

SVUH Neurology Research Group



The Neurology Department at St Vincent's University Hospital is currently led by three full time consultant neurologists; Professor Niall Tubridy, Dr Christopher McGuigan and Dr Sean O' Riordan. Professor Hutchinson continues to work in four clinics every week as well as being one of the driving forces behind our Multiple Sclerosis and Dystonia research.

Group Head

Prof Niall Tubridy
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St Vincent's University Hospital

Research Team

Prof Niall Tubridy
Associate Clinical Professor

Prof Michael Hutchinson
Newman Clinical Research Professor

Prof James Jones
Professor of Anatomy

Dr Sean O'Riordan
Consultant Neurologist

Dr Chris McGuigan
Consultant Neurologist

Dr Karen O'Connell
*Biogen Idec Newman
Research Fellow in Neurology*

Newman Fellows

Dr Anna Molloy

Dr Okka Kimmich

Dr Laura Williams

Ms Sinead Jordan
Research Nurse

MS Nurses

Marguerite Duggan

Lisa Buckley

Ms Heather Kevelighan
Parkinson's Nurse

The Neurology Research Group continues its work in a wide range of areas but especially in those of multiple sclerosis and movement disorders.

The research team includes; Dr Okka Kimmich, Dr Anna Molloy, Dr Laura Williams, Newman Fellow in Movement Disorders; Dr Karen O'Connell, Newman Fellow in MS Research; Post-Doctoral MS Research Fellow, Dr Jean Fletcher (based at TCD); MS Nurse Specialists Marguerite Duggan and Lisa Buckley, Parkinson's Nurse Specialist Heather Kevelighan and Clinical Trials Research Nurse Sinead Jordan.

In November 2012 we began recruiting for our first investigator-led interventional clinical trial entitled: 'Dose-related effects of vitamin D on immune responses in patients with Clinically Isolated Syndrome or early MS and healthy control participants. An exploratory double blinded placebo controlled study' (2012CIS/VD/SVUH). The principal investigator of this study is Professor Michael Hutchinson. To date 26 participants have been screened. A second interventional trial involving MS participants, led by Dr Christopher McGuigan is due to commence in spring 2013.

Neuropsychological assessments of participants with MS, conducted over three years, are ongoing as part of a larger study on evoked potentials in MS. Neuropsychological assessments are being completed in collaboration with Sean O Donnchadha, Marie Claire O'Brien, Dr Jessica Bramham and Dr Teresa Burke from the School of Psychology, UCD.

Research in dystonia in conjunction with Prof Richard Reilly and Dr Robert Whelan of the Department of Neural Engineering has been funded jointly by the HRB and Dystonia Ireland with a two-year grant. We have shown that the temporal discrimination threshold is a useful endophenotype in adult onset primary torsion dystonia (AOPTD) and this may have important implications for understanding the pathophysiological mechanisms underlying this disorder and ultimately its genetic basis.

Our research registrars and collaborators represented our department at several international and national neurology conferences throughout the year presenting our current data.



Prof Niall Tubridy
Associate Clinical Professor

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The Department of Neurology at St Vincent's University Hospital has significantly expanded in recent years and we are now running an extensive research program in multiple sclerosis and dystonia. We have published extensively in the last 5-10 years and are currently involved in more than 10 clinical trials in MS. We have set up a clinical trial for vitamin D in MS and are collaborating with others in Trinity College Dublin, London and beyond.

In addition we encourage student involvement and run teaching weeks twice a year for all UCD medical students. We have produced a series of neurology teaching videos which went live via YouTube in 2013 and to date have been visited over 75,000 times and accessed from 160 countries throughout the world.

Affiliations:

- Education & Research Centre, St Vincent's University Hospital, Elm Park, Dublin 4



Prof Michael Hutchinson
Newman Clinical Research Professor

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Prof James FX Jones
Professor of Anatomy

Location: UCD Health Sciences Centre
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I am a neuroanatomist interested in autonomic control of the gastrointestinal tract. At present I am working on the neural control systems of defaecation and the anal canal. In 2012 I received funding from Medtronic Inc. to refine medical devices that are used in cases of faecal incontinence.

Affiliations:

- Vascular Biology Group
- Centre for colorectal Diseases

Dr Okka Kimmich
Research Registrar, Newman Fellow

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Primary adult-onset focal dystonia, the third commonest movement disorder, has been the focus of the research team under the leadership of Prof Hutchinson. Being a specialist treatment centre, we have established a comprehensive clinical and DNA database. We have been examining potential endophenotypes, i.e. biomarkers associated with

assumed gene carriage, in the view to improve the search for the underlying genetic and understanding of the physiological abnormalities in this disabling condition within a collaborative national and international network.

Affiliations:

- Neurogenetics Group with Dr Sean Ennis, Dr Sally Ann Lynch and colleagues.
- UCD CCHR (Centre for Child Health Research)



Dr Christopher McGuigan
Clinical Lecturer

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In 2012 I received funding from Biogen Idec for a Newman Fellow to study clinical and epidemiological aspects of Multiple Sclerosis in Ireland. In addition a Neuroscience BSc student completed an undergraduate thesis on Neurosarcoidosis under my supervision. I have commenced an investigator led trial on the use of prolonged release Fampridine for upper limb function in patients with progressive multiple sclerosis and was appointed national lead on clinical trials for new treatments for spasticity, relapsing remitting and secondary progressive MS.

Dr Anna Molloy
Research Registrar, Newman Fellow

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Adult onset primary torsion dystonia (AOPTD), has been the focus of our research with Prof Michael Hutchinson and Dr Sean O' Riordan leading the team here in St Vincent's. Our research is focused on determining the underlying aetiology of dystonia examining the use of endophenotypes in this poorly penetrant disorder to assist us in genetic studies. We are collaborating with neurogenetics teams in Mount Sinai, New York and University College London in this regard. Over the last ten years we have established a large and comprehensive clinical and DNA database which we have been utilising in collaboration with these centres over the past year.

Dr Karen O'Connell
Biogen Idec Newman Research
Fellow in Neurology

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My main interest is Multiple Sclerosis and my principal project is to establish the incidence of MS across Ireland and examining the role of potential aetiological factors in MS development. I am also actively involved in two investigator led randomised controlled trials looking at vitamin D in healthy controls and those with Clinically Isolated Syndrome and fampridine and upper limb function in Progressive Multiple Sclerosis. Both these studies are sponsored by University College Dublin.

Grants:

Title: Biogen Newman Fellowship in Neurology Research
Funder:
Start/End Dates: 2012-2014
Amount: Unrestricted grant for two year fellowship for research in Dept of Neurology

Title: Novartis Newman Fellowship in Neurology Research
Funder:
Start/End Dates: 2011-2013
Amount: Unrestricted grant for two year fellowship for research in Dept of Neurology

Title: Dysregulation of pathogenic T cells in multiple sclerosis.
Held by Jean Fletcher Academic
Funder: Kingston Mills in collaboration with Niall Tubridy
Start/End Dates: 2009-2013
Amount: €440,000

Title: Reflex and behavioural studies of faecal continence and incontinence in an animal model and optimisation of frequency parameters of sacral neuro-modulation
Funder: Medtronic Inc.
Start/End Dates: 22-JUN-12 / 01-JAN-15
Amount: €105,000

Title: A new model for studying eye development
Funder: University College Dublin Foundation Ltd.
Start/End Dates: 01-JAN-13 / 31-DEC-13
Amount: €24,000

Dr Sean O'Riordan
Clinical Lecturer

Location: St Vincent's University Hospital
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I am a Consultant Neurologist in St Vincent's University Hospital with a specialist interest in Movement Disorders. Our group, led by Professor Michael Hutchinson, has an established interest in the study of clinical, genetic, imaging, and neuro-physiological aspects of dystonia.

Active national and international collaborators & projects:

- Dr Karen O'Connell, Newman Fellow
- Dr Okka Kimmich, Newman Fellow
- Dr Laura Williams, Newman Fellow
- Dr Anna Molloy, Newman Fellow
- Ms Sinead Jordan, Clinical Trials Nurse
- Ms Malgorzata Dytko, MSc
- Dr Babatunde Soetan, MCh
- Mr Eric Lucking, PhD
- Ms Fiona McDonald, PhD
- Ms Deirdre Edge, PhD
- Ms Judith Evers, PhD
- Ms Catherine Redmond, PhD
- Dr Liam Devane, MD
- Dr Giovanni Stevanin, Hopital de Salpetriere
- Prof Laurie Ozelius, Associate Prof, Bachmann Strauss Prof, Mount Sinai School of Medicine
- Dr Mark Edwards, Institute of Neurology London

Publications:

1. O'Connell K, Marnane M, McGuigan C. Bilateral ocular perineuritis as the presenting feature of acute syphilis infection. *J Neurol*. 2012 Jan;259(1):191-2.
2. Williams L, O'Riordan S, McGuigan C, Hutchinson M, Tubridy N. A webbased electronic neurology referral system: a solution for an overburdened healthcare system? *Ir Med J*. 2012 Oct;105(9):301-3.
3. Kelly S, Kinsella K, Duggan M, Tubridy N, McGuigan C, Hutchinson M. A proposed modification to the McDonald 2010 criteria for the diagnosis of primary progressive multiple sclerosis. *Mult Scler*. 2012 Nov 6.
4. Hutchinson M. Industrial pharmaceutical drug research has done more for the health of people with MS than academic neurologists: commentary. *Mult Scler*. 2012 Sep;18(9):1213-4.
5. Hutchinson M. Deaths and disability from natalizumab are no longer tolerable: Commentary. *Mult Scler*. 2012 Aug;18(8):1073.
6. Hutchinson M. There is no such thing as a mild MS relapse. The mild relapses an Anglo-Saxon delusion - commentary. *Mult Scler*. 2012 Jul;18(7):930-1.
7. Hutchinson M. We are about to cure MS in the next 10 years, even though we do not know its cause: commentary. *Mult Scler*. 2012 Jun;18(6):786-7.
8. Hutchinson M. The neurologist's dilemma: MS is a grey matter disease that standard clinical and MRI measures cannot assess adequately--commentary. *Mult Scler*. 2012 May;18(5):561-2.
9. Allen AC, Kelly S, Basdeo SA, Kinsella K, Mulready KJ, Mills KH, Tubridy N, Walsh C, Brady JJ, Hutchinson M, Fletcher JM. A pilot study of the immunological effects of high-dose vitamin D in healthy volunteers. *Mult Scler*. 2012 Dec;18(12):1797-800.
10. Hutchinson M. In assessing multiple sclerosis disease activity patient report measures are a waste of time: cut to the MRI scan!--Commentary. *Mult Scler*. 2012 Mar;18(3):269-70.
11. Hutchinson M. Epidemiology of multiple sclerosis has had its day: there are no more unanswered questions--commentary. *Mult Scler*. 2012 Feb;18(2):142.
12. Hutchinson M. Truly benign multiple sclerosis is rare: let's stop fooling ourselves--commentary. *Mult Scler*. 2012 Jan;18(1):15.
13. Dee A, Hutchinson M, De La Harpe D. A budget impact analysis of natalizumab use in Ireland. *Ir J Med Sci*. 2012 Jun;181(2):199-204.
14. Kelly SB, Chaila E, Kinsella K, Duggan M, Walsh C, Tubridy N, Hutchinson M. Using atypical symptoms and red flags to identify non-demyelinating disease. *J Neurol Neurosurg Psychiatry*. 2012 Jan;83(1):44-8.
15. Bradley D, Whelan R, Kimmich O, O'Riordan S, Mulrooney N, Brady P, Walsh R, Reilly RB, Hutchinson S, Molloy F, Hutchinson M. Temporal discrimination thresholds in adult-onset primary torsion dystonia: an analysis by task type and by dystonia phenotype. *J Neurol*. 2012 Jan;259(1):77-82.
16. Fletcher J, Hutchinson M, Tubridy N. Response to comment on the article by Allen et al. 'A pilot study of the immunological effects of high-dose vitamin D in healthy volunteers'. *Mult Scler*. 2012 Aug 20.
17. O'Brien M, O'Keeffe D, Hutchinson M, Tubridy N. Spontaneous intracranial hypotension: case reports and literature review. *Ir J Med Sci*. 2012 Jun;181(2):171-7.
18. Kiiski H, Reilly RB, Lonergan R, Kelly S, O'Brien MC, Kinsella K, Bramham J, Burke T, O'Donnchadha S, Nolan H, Hutchinson M, Tubridy N, Whelan R. Only low frequency event-related EEG activity is compromised in multiple sclerosis: insights from an independent component clustering analysis. *PLoS One*. 2012;7(9):e45536. doi: 10.1371/journal.pone.0045536. Epub 2012 Sep 21.
19. Deik AF, O'Riordan S, Luciano MS, Shanker VL, Raymond D, Bressman SB, Saunders-Pullman R. Tremor Other Hyperkinet Mov (NY). Spatial Discrimination Threshold Abnormalities are not Detected in a Pilot Study of DYT6 Dystonia Mutation Carriers. 2012;2. pii: tre-02-90-671-1. Epub 2012 Sep 17.
20. Peall KJ, Smith DJ, Kurian MA, Wardle M, Waite AJ, Hedderly T, Lin JP, Smith M, Whone A, Pall H, White C, Lux A, Jardine P, Bajaj N, Lynch B, Kirov G, O'Riordan S, Samuel M, Lynch T, King MD, Chinnery PF, Warner TT, Blake DJ, Owen MJ, Morris HR. SGCE mutations cause psychiatric disorders: clinical and genetic characterization. *Brain*. 2013 Jan;136(Pt 1):294-303. doi: 10.1093/brain/aww308.
21. Larner F, Sampson B, Rehkämper M, Weiss DJ, Dainty JR, O'Riordan S, Panetta T, Bain PG. High precision isotope measurements reveal poor control of copper metabolism in parkinsonism. *Metallomics*. 2013 Feb;5(2):125-32. doi: 10.1039/c3mt20238k. Epub 2013 Jan 23.
22. Murphy R, Tubridy N, Kevelighan H, O'Riordan S. Parkinson's disease: how is employment affected? *Ir J Med Sci*. 2013 Sep;182(3):415-9. doi: 10.1007/s11845-013-0902-5. Epub 2013 Jan 17.
23. Williams L, O'Riordan S, McGuigan C, Hutchinson M, Tubridy N. A web-based electronic neurology referral system: a solution for an overburdened healthcare system? *Ir Med J*. 2012 Oct;105(9):301-3.
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25. Kimmich O, Bradley D, Whelan R, Mulrooney N, Reilly RB, Hutchinson S, O'Riordan S, Hutchinson M. Sporadic adult onset primary torsion dystonia is a genetic disorder by the temporal discrimination test. *Brain*. 2011 Sep;134(Pt 9):2656-63. doi: 10.1093/brain/awr194. Epub 2011 Aug 11.

