



February 2012



Welcome to the 2012 TwinsUK newsletter

We have continued to publish research articles at an unprecedented rate in world – class journals - none of which we could have done without your help.

In this newsletter you can read about our major research news, publications and studies. In addition you can see photographs of our new premises at St Thomas' – borne out of our need for more space to house our continually expanding research and clinical team.

We are also happy to be able to fill you in on the numerous media appearances that DTR staff and twins on the registry have made. Not only that, but you can now follow our achievements 24/7 by reading our regularly updated website www.twinsuk.ac.uk. You can also follow us on Facebook and watch us on YouTube (see the last page for more information).

We couldn't achieve these results without all our dedicated twins. Let's hope for another year of outstanding research that produces real results - informing the medical world and making a real difference.

Wishing you all the best for 2012,
Tim Spector

Professor Spector's news

Professor Spector has recently returned from a not very restful sabbatical! He completed a research programme in Spain during which he studied revolutionary genetic techniques which will change the face of how scientists analyse and interpret complex disease genetics.

He also found time to write a book called *"Identically Different: Why You Can Change Your Genes"* - about how minor life events and the choices we make, as well as those made by our ancestors, fuse with our inherited genes to mould us into individuals.



The Hardcover edition is out on the 14th of June 2012 and can be pre-ordered online from Amazon.co.uk

Exciting DTR research news

Nature Genetics, a leading scientific journal, has just published our discovery that a number of genes are associated with age of menopause. The DTR together with an international team of collaborators were fascinated to discover that some of these genes are involved in DNA repair, and hence ageing. Another recent DTR study discovered eight other genes which control levels of a steroid called DHEAS. Since DHEAS levels decrease with age, this discovery may provide valuable insights into ageing.

Also published in Nature Genetics was our discovery (together with Oxford University) that a gene linked to type 2 diabetes and cholesterol levels is in fact a 'master regulator' gene, which controls the behaviour of genes found within fat in the body. *"As fat plays a key role in susceptibility to obesity, heart disease and diabetes, the discovery of this new master gene gives us a possible target for future treatments to fight these conditions"* reports Professor Spector.

Finally, you may have read in the papers about our research showing that a glass of wine a day can help strengthen the bones and reduce the risk of osteoporosis in the spine. Other alcoholic drinks such as beer and spirits do not have the same beneficial effect and unfortunately medical advice still recommends that wine should only be drunk in moderation!



Did you spot us in the Media?

Last summer, the DTR featured in ABC Primetime Nightline's "Beyond Belief" series. One of the installments was called "Twintuition," and investigated the special connection between twins. In November, "Twin Nation" was aired on Radio 4, in which Edi Stark explored different aspects of being a twin and interviewed a number of DTR twins.

Prof Spector also featured a number of times on BBC Radio 4 over the past year. In July on the "Frontiers" programme he discussed the latest DTR research on Ageing and Telomeres. And on December 30th he appeared together with the sprightly Baroness Betty Boothroyd on the "Today Programme", discussing her DTR 'twin' visit and the genetics of ageing.

Finally, look out for Tim Spector and your fellow twins who will be featured in a BBC2 Horizon documentary in the spring. The programme will investigate the epidemiology of obesity, and the role that our genes play in determining our weight by comparing identical twins with different body weights.

We often send emails about opportunities for twins to be in the media, DTR media appearances, and research news. If you would like to receive emails from us, email twinsuk@kcl.ac.uk



Tim with Baroness Boothroyd, who was the first and, so far, only female Speaker of the House of Commons.

TwinsUK website

Don't forget that you can keep up to date with our latest news 24/7 by accessing our website at www.twinsuk.ac.uk

There you can find links to our research publications, current projects, press releases and a special twin section that includes volunteering information, interesting reading, twin news and a photo gallery.



Spotlight on the DTR's up and coming scientists



Hi, My name is Ana Vinuela.

I received my PhD in Genetics from Wageningen University, The Netherlands. As part of my PhD I studied the effect that genetic variation can

have on ageing in animals. As we all know, humans age at different rates and it is likely that genetic variation also affects the ageing rate in humans.

I am now a Research Associate at the DTR. To investigate ageing differences between humans we are looking to see if there is an association between the quantity of mRNA in skin and fat and a person's age. mRNA is a transcript of our DNA which is used by the cell to create a specific protein. Measuring amounts of mRNA (made during a process called gene expression) is a way of telling us what the protein output of our cells is, and whether this changes as we age.

Gene expression studies can tell us which DNA sequences are involved in the ageing process and hence shed light on the cause of ageing. This study has many implications for medical research. Ageing in humans leads to a higher risk of diseases such as cancer, osteoporosis and arthritis. Understanding why people age at different rates will help doctors to detect, prevent or treat age-related conditions.

Twin research is one of the best ways to study ageing as we are able to compare identical and non-identical twins. I am very grateful to be able to work with the information and samples you provide.

What is the secret of healthy ageing?



Ena and Lily, the oldest twins in the world, recently celebrated their 102nd birthday.



Hi, my name is Lydia Quaye.

I received my PhD from the Department of Gynaecological Oncology at the Institute for Women's Health, University College London.

I am now a Research Associate at the DTR and my main work is identifying associations between variations in DNA and complex traits. Heart disease and diabetes are examples of complex conditions which are caused by many environmental and genetic factors. Gene discovery is the first and critical step to helping researchers understand what causes these diseases.

I am currently researching migraine genetics which is funded by the Chronic Disease Research Foundation (CDRF). A huge thank you to Hazel and Christine who raised £8217 for the CDRF during their sponsored walk (www.twinsuk.ac.uk/ts2.html). This money is helping to fund the migraine project which involves the collaboration of groups from 8 countries around the world. There are some interesting preliminary results and we are now planning future studies to find the genes linked to different types of migraine.



Christine and Hazel present a cheque to Dr Cherkas of the DTR.

Thank you so much for your continued participation in TwinsUK. We hope you are excited by our research success and the advances in scientific knowledge that will occur as a direct result of your participation.



Hi, my name is Alireza Moayeri.

I received my Medical Doctorate degree from Tehran University where I developed a research interest in osteoporosis and fractures in the elderly. Following completion of a PhD in

Epidemiology at Cambridge University, I joined the DTR as a Research Associate.

My main job is to look at the data from the Healthy Ageing Twin Study (HATS). This study uses measurements of twins taken over ten years ago and compares them to repeat measurements taken during HATS (from 2007-2010). This type of study is called a longitudinal study

and allows us to assess changes with time (in this case, in different organs such as lungs and bone) and to disentangle the genetic and environmental factors affecting these changes.

Thanks to you we have some exciting preliminary results which show that changes in bone strength are determined primarily by genetic factors up to about the age of 60, but are determined more by environmental factors thereafter.

With these results in mind, it is even more important to eat healthily and do exercise as we get older – especially weight-bearing exercise (such as power walking, football and dancing!) which have been shown to increase bone strength.



DTR Move

We are very fortunate that King's College London and Guy's and St Thomas' NHS Foundation Trust have recognised our valuable work and our need for new premises as our Department continues to expand.

After years of patiently waiting we have completed the first phase of the move. Half of our staff now reside in our new state of the art premises at a new location within St Thomas' Hospital with the final phase and relocation planned for next summer. The new facilities include a fully equipped meeting room where we have already had our first meeting with the Twin Volunteer Advisory Panel, a kitchen area and large open plan fully equipped office space.



www.cdrf.org.uk

The Chronic Disease Research Foundation (CDRF) is an independent medical research charity that funds gene discovery of complex diseases at the Department of Twin Research. The CDRF relies entirely on non-governmental grants and donations. If you would like to donate money to the DTR via the CDRF, please consider a gift aid or company gift, or a legacy, transfer of assets or other method.

For more information please contact:
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Tissue donation for neuroscience research – a gift of hope

Donation of brain tissue after death is a precious and unique gift. The tissue provides an essential resource for researchers to

- understand the pathology of common brain diseases such as dementia
- design new research strategies
- develop future treatments

The DTR has worked together with the world-renowned Institute of Psychiatry (IoP) on a number of successful research projects and we are always looking for new ways to expand our research potential and advance medical knowledge. One new and expanding area of research relies on the donation of brain tissue after death. The MRC London Neurodegenerative Diseases Brain Bank based at the IoP is now a leader in the field of brain banking.

The Brain Bank not only provides samples to IoP scientists but also to approved leading research centres throughout the UK and abroad. Since the majority of these studies can be carried out on a small amount of tissue, each donated brain provides a large number of samples for many research groups.

Donations from research volunteers such as twins in the TwinsUK registry who have had detailed research measurements are particularly valuable. It is also critical to have donors with and without a history of neurodegenerative disease to compare results. More so, the comparison of brain tissue of both identical and non-identical twins can provide an unparalleled insight into the working and ageing of the human brain.

The brain bank encourages donors to register their intent to donate to enable donation to take place as smoothly as possible after death. The brain bank follows best practice in ethical issues relating to informed consent, donor family care, storage of tissue and release of tissue to researchers.

For more information please see the following website

www.ioP.kcl.ac.uk/brainbank

or contact the Brain Bank team on

020 7848 0290

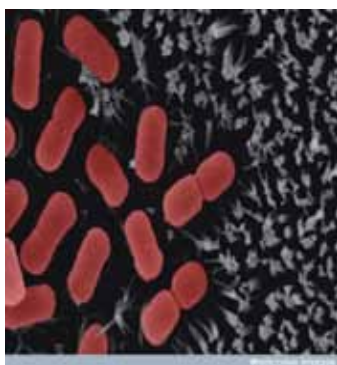


DTR Study Updates

As many of you know, we recently came to the end of our 4 year Healthy Ageing Twin study (HATS). We are now entering a very intense period of analysing all the data that we collected at the time of the visits. Watch this space for the results that will soon be emerging. In the mean time we are still recruiting for a number of smaller studies (allergy, pain and heart function). We will contact you if you are eligible. Many thanks for your ongoing support.

Your Gut (the Twin Flora study)

We are preparing a new project to study the different types of bacteria that naturally live in our guts (intestines). Recent literature shows that bacterial diversity in our gut is linked to health and disease and even how much we weigh. It appears that most of us have unique personalized bacteria and that different types of bacteria influence how our immune system behaves. Thus our bugs have far-reaching consequences on how our bodies respond to disease and ageing. This is one of the most exciting areas of medicine.



© Dr Paul Dean, Newcastle University, Wellcome Images

The only way to investigate this is to analyse a stool sample and record the bacteria. In the next few months you will receive a stool sample kit, an instruction sheet and a prepaid box so that you can, if you agree to be in the study, take a stool sample easily - and safely post it back to us. Although this study kit may not be quite what you expect to land on your doorstep - these results will make a huge difference to science and understanding our immune system and preventing disease. Many thanks for your invaluable contribution!

Respiratory Study Reminder

If you were one of the 178 twins who received a sputum collection pack in the post – please can you send it back together with your sputum sample. It is a really important study that aims to compare sputum samples of both smoking and non-smoking twins in order to learn more about the genetic and non-genetic factors that cause certain respiratory conditions. If you are unable to use the pack, please do return it using the freepost details provided. Thanks for your help!

Study Number Update

In the near future you may notice a minor alteration to the end of your Study Number. This change to all study numbers is to accommodate the extra family members who are now recruited into some of our studies. Don't worry we will still know exactly who you are! For some studies you may even see 2 numbers, only one of which you will recognize – this is to further anonymise your samples.

DTR merchandise for sale!

Our fast-selling DTR jute bags come in three sizes - small (£3), medium (£4) and large (£5), or all three for £10.

You can buy them at your next visit to the DTR or through the Twins Gift Company who are kindly selling them on our behalf.

Go to www.twinsgiftcompany.co.uk

The bags can be found under the 'DTR Gifts' section.

Profits from the sale of the bags help fund research at the DTR. The Twins Gift Company have kindly offered a 10% discount on all other Twins Gift Company products to DTR volunteers. Please insert Coupon Code DTR11 on checkout and click Redeem.



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