

# OUR NEWS

## East Midlands Research Support Network News

No 8 July 2013

Welcome to the 8<sup>th</sup> edition of the East Midlands Research Support Network Newsletter!

This edition follows the previous format, with the 4 main topic categories, but to start there is an article on the 'All New Steering Group', written by Steering Group Chair John Telford. This subject was discussed at the Steering Group meeting held at Newark on 25 June 2013 and the newly constituted Steering Group meets for the first time on 2 September 2013.

Under 'News & Events', we have a very informative report by Maria Rice, following a group visit to Dr Flavio Giorgini's genetic labs at the University of Leicester. On the same subject there is a fascinating article by Jonathan Stevens describing 'A day in the life of a Research Laboratory'. There are some interesting times ahead listed in the 'Coming Up' section, the first of these being the fast approaching Research Forum in Derby on 14 September 2013. Programme and reply slip are on [page 10](#).

'You might like to know' comprises the thoughts of John Telford on the publication of a letter in the Journal of Neurology about the effects of music on people with Parkinson's. It includes a number of enlightening references, giving more insight into this subject. We then have the second of Lionel Paulo's Lessons, this one on Genetics and Parkinson's Disease. Lionel also gives a research update on the Parkinson's Voice Initiative into using people's voices as biomarkers to detect Parkinson's disease before physical symptoms begin to show.

Caroline Maxwell has written her concluding article on her personal experiences in taking part in the Rivastigmine drugs trial at Frenchay Hospital, Bristol.

My thanks to all contributors to this edition and I trust that no offence has been caused by any wielding of my red pen – I assure you it has been minimal! We would be delighted to receive any feedback on the content and timing of the Newsletter from recipients. Please email any comments to me at the address given on the last page.

Ian Billcliff, Acting Editor

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- Research Forum Derby

... full articles  
... and much more!



(Puzzle in Pieces, by jscreationz: freedigitalphotos.net)

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 (SCO37554)

# The All New Steering Group

By John Telford, Steering Group Chair

In June 2011 a Steering Group was set up to get the Research Support Network in the East Midlands up and running. Well, we reckon we have done that, so that job is done! But we still need some sort of organisation to keep it running and to ensure it continues to develop in the right way.

So, in with the **new** Steering Group. We saw no reason to change the name. But how is it different from the **old** SG? The only real difference is that its purpose is not to **set up** the RSN in the region but to **keep it going** in new and more effective ways.



(John Telford)

The emphasis of the new SG is on keeping the East Midlands RSN thriving and participatory. We have been more than fortunate to have had a group of motivated, creative and energetic people on the SG during the last two years and quite a bit has been accomplished. The style of the group has been

*It is good to have a statement to say what any formally recognised group is there for and how it should organise itself to do it. Thus we have a set of **Terms of Reference**. The new set, which has been approved by Parkinson's UK, can be read at [http://www.em-rsn.info/docs/TOR\\_SG\\_New.pdf](http://www.em-rsn.info/docs/TOR_SG_New.pdf) and will eventually be on the East Midlands part of the charity's web site when that is set up.*

friendly, open and encouraging with a dynamism that has achieved a lot. The new Terms of Reference (see box) attempt to preserve this style - which we reckon has worked - so that new ideas are

accepted and new people can be inspired to join us to develop these ideas and help the RSN achieve its aims.

We have identified 8 types of activity, some of which have worked well and others not so well. These have included:

- putting on research-focussed speaker meetings,
- advertising similar meetings organised by others,
- encouraging participation in clinical trials and
- producing a newsletter full of interesting news and information.

Yet we are still open to more ideas as to the most effective ways of supporting research into Parkinson's at a local level.

We are fortunate to have on the SG such an enthusiastic and capable staff person as Tyna Brych, the Regional Manager, so that there is almost seamless integration between volunteer

## STEERING GROUP MEMBERS

CHAIR:

**John Telford**, Leicester  
[jntelford@ntlworld.com](mailto:jntelford@ntlworld.com)

SECRETARY:

**Lionel Paulo**, Leicester  
[ljpaulostk@talktalk.net](mailto:ljpaulostk@talktalk.net)

MEMBERS:

**Richard Brown**, Sleaford, Lincolnshire

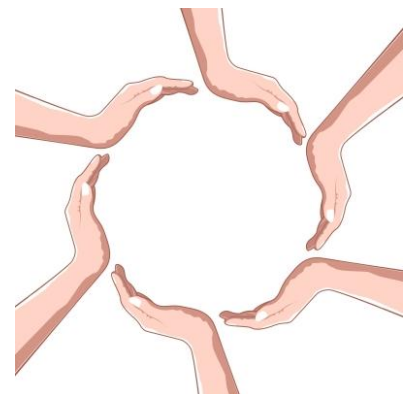
**Chris Johnson**, Derby

**Caroline Maxwell**, Daventry, Northants

**Maria Rice**, Nottingham

**Ian Billcliff**, Derby

**Tyna Brych**, Parkinson's UK East Midlands



(Cooperation, by digitalart: freedigitalphotos.net)

and staff effort. Coordination with the RSN at the national level is also first rate. An important message to get across is that the role of the Steering Group is as much about co-ordinating others' activities as organising them itself.

Supporting research is an aim of the whole charity. The purpose of the RSN is not to do the research-supporting role in lieu of the branches and groups. This is especially true for fundraising because these days those who shake collecting tins emphasise regularly that the money is for research as well as for care. So if a research activity is organised locally, the role of the SG might merely be to give help where help is needed, which may simply include advertising it more widely.



*(Jigsaw pieces being joined shows teamwork & collaboration, by Stuart Miles: freedigitalphotos.net)*

So the take-home message is three-fold:

- First, that the RSN and an interest in research are not specialist and separate functions, but the concern of the whole charity;
- second, that new ideas are constantly needed to think out the best ways of supporting the research effort towards better treatments and a cure; and
- third, that there are no hurdles to jump over if you would like to join in the work of the Steering Group with your ideas and enthusiasm.

Anyone is welcome to come to SG meetings or to be part of the coordination we do by email. Contributions in different ways, formally or informally, on a long-term or a short-term basis, are very welcome. Get in touch!

John Telford  
Chair of the Steering Group - for the moment!

*The first meeting of the **New Steering Group** will be on **Monday 2 September 2013** from 1pm to 4pm in Newark. Contact Lionel Paulo if you would like to come along and offer your help in the group's work. The meeting will select the Chair and Secretary and continue to plan for the forthcoming couple of years.*

## News & Events

### Visit to Dr Giorgini's labs

Recently several members of the Steering Group visited Dr Flaviano Giorgini and his team at Leicester University and toured the labs where cutting-edge research into the genetic aspects of Parkinson's disease is being conducted. Maria Rice has written a fascinating report about the visit, explaining what we saw and what we learned from Dr Giorgini. Please go to [page 11](#).

Not sure what genetics and genes are? Go to [page 6](#).

### A day in the life ...

Sometimes looking at things from a totally different perspective can bring fresh insights into any subject, and here Jonathan Stevens has given us an alternative view of the visit to Leicester University to see Dr Giorgini. Be prepared for a report with a whimsical element that is both unusual and entertaining from this scientist with a poetic inclination on [page 13](#).

# COMING UP...

### Shaping the Future for Parkinson's UK

This is the theme of a National Conference being held on 6-7 September in Stratford-upon-Avon. The weekend includes the AGM of Parkinson's UK. There is no charge for members of Parkinson's UK and carers. Applications for attendance need to be in by Friday 9 August – see Parkinson's UK website: [www.parkinsons.org.uk/shapingthefuture](http://www.parkinsons.org.uk/shapingthefuture)

### TOWARDS BETTER PARKINSON'S MEDICATION

The 2<sup>nd</sup> East Midlands Annual Research Forum, to be held at The Roundhouse, Derby from 10.00 -15.30 on Saturday, 14<sup>th</sup> September – For programme and reply slip see [page 10](#) or email [researchforumderby@gmail.com](mailto:researchforumderby@gmail.com)

### World Parkinson's Congress

Being held in Montreal, Canada - 1-4 October. For more information: <http://www.parkinsons.org.uk/default.aspx?page=11022>

### National RSN Research Conference

Birmingham, Saturday 23 November, 2013. More details as they become available.

### 2014 East Midlands Researchers' Meeting

To be held in Leicester in the second half of March 2014. More details as they become available.

## You might like to know

### Not getting in the groove

By John Telford, Steering Group Chair

A letter on the effect of music on people with Parkinson's has recently been published in The Journal of Neurology. It is a puzzling letter, reporting negative results from a questionnaire. It is puzzling because, in my opinion, it asked the wrong questions and I wonder why.

The letter is open access and can be found at <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3642358> and the questionnaire at [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3642358/bin/415\\_2013\\_6860\\_MOESM1\\_ESM.doc](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3642358/bin/415_2013_6860_MOESM1_ESM.doc)

The key question in the questionnaire is the last:

8) Have you ever noticed a change in your symptoms when listening to music? Yes No  
If yes, what symptoms changed, and how did they change?

The answers to this question, which was put to 50 patients who routinely attended a clinic in Cambridge, revealed that none of them reported any change in their PD symptoms when listening to music (although 64% reported pleasant calm feelings) and the authors concluded that "there were surprisingly no perceived improvements in PD symptoms in this randomly selected cohort of patients."

Actually this is not surprising to me. To me, 'listening' to music (which is the term that question 8 uses) is a completely different context from being part of - participating in - a singing or dance group or playing in a small instrumental group, an orchestra or a pop group. Question 8 implies the answer should relate to a passive context - maybe 'listening to music' while relaxing in an arm chair or perhaps pottering around doing something else, with the music in the background. It suggests to me that it is not expecting an answer relating to active engagement in singing or dancing - moving and grooving and the need to respond and synchronise physically with the stimulating changes in rhythm and pitch.

Surely it is the latter which give rise to the anecdotal claims of benefit that we so often hear from participants in singing and dancing groups. So the negative result is no surprise. My guess is that a question 8 that addressed active participation would have given rise to very different responses.



(Old Gramophone Record Player, by sippakorn: freedigitalphotos.net)

Some revisions to earlier questions are also called for because some ask, in my view irrelevantly, about musical training and performance - participants are generally in it for its own sake rather than being motivated to excel in the activity or perform in front of others.



(Violin, by Suat Eman:  
freedigitalphotos.net)

If some positive responses were elicited from a revised question 8 - such as "Have you ever noticed a change in your symptoms from actively participating in a music-driven activity such as a singing, dance or instrumental group ?" - then some further questions ought to be raised in the minds of the researchers such as:

- how long lasting are the improvements?
- which part of the body do they affect?
- is the improvement as much a result of the feeling of well-being, the accepting and supporting social environment or even the sheer enjoyment of it, as the music itself?
- Is the rhythm the most important factor or is melody, dynamics and emotional content important too?

As with all research, results always raise more questions than they answer.

And, as an amazing illustration, have a look at this YouTube video of the effect of music on someone with Parkinson's: <http://www.youtube.com/watch?v=qxDmP8c4QUI>

See also the work of Dr Gammon Earhart on tango and Parkinson's:

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2900796/> and

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3557593/>

and a more recent paper on ballet:

Houston, Sara, and Ashley McGill. "A Mixed-methods Study into Ballet for People Living with Parkinson's." *Arts & Health* 5, no. 2 (June 2013): 103–119.

doi:10.1080/17533015.2012.745580

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3687249/>

And here is one on walking to music: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2957229/>

## ***Lionel's lessons***

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A series of plain English explanations of aspects of Parkinson's research

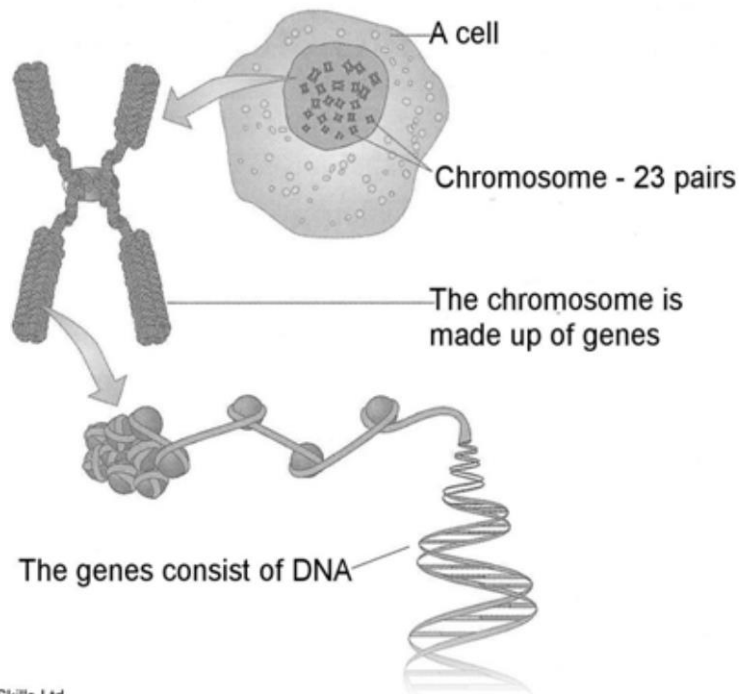
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*Lesson 2 - Genetics and Parkinson's disease:  
A Plain English description of what genes are and how they work*

For many years scientists were of the opinion that Parkinson's disease was not an inherited ailment but it is now thought that there are many causes of Parkinson's and between 5% and 15% of PD could be of genetic (inherited) origin. A great deal of research is being carried out around the world on this theme and various genes with names like LRRK2, DJ-1 and Alpha-synuclein have been found to be involved – it's all very complicated but this is meant to be a plain English article so let's keep it straightforward and ask the questions: What are genes and how do they work?

Our genes could best be described as 'units of inheritance'. As you can see in the diagram, we have to look inside our cells to find our genetic inheritance. Each one of us is made up of billions of cells and inside most of our cells, contained in a central area called the nucleus are 23 pairs of chromosomes. One chromosome of each of these pairs came from our mother and the other from our father. The chromosomes contain all the information to build and run every

cell in our bodies – together they make up the 'instruction book of life'.



© Clinical Skills Ltd

## The biological instruction manual

The genes are the 'instruction pages' from the book that direct the building of every kind of cell (and the production of all the chemicals, especially proteins, that enable the cell to function) by 'reading' the page of instructions for each specific cell only and ignoring all the rest of the instruction book. For example, the genes that are 'switched on' in kidney cells are different from those that are 'switched on' in brain cells because the cells of the brain have different roles and have different functions from cells in our kidneys.

## DNA: The building blocks of life

Using our instruction book and individual pages analogy, we finally come to the letters and words of life. The 'alphabet' is made up of only 4 different chemicals that are put together in groups of three to form 'words.' The 4 chemicals join together in pairs called base pairs. These base pairs are joined together to form the genes and the genes are joined end to end to form a chromosome which is no more than an enormously long double-helix (or spiral) made up of these base pairs arranged into a potentially infinite variety of patterns – this spiral is DNA, the basic building block of life. There are approximately 3 billion base pairs making up the genes and chromosomes in every human cell. As with any other book, the potential variations in the text are endless when the DNA 'letters of life' combine – by rearranging the base pairs in an infinite number of different ways every human is a unique, one-off creation.

As amazing as all of this is, mistakes can happen when DNA is being copied to make fresh cells – these mistakes are called ‘mutations’ and can lead to diseases such as cancers. With inherited problems, such as Huntington’s disease and some types of Parkinson’s, the genes that cause the problem are a part of our genetic ‘instruction book.’ Possessing these genes does not guarantee that we will get the disease but the potential is there and if these genes are ‘switched on’ then problems can follow. The aim of researchers is to identify the genes that cause, or strongly influence, Parkinson’s and find ways to switch them off or alter their effects so that they cannot cause Parkinson’s.



(DNA, by sheelamohan: freedigitalphotos.net)

## Parkinson’s Voice Initiative: Research Update

*By Lionel Paulo, Steering Group Secretary*

If you have been reading this newsletter since its inception over a year ago, you may recall a short article in number 2 last July about the Parkinson’s Voice Initiative. This study was initiated by Max Little PhD and its ultimate aim is to be able to use people’s voices as biomarkers to detect Parkinson’s disease before physical symptoms begin to show (see the biomarkers article in our last issue for an explanation of the importance of biomarkers).

Last year the computer program Max and his team had developed reached a rating of 86% accuracy in correctly assessing non-Parkinson’s voices and Parkinson’s voices, and 10,000 voice recordings over telephone lines were the goal – recently Max announced the 10,000 voices goal had been reached and the program has now attained an accuracy rating of 98.6% !

For more information go to [www.parkinsonsvoice.org](http://www.parkinsonsvoice.org) where you can see Max talking about the study the day it went live recruiting voices. I will leave it to him to explain all the potential benefits that may accrue from this research, and in the meantime Max and his team are hard at work analysing all this data – watch this space for the outcome of their research when it becomes available!



# Personal Perspectives

## Diary of a drugs trial participant (6)

*By Caroline Maxwell, Editor and Steering Group member*

On June 20, 2013, I went to Frenchay Hospital, Bristol, for the second and final visit of my participation in the trial of the drug Rivastigmine, which it is hoped will improve walking and balance for people with Parkinson's. After this visit I stop taking the medication, but continue to record any falls for the next 4 months.

As before, I was given a warm welcome by Dr Emily Henderson and her assistant. After a quick review of my recent medical history I began the tests. These were largely a repetition of those I had undergone on my first visit. They reminded me a little of when I did the 11+ exam many years ago. I had to do simple arithmetic and vocabulary tests, various tests of memory and one of joining the dots. There were also questions about my mood, about how Parkinson's affected my daily life, about my eating and sleeping habits and about whether I found myself dropping off to sleep in the middle of the day. So although I understood that the drug, currently used for people with Alzheimer's, was being tested for its effect on walking and balance in Parkinson's, the data collected will also give the researchers information about my intellectual and emotional condition.

The physical assessment consisted of testing my balance indoors and then filming me outside, walking along a measured route, turning and walking back. Then doing the same thing, but reciting a list of words beginning with a particular letter. Then walking the route again, but doing a double turn at the end. This last task was virtually impossible for me.

I do not know how my performance was this month compared with that of my initial visit, but I think I will have shown some deterioration. Neither I nor the researchers know at this point whether I was on the placebo or the real drug. Until the whole trial is finished and written up, which will be about April 2015, the information about who was on the placebo is only known to the people who are in charge of the randomisation of the trial.

So, what do I think? Was I on the real thing or was I on a placebo? I'm very aware of how easy it is to convince myself either one way or the other. At the beginning of the trial I thought I was on the real thing. But as time went on I began to doubt this and had come to the conclusion that either I was on the placebo or if I was on the drug then it didn't really work for me. I thought I would have a better idea when I stopped taking the drug, but so far this has not been clear-cut. As I write this diary it is five days since I last took the trial medication. Up to today I have noticed very little difference, but today my balance has been very poor, worse than usual. However, as we all know, Parkinson's varies from day to day and I may just have been having a bad day. All I can say with certainty is that there is no dramatic change and I am not feeling as though I have significant withdrawal symptoms.

I found the whole experience of participating in the trial very interesting and I was very impressed by the thoroughness as well as the kindness of the researchers. Although they had 130 participants, they made me feel that I was definitely an individual not just a number. The experience gave me a small insight into the large amount of detailed work which goes into a trial of this sort and of the importance of the participation of people with Parkinson's.

East Midlands Research Support Network (RSN)  
2<sup>nd</sup> Annual Research Forum:

# Towards Better Parkinson's Medication

## Draft Programme

Saturday 14 September 2013, 10.30 – 15.30h  
at The Roundhouse, Derby

10.00: *Registration & refreshments*

10.30: **Welcome** by John Telford, Chair

10.40: **Parkinson's research today**, with Prof Peter Jenner - Q&A

**Examples of current local research:**

11.30: **Findings on MRI of substantia nigra and new study for tracking Parkinson's**, with Dr Nin Bajaj - Q&A

11.50: **The value of specialist Parkinson's wards**, with Lisa Brown - Q&A

12.10: **Music and movement**, with Fiona Lindop - Q&A

12.30 – 13.30: *Lunch & tea/coffee (Lunch is free – voluntary contributions are welcome on the day).*

13.30: **Why become active in the East Midlands RSN**, with Richard Brown

13.45: **Faster, better drug screening**, with Richard Windle - Q&A

14.10: **Repositioning of drugs**, with Dr Ian Stanford - Q&A

14.40: **Panel discussion** on research into medication and promoting partnership between researchers and people with Parkinson's, with Prof Peter Jenner, Dr Ian Stanford, Richard Windle, Lisa Brown and others.

15.20: Final Remarks & Close

*The Research Forum in Derby has been made possible by generous funding from the Derby Branch of Parkinson's UK out of the legacy of Mrs Margaret Manester and from the national Research Support Network of Parkinson's UK.*

.....  
**REPLY SLIP**

**I would like to book a free place at the Research Forum on 14 September.**

Title:	
First Name(s):	
Surname:	
Address:	
Post Code:	
Telephone Number:	
E-mail:	
Do you have any special dietary or other requirements?	

**Please return by 5.9.13 to [researchforumderby@gmail.com](mailto:researchforumderby@gmail.com) or RFD, 51 White Street, Derby DE22 1HB**

## FULL ARTICLES

- [Visit to Dr Giorgini's labs](#), by Maria Rice
- [Down the Mines of Knowledge](#), by Jonathan Stevens

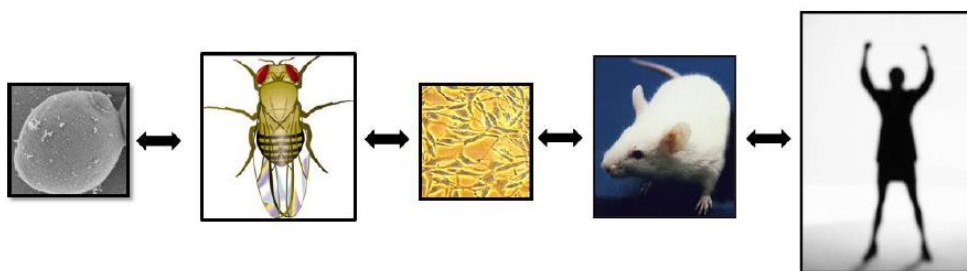
### Visit to Dr Giorgini's labs

By Maria Rice, Steering Group Member

A group, mainly from the Research Support Network, went on a visit Dr Flaviano Giorgini's genetic labs at the University of Leicester on the 29 May 2013. It was a really interesting visit. We started the afternoon with a theory talk from Dr Giorgini giving us an overview of the research carried out by his teams in the labs.

We were reminded of the complexity of Parkinson's when we were shown a list of genes which, when mutated, may cause the disease. Dr Giorgini explained that the scientists use a variety of models of Parkinson's to understand the functions and interactions of genes and the proteins they produce. The models they use are yeast cells, *Drosophila* (fruit) flies, nematode worms, mice and mammalian cells (including human cells).

### From simple to complex...



Outeiro and Giorgini, *Biotech J* (2006)

Most of the models can give relatively rapid results because they have short life cycles. For instance, yeast cells are very much like human cells in some important respects and since they have a short life cycle, sometimes merely hours long, they can provide results rapidly. This makes them a useful model on which to experiment.

The *Drosophila* (fruit flies), having a life cycle of only 14 days, also make a good model of Parkinson's, particularly as they can also move. This means that they can be monitored for impairments in their speed of movement, just as human beings can.

One of the main studies undertaken concerns the protein-producing gene DJ-1 one of whose mutations causes an inherited form of Parkinson's disease. We were told that the lab's scientists have developed a procedure to show when the DJ-1 protein molecules have joined up in pairs, by exhibiting a fluorescence. DJ-1 can only function properly in this 'dimeric' form. If no fluorescence is shown, then the protein is not working properly. This research is being done by Dr Mariaelena Repici and Leonor Miller-Fleming.

Another important development, in Dr Giorgini's labs, concerns the RAB family of GTPases. These are proteins which manage the way other proteins are carried through cells. There are over 70 types in the human body. They may yet prove to be useful in dispersing the alpha-synuclein which causes the Lewy bodies in Parkinson's. The main researcher for this is Dr. Carlo Breda.

There are also researchers in the team who are tackling other topics having similar potential to the ones mentioned. For instance Mahdieh Hassanjani is looking at the phosphorylation of the Tau protein which is implicated in Alzheimer's disease.

## **The labs**

Finally it was time to visit the labs. We first went to a lab in which the rooms were dark and had microscopes set up where scientists counted how many DJ-1 molecules had joined up by measuring the fluorescence that could be seen.

The next lab we went to was the genomics lab. In answer to a question about the difference was between genetics and genomics, we were told that genetics refers to individual genes and the genome refers to the entire complement of genes belonging to an individual. The genomics lab was set out to study these. There was quite a lot of different equipment set out on the benches, including machines to analyse genomes, enabling scientists to move around the lab and find whatever they needed.

Another lab we were ushered into had a microscope set up to examine fruit flies. You could see that flies affected by Parkinson's type symptoms had different coloured eyes. Next door there was a breeding room with lots of flies safely ensconced in boxes, all labelled with the researchers' names.

The last lab we visited was the general lab where the scientists had set up one microscope to examine yeast cells and another microscope to examine nematode worms. The worms were very active, wriggling from side to side. The yeast smelled of Marmite because that was what the cells were fed on!

Then it was time to go home. We left with our heads buzzing with things we had heard and seen, hoping that the research will bring us the freedom from Parkinson's that we deserve.

*(return to [page 4](#))*

The visit to Dr Flaviano Giorgini's lab in Leicester inspired Jonathan Stevens to let loose his imagination and to produce this unusual account of life in a research laboratory. It goes to show there are many ways of sparking an interest and raising awareness of research.

## Down the Mines of Knowledge

By Jonathan Stevens

Yeast, nerve cells, fruit flies and worms put on their white lab coats and, alongside the humans (including Dr Flaviano Giorgini and members of his group), trundle into the different labs. All are ready for another day down the mines of knowledge, attempting to liberate another of nature's secrets.

In each of the four labs, set up for different experiments, bottles of chemicals line the shelves, the white benches are ready to receive the various experimental apparatus and fancy looking machines blink into life. There is a sense of anticipation; knowledge is discovered here!



(Sample Blood Tubes in Laboratory, by Sura Nualpradid: freedigitalphotos.net)

Yeast work in the first lab. They are single cell organisms that amazingly share their basic cellular functions with humans. Not only do they produce waste gas (carbon dioxide like us) that causes bread dough to rise and waste excretions (alcohol, unlike humans) that get us all drunk, but they also generate knowledge of how genes work. For example, a gene that is mutated in some Parkinson's sufferers, *DJ-1*, has its equivalent in yeast so these organisms can be used as specialist tools to extract *DJ-1* knowledge from the mine.

Down the corridor in the tissue culture lab, human-derived nerve cells are grown and carefully looked after. Like small children, the cells are washed and fed every day and kept in a clean and warm environment (in this case a 37°C incubator). Sometimes genes are artificially introduced into these cells to produce specific proteins. For example, GFP protein can be generated. GFP protein gives off green light when light of a certain wavelength is shone on it. Microscopes in the third lab are set up to capture images of these "green" cells; they can show where a protein is or whether proteins interact within the cell. More knowledge is liberated!

It is important to link what happens inside cells to the effect on the whole organism. This is why fruit flies and worms are employed in the lab. These organisms also have genes equivalent to those in humans which are affected by Parkinson's. Remarkably, when these genes in the fruit flies or worms are mutated they show Parkinson's symptoms such as movement difficulties.

Each organism and each lab work together to extract the various rocks of knowledge and then the humans have to work out how it all fits together to generate a coherent picture of what is happening to cause Parkinson's. The job of the *DJ-1* protein is to mop up the chemical waste produced by generation of energy in the cells. Studies of yeast and nerve cells found that to be effective these protein molecules must work in pairs. Interestingly, drugs can help *DJ-1* to form pairs better. They now hope to test if these drugs lead to less Parkinson's symptoms in mutated flies.

In addition the lab has found that Rab GTPases, involved in transporting proteins around the cell, improve many symptoms including locomotion problems which are seen in fruit flies affected by Parkinson's.

At the end of a long day, benches are cleared of equipment and wiped clean. Nerve cells, yeast, fruit flies, worms and humans hang up their lab coats and head home. The labs are ready for tomorrow and another shift at the coal face of knowledge. The lights in each lab are never turned off; the need for such research is too great...

*(return to [page 4](#))*

EMRSN News is published bi-monthly by the Steering Group of the East Midlands Research Support Network (RSN). The RSN brings together people driven to help find a cure and better treatments for Parkinson's. Through our network, anyone can get involved in research and raise funds and awareness for Parkinson's research.

The views expressed in this newsletter are not necessarily those of the Editor, the Editorial Group, the EMRSN Steering Group or Parkinson's UK.

The next deadline for contributions is **Wednesday 4 September**. Please send us a copy of your newsletter and event notices.

Editor: Caroline Maxwell & Ian Billcliff ( [imb248@outlook.com](mailto:imb248@outlook.com) )

Editorial Group: Lionel Paulo, John Telford, Chris Johnson

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