



# 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 2015/16





2015–16 was another fantastic academic year for the Nuffield Department of Clinical Neurosciences (NDCN), the Medical Sciences Division and the University of Oxford. With worldwide top rankings; successful Oxford Biomedical Research Centre bids where NDCN is represented in over five themes; multiple fellowships, prizes, grants; and the recent news that we have been successful with the Wellcome Centre bid for the Oxford Centre for Functional MRI of the Brain (FMRIB) along with colleagues from Psychiatry and Experimental Psychology, there is no doubt we are extremely well placed going into 2017.

I am delighted that the building project for the Centre for the Prevention of Stroke and Dementia is under way, providing much-needed expansion of our physical infrastructure and space. Our teaching has been highly praised, and we continue to make our science impactful in the clinic as well as communicated to the public and media.

I would like to acknowledge and thank our staff for their dedication and sterling work – most notably Professor Christopher Kennard who retired in September 2016 and to whom we are all so grateful. He has been a towering figure and loyal member of NDCN – we wish him well for his retirement. We are fortunate to have world-leading scientists and clinicians in our midst supported by a dedicated administrative team. I am delighted to be part of the leadership team stewarding NDCN onwards and upwards, and I would like to thank the heads of NDCN's five divisions for their support and hard work. I hope you enjoy reading a snapshot of our ongoing work.

**Professor Irene Tracey**

# The Year in H



## Studying acute vascular events

The Oxford Vascular Study (OxVasc) is the only project of its kind that studies all acute vascular events, such as strokes and heart attacks, in order to develop better treatments. Led by Professor Peter Rothwell, Director of the Centre for the Prevention of Stroke and Dementia, OxVasc has now recruited its 10,000th Oxfordshire participant.

[www.ndcn.ox.ac.uk/news/unique-study-of-vascular-disease-welcomes-10-000th-participant](http://www.ndcn.ox.ac.uk/news/unique-study-of-vascular-disease-welcomes-10-000th-participant)



## Improving autoimmune disease treatment

Many of the current treatments for autoimmune diseases, which include multiple sclerosis, rheumatoid arthritis and inflammatory bowel disease, involve deliberately weakening the body's immune system. This leaves patients at greater risk of developing other opportunistic illnesses. New research from Professor Lars Fugger and his team has raised the possibility of minimising the side effects of treatment for patients with autoimmune diseases.

[www.ndcn.ox.ac.uk/news/study-paves-the-way-for-new-autoimmune-disease-treatments-with-fewer-side-effects](http://www.ndcn.ox.ac.uk/news/study-paves-the-way-for-new-autoimmune-disease-treatments-with-fewer-side-effects)

# Highlights



## Expanding our estate

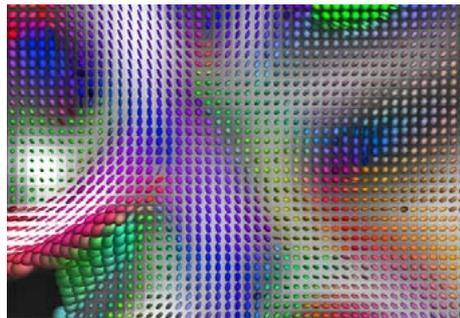
We now have full approval for our plans for a new building at the back of the John Radcliffe Hospital. The building, to be completed at the end of 2018, will house the Centre for the Prevention of Stroke and Dementia (CPSD) and a separate section will provide space for other research staff in our Department. The CPSD is funded largely by the Wolfson Foundation and the Wellcome Trust, with contributions from the University and the Department.



## Winning prizes for public engagement

Associate Professor Chrystalina Antoniadou won an award in the Early Career Researcher Category of the University of Oxford's Vice-Chancellor's Awards for Public Engagement with Research. The award recognised her collaboration with the Ashmolean Museum on Brain Awareness Week events that have attracted thousands of people.

[www.ndcn.ox.ac.uk/news/researcher-wins-prize-for-engaging-the-public](http://www.ndcn.ox.ac.uk/news/researcher-wins-prize-for-engaging-the-public)



## Contributing to world's biggest body scanning project

Professor Stephen Smith and Professor Karla Miller are leading the neuroimaging component of UK Biobank, a £43m study imaging the brain, heart, bones, carotid arteries and abdominal fat of 100,000 current participants. The multi-organ scans will be analysed alongside the vast data already collected from UK Biobank participants. The aim is to discover new early signs and risk factors of disease, in the hope that earlier targeted treatment, or changes in lifestyle, could prevent major neurological diseases from ever happening.

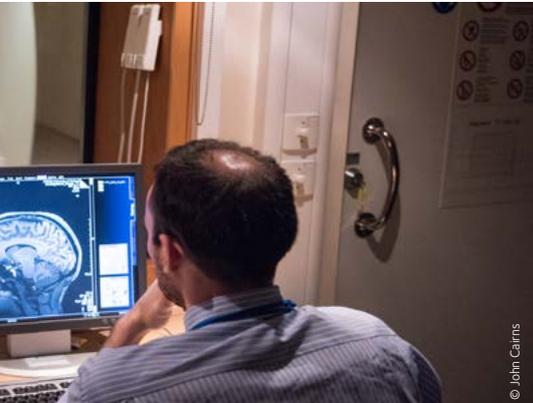
[www.ndcn.ox.ac.uk/news/uk-biobank-launches-world2019s-biggest-body-scanning-project](http://www.ndcn.ox.ac.uk/news/uk-biobank-launches-world2019s-biggest-body-scanning-project)



## Developing robotic surgery

Professor Robert MacLaren has performed the world's first operation inside the eye using a robot. He used the remotely controlled robot to lift a membrane 100th of a millimetre thick from the retina at the back of the patient's right eye, correcting the vision which had been altered by the patient's contracted retina. The robotic device was developed by Preceyes BV, a firm established by the University of Eindhoven. The engineers worked closely with our researchers on this landmark clinical trial.

[www.ouh.nhs.uk/news/article.aspx?id=519](http://www.ouh.nhs.uk/news/article.aspx?id=519)



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## Bridging the gap between laboratory neuroscience and human health

The Oxford Centre for Functional MRI of the Brain, led by Heidi Johansen-Berg, has received funding to become a Wellcome Centre for Integrative Neuroimaging, along with colleagues from the Departments of Psychiatry and Experimental Psychology. Neuroimaging is a powerful tool to connect current advances in the measurement of brain circuits and the large-scale datasets being generated by clinical and epidemiological studies. Researchers can provide measurements that are sensitive to cellular phenomena and that can be acquired in living humans, bridging the gap between laboratory neuroscience and human health.

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



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## Developing our people

In 2015 NDCN received an Athena SWAN Silver Award, recognising that we are tackling challenges in the areas of recruitment and selection; induction; career development; meeting the needs of carers; and developing an open and friendly workplace culture. We set up a staff society, improved induction and personal development review processes, and enhanced internal communication. Our focus now is to continue reviewing our departmental processes and provisions, and to launch a staff development plan in 2017.

[www.ndcn.ox.ac.uk/about/working-in-our-department](http://www.ndcn.ox.ac.uk/about/working-in-our-department)

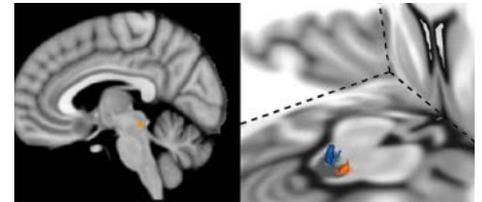


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## Reducing noise in intensive care

Our researchers, led by Professor Duncan Young, have been investigating the noise issues in intensive care units. High levels of noise make it harder to sleep, sleep deprivation leads to confusion, and confusion is thought to complicate the healing process. The hope is that a reduction in noise will make intensive care a better environment for patients, and one more conducive to recovery.

[www.ox.ac.uk/news/2016-03-30-researchers-target-intensive-cares-intensive-noise-problem](http://www.ox.ac.uk/news/2016-03-30-researchers-target-intensive-cares-intensive-noise-problem)



## Revealing the brain's breathing secrets

Researchers led by Associate Professor Kyle Pattinson have found that components of a small group of brain cells in the brainstem are important in how people perceive the threat of breathlessness. Sometimes breathlessness is out of proportion with what is actually happening physiologically in the lungs. The research could eventually lead to the development of new treatments, to see whether they have any effect on this tiny, hitherto inaccessible part of the brain.

[www.ox.ac.uk/news/science-blog/revealing-brains-breathing-secrets](http://www.ox.ac.uk/news/science-blog/revealing-brains-breathing-secrets)



## Spinning out companies

A spinout company from our Department, OxSight, has trialled smart glasses that help sight-impaired and blind people to navigate independently, avoid collisions and see in the dark. The technology was developed by visual prosthetics researcher Dr Stephen Hicks. Other new spinouts include Professor Russell Foster's Circadian Therapeutics.

[www.ndcn.ox.ac.uk/news/spinout-develops-smart-glasses](http://www.ndcn.ox.ac.uk/news/spinout-develops-smart-glasses)

# The Year in Highlights

## STATISTICS FOR 2015–16



✓  
**223**  
GRANTS

  
**92**  
FUNDING BODIES

**£99.2m** **+**  
TOTAL GRANT VALUE

 RESEARCH  
TURNOVER **£15.7m**

**£12.4m** NON-RESEARCH  
TURNOVER

### Understanding Parkinson's disease

A group of scientists including our Department's Laura Parkkinen have developed a new diagnostic test for Parkinson's disease. The test measures the 'stickiness' of a particular protein in the cerebrospinal fluid. It could potentially identify Parkinson's patients before their motor and/or cognitive symptoms appear and thus allow the initiation of early treatment that could slow or even stop the disease.

[www.ndcn.ox.ac.uk/news/new-diagnostic-test-for-parkinsons-disease-moves-a-step-closer](http://www.ndcn.ox.ac.uk/news/new-diagnostic-test-for-parkinsons-disease-moves-a-step-closer)

**18**  
MEDIA  
STORIES

**20**  
PUBLIC  
ENGAGEMENT  
ACTIVITIES

**263**  
HONORARY  
CONTRACT  
HOLDERS

 **594** PUBLICATIONS

**74**  
Support staff

**263**  
Post-docs

**108**  
DPhil students

**29**  
Associate Professors



**23**  
Professors



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