



# NUFFIELD DEPARTMENT OF CLINICAL NEUROSCIENCES

We host world-leading programmes in basic, translational and clinical neuroscience research. Our integrated approach allows for the swift transfer of basic biomedical findings to the clinical setting. We deliver evidence-based therapies of high impact for the benefit of society and the economy.



## Annual Report 2016-17





The Nuffield Department of Clinical Neurosciences has had another very successful year - contributing to the University of Oxford's Medical Sciences Division being named for the seventh year in a row the **top medical school worldwide** and the University being ranked top worldwide for a second year in a row.

I hope you enjoy reading about some of the strides forward we have made in our research, in such diverse areas as pain, breathing, stroke and eye disease. Brain mechanisms are involved in all sorts of health and societal issues, and we are proud that our Department is **at the forefront of wide-ranging discoveries** that can have meaningful impacts in a clinical setting and more broadly for the public.

We are committed not only to pushing the boundaries of science, but also to sharing our knowledge and experience with upcoming generations through our **innovative teaching programme**. Our outward-looking work does not stop here: we are also developing our **public engagement activities** and our **industrial profile** through new spinout companies.

This year has seen some changes in our support teams which means that we can enter a period of consolidation going forward. We are also looking forward to breaking ground on our building project, supported by funding from the Wolfson Foundation and the Wellcome Trust. This will give us purpose-built facilities for the Centre for the Prevention of Stroke and Dementia (CPSD) and provide more space for the Wellcome Centre for Integrative Neuroimaging (WIN).

Finally, I would like to thank all our staff for their dedication and hard work to make this Department such a fantastic place to build your career.

**Professor Irene Tracey**

# The Year in



## Risks of major bleeding in older patients taking aspirin

Research led by Professor Peter Rothwell in our Centre for the Prevention of Stroke and Dementia found that in people aged 75 or over, long-term daily aspirin use is linked to a higher than expected risk of disabling or fatal bleeding. The study gives a much clearer understanding of the size of the increased risk and of the severity and consequences of bleeds.

[www.ndcn.ox.ac.uk/news/long-term-aspirin-use-linked-to-bleeding-risk-in-over-75s](http://www.ndcn.ox.ac.uk/news/long-term-aspirin-use-linked-to-bleeding-risk-in-over-75s)



## Trench Foot discovery paves way for new treatment

A team including Professor David Bennett has uncovered the physical cause of trench foot more than 100 years after the painful and debilitating condition was first identified in the First World War. Understanding the root cause of non-freezing cold injury will open the way for new treatments, as well as improving ways to prevent the condition in people who are most susceptible.

[www.ndcn.ox.ac.uk/news/trench-foot-discovery-paves-way-for-new-treatment](http://www.ndcn.ox.ac.uk/news/trench-foot-discovery-paves-way-for-new-treatment)

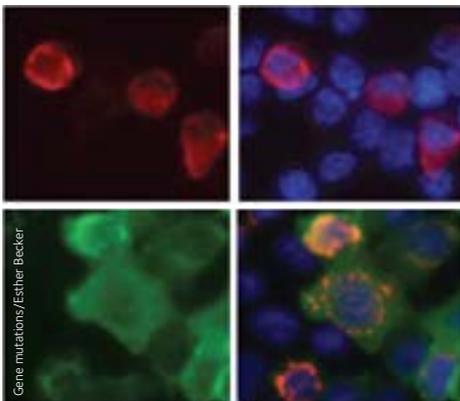
# Highlights



## Launch of Wellcome Centre for Integrative Neuroimaging

Our new Wellcome Centre headed by Professor Heidi Johansen-Berg had its official launch in November. It is a multi-disciplinary neuroimaging research facility encompassing units in our Department and the Department of Psychiatry, as well as imaging facilities within the Department of Experimental Psychology. WIN bridges the gap between laboratory neuroscience and human health, by exploiting the capacity of neuroimaging to provide measurements that are sensitive to cellular phenomena and that can also be observed in living humans.

[www.ndcn.ox.ac.uk/news/launch-of-wellcome-centre-for-integrative-neuroimaging](http://www.ndcn.ox.ac.uk/news/launch-of-wellcome-centre-for-integrative-neuroimaging)



## Potential new route to treatment for Cerebellar Ataxia

A cross-departmental collaboration involving Senior Clinical Research Fellow Andrea Németh has published an important paper about degeneration in the cerebellum, a part of the brain important for movement control. For the first time, the team identified dominant mutations in a certain gene that cause distinct disease symptoms. This offers hope that there may one day be therapeutic drugs for cerebellar ataxias.

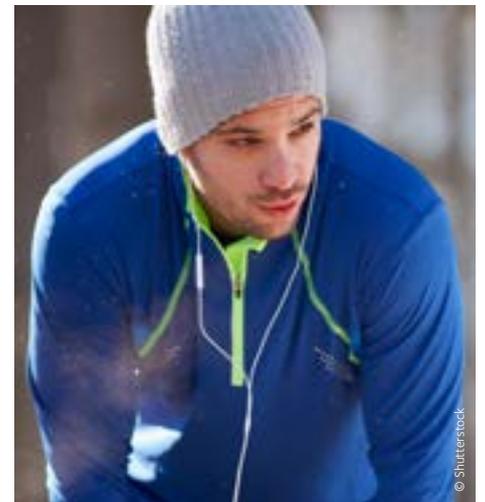
[www.ndcn.ox.ac.uk/news/potential-new-route-to-treatment-for-cerebellar-ataxia](http://www.ndcn.ox.ac.uk/news/potential-new-route-to-treatment-for-cerebellar-ataxia)



## A new approach to improving hemispatial neglect after stroke

Research by Dr Jacinta O'Shea in the Wellcome Centre for Integrative Neuroimaging reveals the striking potential of brain stimulation to cause long-lasting improvements in stroke patients' attention deficits. Right-sided brain damage can cause people to behave as though the left half of the world doesn't exist. This group's work is an example of how we can take ideas from the neuroscience laboratory into the clinic to help improve stroke patients' lives.

[www.ndcn.ox.ac.uk/news/a-new-approach-to-improving-hemispatial-neglect-after-stroke](http://www.ndcn.ox.ac.uk/news/a-new-approach-to-improving-hemispatial-neglect-after-stroke)



## Brain scanning and breathing disorders

Associate Professor Kyle Pattinson and his group are at the cutting-edge of a continually improving brain imaging technology that is being used to shed some light on what exactly is happening when we anticipate and experience breathlessness. They have started to uncover the complex neural mechanisms involved in dealing with breathlessness. This will facilitate the design of more successful treatment options.

[www.ndcn.ox.ac.uk/news/brain-scanning-and-breathing-disorders](http://www.ndcn.ox.ac.uk/news/brain-scanning-and-breathing-disorders)



Curiosity Carnival/Jen Wallman

## Curiosity Carnival came to town

On Friday 29 September Oxford's Curiosity Carnival joined hundreds of other European cities in celebrating European Researchers' Night. Our researchers took part in a city-wide programme of activities that attracted over 9,000 people.

[www.ndcn.ox.ac.uk/news/curiosity-carnival-comes-to-town](http://www.ndcn.ox.ac.uk/news/curiosity-carnival-comes-to-town)



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## New spinout to modulate circadian rhythms

There are currently no safe, effective and fast-acting treatments that provide benefit to patients through modulation of circadian rhythms (day/night cycle). Circadian Therapeutics is a new spinout founded by Professor Russell Foster and Associate Professor Aarti Jagannath, among others. It will study the effects of certain drugs on circadian rhythms in clinical trials. Simultaneously, it plans to replace hospital-based, expensive diagnostics through the development of a home-based ambulatory electroencephalogram (EEG) device that will provide accurate and minimally intrusive measurement of brain function and circadian rhythms.

[www.ndcn.ox.ac.uk/news/new-spinout-addresses-sleep-and-circadian-rhythm-disruption](http://www.ndcn.ox.ac.uk/news/new-spinout-addresses-sleep-and-circadian-rhythm-disruption)



## From Agony to Analgesia

In the summer, Head of Department Professor Irene Tracey presented a two-part programme on Radio 4 about pain, and the current work taking place to measure and treat it. She explained how certain types of pain, such as that experienced by those with phantom limbs and those with diabetic nerve damage, can help reveal how pain is generated in the brain.

[www.ndcn.ox.ac.uk/news/from-agony-to-analgesia-two-part-radio-programme](http://www.ndcn.ox.ac.uk/news/from-agony-to-analgesia-two-part-radio-programme)

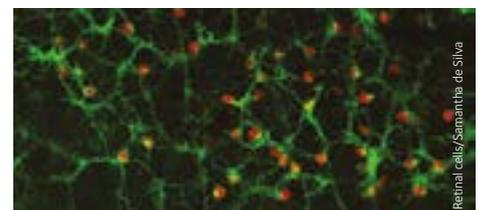


NDCN Summer Party/John Cairns

## Innovative staff development programme

As testament to our commitment to developing our staff, we created a departmental Staff Development Plan, based on previous responses to our staff survey. We also created a pioneering Carers' Career Fund, to enable those with caring responsibilities to undertake training and attend conferences.

[www.ndcn.ox.ac.uk/about/staff-development](http://www.ndcn.ox.ac.uk/about/staff-development)



Retinal Cells/Samantha de Silva

## Gene therapy shows promise for reversing blindness

Honorary Clinical Research Associate Samantha de Silva, together with Professors Robert MacLaren and Mark Hankins, has shown how it might be possible to reverse blindness using gene therapy to reprogram cells at the back of the eye to become light sensitive.

<https://www.ndcn.ox.ac.uk/news/gene-therapy-shows-promise-for-reversing-blindness>

## STATISTICS FOR 2016–17



### Awards for excellence in teaching

Zoi Alexopoulou and Nicola Barclay both received awards from the Medical Sciences Division: Zoi for making her teaching inclusive for those with disabilities, and Nicola for enhancing online teaching methods in the Oxford Online Programme in Sleep Medicine. This Programme was also a runner up in the OxTALENT awards. NDCN's undergraduate medical teaching team, led by Gabe de Luca, won the departmental Thomas Willis Award for Teaching in recognition of their tireless work to improve radically the delivery of neurology teaching for medical students.

**346**  
GRANTS

**105**  
FUNDING BODIES

**£120.3m** TOTAL GRANT VALUE

**RESEARCH TURNOVER** **£16.3m**

**£13.9m** NON-RESEARCH TURNOVER

**13**  
MEDIA  
STORIES

**32**  
PUBLIC  
ENGAGEMENT  
ACTIVITIES

**233**  
HONORARY  
CONTRACT  
HOLDERS



**458** PUBLICATIONS

**69**  
Support staff

**190**  
Post-docs

**108**  
DPhil students

**278**  
Research  
Staff

**232k**  
Website Users

**23**  
Professors

**33**  
Associate  
Professors



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