proteins are essential to all living things, and participate in almost all processes that happen inside the body. In Parkinson's nerve cells die in a part of the brain that controls movement. Sticky clumps of proteins called Lewy bodies form inside the dying cells. But we don't understand how and why these proteins build up or how they are involved in nerve cell death.

- **What are proteins and what do they do?** Proteins work mechanically in our muscles, give us structure like the proteins found in our fingernails, and help vital chemical reactions to occur. Our bodies produce a complex mixture of around 25,000 different proteins, but to stay healthy we need the right balance of different proteins.
- **Our bodies have many ways to handle proteins.** Proteins have to be folded into the right shape to work properly – and this is controlled by proteins called 'chaperones'. Chaperones also help to dismantle and remove damaged or misfolded proteins. But sometimes things go wrong and unwanted proteins build up inside our cells.

- **Are chaperones the key to Parkinson's?** The best known chaperone is called heat shock protein 90, or Hsp90 for short. Hsp90 has been found in greater quantities than normal in the brain's of people with Parkinson's. And blocking Hsp90 has also been shown to protect nerve cells from dying in animal models.

### What the researchers are doing

Chris and his team are trying to develop new potential drug therapies for Parkinson's that work by blocking the Hsp90 chaperone. The team aim to make new molecules based on a naturally occurring substance that can stop Hsp90 from working. They will then test the molecules they make to see which do the best job of blocking Hsp90 and therefore have the best potential for developing new drugs.

### How the research will help people with Parkinson's

By the end of the project Chris and his team hope to show that blocking Hsp90 from working protects the dopamine nerve cells that die in Parkinson's. They also hope to understand how this happens and to have begun developing new drugs that could later be tested in people with Parkinson's.

This project could lead to new treatments that slow or stop the development of Parkinson's - bringing us closer to a cure.

## For more information, please talk to the Research Team

Call	<a href="tel:02079639313">020 7963 9313</a>
Email	<a href="mailto:research@parkinsons.org.uk">research@parkinsons.org.uk</a>
Write	Parkinson's UK, 215 Vauxhall Bridge Road, London SW1V 1EJ