

# Parkinson's UK Edinburgh Branch Research Interest Group

**PARKINSON'S<sup>UK</sup>**  
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Newsletter August 2014 Issue No. 9

## View from the Chair

Welcome to the ninth issue. The third Edinburgh Parkinson's Lecture was given by Professor Tony Schapira of UCL on 15<sup>th</sup> May at the Royal College of Physicians of Edinburgh, and was entitled "Recent Advances in the Cause and Treatment of Parkinson's?"

Once again we attracted a capacity audience, who were treated to a superb overview of recent research. The audio files of the lecture can be downloaded from our website, together with the overheads from Professor Schapira's presentation – just click on

<http://www.edinburghparkinsons.org/research-interest-group/edinburgh-parkinsons-lecture-2014/>

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## The Edinburgh Parkinson's Lecture 2014



## WPC Scientific Update

On Saturday 8<sup>th</sup> November we plan to run a meeting based on the WPC Scientific Updates scheduled as webcasts over the three days 30<sup>th</sup> Sept – 2<sup>nd</sup> Oct 2014. For details, see <http://www.edinburghparkinsons.org/wpc-scientific-update/> The plan is to screen some of the content at our meeting and discuss the implications. The meeting will take place at the Centre for Regenerative Medicine, courtesy of Dr Tilo Kunath, and will run from 10.30 to 12.30. A sandwich lunch will be provided for those able to stay. Please notify Ken Bowler by email if you would like to take part ([ken@edinburghparkinsons.org](mailto:ken@edinburghparkinsons.org))

## Research News:

The process of phosphorylation helps regulate basic nerve cell function and health

### LRRK2 mutations may be cause of cell death

The most common genetic cause of Parkinson's disease destroys brain cells and devastates many patients worldwide. Investigators found that mutations in a gene called leucine-rich repeat kinase 2 may increase the rate at which LRRK2 tags ribosomal proteins, which are key components of protein-making machinery inside cells. This could cause the machinery to manufacture too many proteins, leading to cell death. LRRK2 is a kinase enzyme, a type of protein found in cells that tags molecules with chemicals called phosphate groups. The process of phosphorylation helps regulate basic nerve cell function and health. Previous studies suggest that disease-causing mutations, like the G2019S mutation, increase the rate at which LRRK2 tags molecules. Identifying the molecules that LRRK2 tags provides clues as to how nerve cells may die during Parkinson's disease. In this study, the researchers used LRRK2 as bait to fish out the proteins that it normally tags. Multiple experiments performed on human kidney cells suggested that LRRK2 tags ribosomal proteins. The researchers investigated whether phosphorylation could be linked to cell death, by studying nerve cells derived from rats or from human embryonic stem cells. Genetically engineering the cells to have a LRRK2 mutant gene increased the amount of cell death and phosphorylated s15. In contrast, the researchers prevented cell death when they engineered the cells to also make a mutant s15 protein that could not be tagged by LRRK2.

#### Journal Reference:

Martin et al. *Protein s15 Phosphorylation Mediates LRRK2 Neurodegeneration in Parkinson's Disease*. Cell, 2014; 157 (2): 472 DOI: 0.1016/j.cell.2014.01.064

### Exenatide Study: Two-year results published

The study of the drug Exenatide, already in use for treating type-2 diabetes, showed promising results for Parkinson's patients in a limited human trial, undertaken by a team led by Dr Tom Foltynie of UCL. In the latest issue of its on-line newsletter, the Cure Parkinsons Trust announces that the research team has just published the two-year results. Although further research is needed, for the first time ever, the results of this trial suggest that Exenatide has the capacity to halt the progress of the condition over the course of at least two years.

#### Journal reference:

*Journal of Parkinson's Disease*, IOS Press, ISSN 1877-7171(Print),1877-718X (Online), DOI 10.3233/JPD-140364, online Date: March 24, 2014

## Web site

The Edinburgh Branch web site is at [www.edinburghparkinsons.org](http://www.edinburghparkinsons.org) and the Research Interest Group page is [www.edinburghparkinsons.org/research-interest-group/](http://www.edinburghparkinsons.org/research-interest-group/)

Any queries should be directed to the Editor and Chair of the Research Interest Group, [Ken Bowler](mailto:ken@edinburghparkinsons.org) by email to [ken@edinburghparkinsons.org](mailto:ken@edinburghparkinsons.org)

Parkinson's UK is the operating name of the Parkinson's Disease Society of the United Kingdom. A charity registered in England and Wales (258197) and in Scotland (SC037554).