



BNA 2019

Festival of Neuroscience

Dublin, Ireland – 14th – 17th April 2019

Two-page programme

For full programme details, personalised agenda, abstracts, latest updates, and more, please see the BNA2019 app: search BNA2019 on GooglePlay or Apple store.



Sunday 14th April 2019

11:00 - Registration, coffee, & **preview for poster session 1** (Please hang your session 1 posters as soon as you arrive.)

13:00 – 14:40 Parallel sessions, SsA and S1-S5

SSA: Rapid Fire Poster Talks *Thirty 3-minute talks about selected poster abstracts. A hugely enjoyable, fast-paced extravaganza of neuroscience, which gives a taste of the whole festival is just one session!*

W2b

S1: Grid cells beyond self-location **F.Olafsdottir** *The contribution of grid cells to navigation;* **K.Stachenfeld** *Dimensionality reduction of a hippocampal predictive map with grid cells;* **M.Hasselmo** *Coding of space and time in the entorhinal cortex;* **J.O'Neill** *Superficial layers of the medial entorhinal cortex replays independent of the hippocampus*

L1

S2: The multi-morbid old brain **J.Attems**, *Neuropathology of age associated neurodegeneration;* **T.Outeiro** *Protein modifications and interactions in neurodegeneration;* **L.Walker** *Post-translationally modified amyloid beta in neurodegeneration;* **C.Smith** *Brain banking in dementia research*

A

S3: Precision therapy: Antisense oligonucleotides targeting coding and noncoding RNAs for neurological disorders **C.Reschke** *A microRNA-based disease-modifying therapy for epilepsy: journey to pre-clinical development;* **S.Hammond** *Oligonucleotide therapies for neuromuscular diseases;* **B.Landwehrmeyer** *Therapies targeting DNA and RNA in Huntington's disease;* **G.Schrott** *Novel non-coding RNA transcripts and their binding proteins as targets to shape neuronal network stability*

W1

S4: Brain network development **A.Chédotal** *3D analysis of axon guidance with light sheet microscopy;* **R.Cossart** *Development of hippocampal assemblies;* **S.Butt** *Interneuron diversity and development;* **C.Eaton** *Epilepsy, seizures and EEG findings in young people with 22q11.2 deletion syndrome*

L2

S5: Neurobiological candidates for the rapid antidepressant response to ketamine **P.Cowen** *Psychopharmacological mechanisms involved in the rapid antidepressant actions of ketamine and nitrous oxide;* **J.Krystal** *Glutamatergic responses to ketamine mediate neuroplasticity and antidepressant;* **M.Walter** *Brain network reflections of ketamine's glutamatergic and noradrenergic effects;* **G.Collo** *Do actions of ketamine on dopaminergic transmission contribute to its antidepressant effects?* **Clare Stanford**, Chair

W2a

14:40 – 16:20 Poster session 1 & Trade exhibition

16:20 – 18:00 Parallel sessions W1 and S6-S10

W1: Big Data: Management, modelling & collaboration **M.Lowery** *Modelling big data, an inter-disciplinary approach;* **C.Gillan** *Big Data: techniques & collaboration for psychiatric health;* **J.Terry** *How computer algorithms can interrogate clinical data & provide objective decision support;* **D.Coyle** *Neurotechnology & Brain-Computer Interfaces;* **S.Pulit** *Computational biology applications in large-scale omics data: examples from obesity genetics*
Session supported by Wellcome

W1

S6: Kisspeptin: a novel regulator of sex hormone secretion and sexual behaviour **W.Dhillon** *Kisspeptin modulates sexual and emotional brain processing in humans;* **S.Han** *Arcuate kisspeptin neurons are the long-elusive hypothalamic pulse generator driving fertility;* **K.O'Byrne** *Amygdala kisspeptin, sexual behaviour and anxiety in rodent models;* **J.Bakker** *Female sexual behaviour in mice is controlled by kisspeptin neurones*

W2b

S7: The link between neuroinflammation & dysregulated metabolism in the context of age & Alzheimer's disease **M.Guillot-Sestier** *Immunometabolism and Alzheimer's disease: Alteration of microglial metabolic function with age and cerebral amyloidosis;* **C.B.Lawrence** *The role of zinc deficiency and neuroinflammation in Alzheimer's disease;* **M.Heneka** *The inflammasome in AD;* **M.Lynch** *Inflammasome activation in microglia is accompanied by a switch towards glycolysis: Assessment of the impact on neuronal function*

A

S8: Mental illness in children and adolescents: neuroscience, ethics and practice in psychopharmacology **J.Homberg** *Psychopharmacology in the young and developing brain: perspectives from experimental animal studies;* **C.Cabe** *Anhedonia and adolescent depression;* **P.Santosh** *Child psychopharmacology and development: perspectives from real world clinical practice;* **G.Pavarini** *Early intervention and moral development in child psychiatry;* **Mitul Mehta** *Co-chair*

L1

S9: Neural processes and precursors of self-initiated action **N.Khalighinejad** *Neural circuits of value-guided self-initiated action in non-human primates;* **P.Haggard** *Volition and action in the human brain;* **L.Mudrik** *To will or not to will: neural precursors of deliberate and arbitrary decisions;* **J.Alves da Alves** *Dopamine neuron activity before action initiation*

W2a

S10: Epigenetics of neuropsychiatric disorders **S.Akbarian** *The brain's folded genomes. Implications for schizophrenia & other psychiatric disease;* **A.Petronis** *Epigenetics & delayed age of onset of psychiatric disease;* **T.Murphy** *Genome-Wide DNA methylation meta-analysis in the brains of suicide completers;* **E.Murray** *DNA methylation analysis of samples from young adults with depression supports a link with the immune response;* **Colum Walsh**, Chair

L2

18:00 Opening Plenary: **Ray Dolan**, Wellcome Trust Centre for Neuroimaging, UK *Decisions, uncertainty and rewards*

With opening words by the BNA, The Brain Prize, & presentation of Neuroscience Ireland's Distinguished Investigator Award

19:20 Welcome Reception - please join us for drinks and toast the 2019 Festival of Neuroscience!

A:Auditorium

L1:Liffey Hall 1

L2:Liffey Hall 2

W1:Wicklow Hall 1

W2a:Wicklow Hall 2a

W2b:Wicklow Hall 2b

Monday 15th April 2019 (1)

08:30 **Plenary 2 : Essi Viding**, University College London, UK
Why do some people become psychopaths?

09:30 – 11:10 Parallel sessions W2 and S11–S15

W2: President's Session: Safeguarding credibility and reproducibility in neuroscience **P.Rotshtein** How study pre-registration can benefit neuroscience; **E.Sena** How & why to avoid risks of bias in preclinical neuroscience research; **V.Heise** An ECR'S guide to changing research culture; **M.Munafa** Scientific Ecosystems and Research Reproducibility

S11: The neuroendocrinology of programmed rheostasis **T.Stevenson** The role of thyroid hormone for long-term energy balance; **J.Schwarz** Impact of early-life immune activation on long-term immune function and the ontogeny of learning in males and females; **D.Hough** Long-term regulation of steroid hormone biosynthesis; **J.Perez** Extra-retinal regulation of avian reproduction: a role for va-opsin and neuropsin (10 minute talk); **C.Hume** In vitro optogenetic stimulation of vasopressin retinal ganglion cell axons in the hypothalamic supra-chiasmatic nucleus (10 minute talk)

S12: Cognitive ageing: Inflammatory mechanisms driving changes in brain plasticity **Sponsored session**
Y.Nolan Chronic hippocampal inflammation and cognitive decline: neurogenesis-mediated mechanisms; **A.Cattaneo** Role of the gut microbiome and inflammation in Alzheimer Disease; **S.Thuret** Alteration of Hippocampal Neurogenesis by the human systemic milieu: A biomarker of cognitive aging and dementia; **A.Kelly** Regular physical activity protects against cognitive ageing: assessment of underlying anti-inflammatory mechanisms

S13: Characterizing addiction using neuroimaging **J.Dalley** MRI-guided analysis of addiction vulnerability; **W.Sommer** Developing better treatments for relapse prevention using a systems biology approach; **L.Paterson** Potential of NK1 antagonism to treat addiction in man; **R.Elliott** Role of DRD3 and modulation of reward in treating addiction in man

S14: Lifespan development in individuals with Down Syndrome (DS) & the potential of trisomy 21 as a biological model for the causes of Alzheimer's disease **H.D'Souza** The importance of understanding individual differences in infants & toddlers with DS; **A.Strydom** Prodromal features of Alzheimer's disease in DS; **N.O'Brien** Human chromosome 21: Genes as modulators of APP-driven Alzheimer pathology; **F.Wiseman** Trisomy 21 causes a deficit in lysosomal cathepsins and alters APP/A β processing, independently of an extra copy of APP

S15: Experience-dependent neuronal plasticity: An integrated view across different sensory modalities **Sponsored session** **E.Galliano** Brief sensory deprivation triggers structural and functional plasticity in the olfactory bulb; **S.Barne** Experience-dependent homeostatic plasticity in visual circuits; **M.Hamann** Experience-dependent auditory plasticity in health and disease; **S.Cooke** Plasticity within primary visual cortex supports the detection of novelty

11:10 – 11:50 Trade exhibition & Poster Session 2 Preview

11:50 **Plenary 3: Barry Everitt**, University of Cambridge, UK
Addiction: a compulsive interplay between drugs, cues and habits
The Brain and Neuroscience Advances plenary lecture
Sponsored session

12:50 – 13:50 Trade exhibition & lunch BSN AGM: BSN members only (W1)
Speed-dating for academia: pre-booked delegates only

13:10 – 13:50 *Bonus session! Join **Anil Seth** for discussion and Q&A about his work into the neuroscience of consciousness*
Liffey 1

13:50 – 15:30 Trade exhibition & Poster Session 2

A: Auditorium

L1: Liffey Hall 1

L2: Liffey Hall 2

Monday 15th April 2019 (2)

15:30 – 17:10 Parallel sessions, W3 and S16–S20

W3: How a journal handles your paper **P.Bolam** Ethical issues around scientific publishing; **J.Dalley** The peer-review process & what we expect reviewers to do; **M.Piccio** What we expect in a good paper; **J.Lerma** What happens to your paper once submitted to a journal; **J.Foxe** Reproducibility

S16: Synaptic plasticity in health and disease **T.Ryan** Rethinking Memory: Dissecting the Role of Hippocampal Engram Cells in Memory Consolidation; **J.Bains** Giving and receiving: stress, social transmission and the synapse; **S.Bamji** Dynamic post-translational palmitoylation of synaptic proteins and synaptic plasticity; **G.Collingridge** From Hebb synapses to synaptic tag and capture; **T.Bliss** Chair

S17: Cannabinoids: therapeutic potential in CNS disorders **E.Downer** Therapeutically targeting innate immune signalling mechanisms in CNS disorders with cannabinoids; **R.Pertwee** Pharmacological actions and potential novel therapeutic uses of certain plant and synthetic cannabinoids **E.Marco** Cannabinoids in emotional control, is there a sex-dependent effect?; **M.Roche** Endocannabinoid modulation of neuroinflammation: implications of psychiatric disorders and pain

S18: Developing disease modifying therapies for Parkinson's: From molecular mechanisms to clinical trials **M.G.Spillantini** Alpha-synuclein's conversion from an essential protein to a neuronal killer?; **A.H.V.Schapira** Glucocerebrosidase: A risk factor for Parkinson's leads to the discovery of novel therapeutic approaches; **G.R.Mallucci** PERK pathway modulation offers a new lease of life for old drugs as Parkinson's therapies; **R.Mead** Virtual Biotech partnership: Novel funding to harness the neuroprotective potential of Nrf2-ARE pathway activation

S19: The role of voltage-gated calcium channels in neuropsychiatric disorders **Sponsored session**
N.Hall Diversity of CACNA1C and CACNA1D splice isoform profiles in human brain; **L.Ferron** Modulation of neuronal voltage-gated calcium channels by fragile X mental retardation protein; **N.J.Ortner** Disease causing CACNA1D mutations in patients with neuropsychiatric disease; **C.Tigaret** Translational studies of CACNA1C function

S20: Sense and sensibility **A.Allen** Colour Vision in Humans; **C.Gizowski** Circadian regulation of thirst; **S.DasgGupta** Dendritic Integration of Sensory Evidence in Olfactory Decision-Making; **M-J.Dolan** Olfaction in flies; **H.Piggins**, Chair

17:10 **Plenary 4: Anders Björklund**, Lund University, Sweden
Stem cell therapy for Parkinson's Disease: Current status and future perspectives

18:30 **Baba Brinkman's Rap Guide to Consciousness** – Auditorium
The science of perception, hallucination and free will comes to life on stage as “peer reviewed rapper” Baba Brinkman takes a deep dive into the neurobiology of human experience. Not to be missed!

19:45 **The Brain Prize Evening** – Liffey Hall 2
Join Trevor Robbins, John Hardy and Ray Dolan for a special evening of informal discussion, questions and reflections on the Lundbeck Foundation's ‘The Brain Prize’, all whilst enjoying drinks and finger food at your table.
Haven't booked a place & want to go? Just £15, ask at the registration desk to book. Limited places available.

W1: Wicklow Hall 1

W2a: Wicklow Hall 2a

W2b: Wicklow Hall 2b

Tuesday 16th April 2019 (1)

08:30 Plenary 5 : Ileana Hanganu-Opatz, University of Hamburg, Germany
Prefrontal cortex: the developmental hub of cognitive ontogeny in health & disease

09:30 – 11:10 Parallel sessions W4, SsB and S21–S24

W4: Opening up peer review *This workshop will dispel some of the myths surrounding publication and peer review process.*
J.Mercer, Editor-in-Chief at the Journal of Neuroendocrinology; **S.Lightman**, Founder of the Journal of Neuroendocrinology; **P.Rothstein**, on pre-registration and Registered Reports

SsB: The BSN Alison Douglas Lecture - Jane Robinson, University of Glasgow
Back to your future: Programming of the reproductive neuroendocrine axis

S21: Mitochondria in neurodegeneration and aging: transport, intracellular interactions and bioenergetic function
S.Chalmers Mitochondrial morphology & motility alterations with age, hyperglycaemia and amyloid; **A.C.Rego** Mitochondrial deregulation in Huntington's disease - role of SIRT3; **K.De Vos** Axonal transport defects in neurodegeneration: mitochondria and beyond;
M.Ankaarcrona ER-mitochondria interplay in Alzheimer's Disease essment of underlying anti-inflammatory mechanisms

S22: New directions in epilepsy research **G.Lignani** Modulating promoter activity to treat intractable genetic and acquired epilepsy
S.Wright Autoimmune epilepsy: from symptoms to synapse; **A.Gonzalez-Sulser** GABAergic Medial Septal Neurones and their role in models of Temporal Lobe Epilepsy; **A.Ilie** Phasic and tonic GABAergic signalling combine with membrane potential dynamics to regulate intracellular chloride during seizures

S23: Neuromuscular disorders – cutting edge of translation **M.Reilly** Inherited neuropathies: The first treatable neurodegenerative diseases; **O.Hardiman** MND; A model neurodegeneration; **M.Hanna** Channelopathies 2019: exciting new phenotypes, mechanisms and therapies: Where exciting implies excitability; **H.Willison** The sweet side of inflammatory neuropathy

S24: Impact factor: Concussion and brain health **J.Kealy** The neurovascular unit following traumatic brain injury;
N.Lynch Concussion - A paediatrics perspective; **A.McKee** Updates in CTE: 2019; **D.Loane** Chronic pathologies following severe TBI: NOXious neuroinflammation as a therapeutic target

11:10 – 11:50 Trade exhibition & Poster Session 3 Preview

11:50 Plenary 6: Uta Frith, University College London, UK
The new three Rs and what they mean for neuroscientists: Reproducibility, Replicability and Reliability of research
The EMBO Keynote Lecture

12:50 – 13:50 Trade exhibition & lunch BNA AGM: Lunch provided, BNA members only (W1)
Speed-dating 'Beyond Academe': pre-booked delegates only (L5)

13:50 – 15:30 Trade exhibition & Poster Session 3

Tuesday 16th April 2019 (2)

15:30 – 17:10 Parallel sessions SsC and S25–S29

SsC: Early Career Researcher Prizewinners **N.Censor** Rapid perceptual learning and its implications across memory domains (Sieratzki Prize winner); **E.Striem-Amit** The Sieratzki UK-Israel Prize for Advances in Neuroscience prize: (Sieratzki Prize winner); **K.Ruddy** The action system in people born without hands (NSI Early Career prize); **G.D'Agostino** Hindbrain circuits controlling appetite (BSN Michael Harbuz winner)

S25: How stress affects endocrine systems and vice-versa: A brain-hormone crosstalk **F.Spiga** How does stress affect the adrenal gland activity? **K.Chapman** Stress, glucocorticoids, inflammation and brain metabolism; **M-P.Moisan** Influence of circadian rhythms on high fat diet - induced memory alterations; **S.Reber** How does stress affect somatic and affective disorders?

S26: The microbiome: A Key regulator of the impact of diet on brain function **J.Cryan** Dietary targeting of the microbiome for the stressed, and ageing brain; **C.Ribiero** Commensal bacteria control food choice behavior; **M.Rincel** Interactions between diet, early-life stress & behaviour: Role of the microbiome & gut barrier function; **P.Burnet** Prebiotic effects on brain and behaviour in rodents and humans

S27: Neural stem cells and brain cancer **S.Parrinello** The niche in neurogenesis and brain cancer; **S.Pollard** Transcriptional regulation of neural stem cell self-renewal as a target for glioblastoma; **R.Gilbertson** Developing new models of brain tumours; **L.Uhrbom** A cell of origin-based approach to decipher glioblastoma biology

S28: Let's stick together - neurodegeneration an expanding disease spectrum **T.Lynch** Subtypes of Parkinson's disease and parkinsonism in Ireland; **J.Schott** Determining the prevalence and causes of preclinical Alzheimer's disease and cerebrovascular disease – results from a British Birth Cohort; **M.Jones** Unravelling FTD – syndromes, proteins, genes and treatments; **P.Piccini** Advances in Neuroimaging in PD

S29: Within and beyond the medial temporal lobe: Brain circuits for place & recognition memory **Sponsored session**
T.Bast Prefrontal cortex and nucleus accumbens: relevance for the hippocampal learning-behaviour translation and for the cognitive impact of hippocampal dysfunction; **L.Genzel** Hippocampal-prefrontal cortex interactions in sleep for memory consolidation: from rats to humans
L.Kinnavane Mapping anatomically verified activity patterns for recognition memory processing within and beyond the medial temporal lobe
J.Ainge Hippocampal-entorhinal circuits underlying associative recognition memory

17:10 Plenary 7: Michael Meaney, McGill University, Canada
The genetic architecture of individual differences in susceptibility to stress reveals candidate biological mechanisms and future perspectives

18:30 The Anne Silk Lecture: Inflamed Depression by Ed Bullmore – Auditorium
Held in association with the Silk Trust and The Royal Society of Medicine
Introduced by Sir Colin Blakemore, BNA Patron

20:00 Student and ECR social evening at Café en Seine, 40 Dawson Street
With Irish dancing, food and drinks included, all just a stone's throw from Temple Bar!
Haven't booked a place & want to go? Just £20, all students & ECRs welcome: ask at the registration desk for tickets.

20:30 Gala dinner Trinity College Dublin Dining Hall
For invited speakers and guests

A:Auditorium

L1:Liffey Hall 1

L2:Liffey Hall 2

W1:Wicklow Hall 1

W2a:Wicklow Hall 2a

W2b:Wicklow Hall 2b

Wednesday 17th April

08:30 Plenary 8 : Suzana Herculano-Houzel Vanderbilt University, USA
What good are more cortical neurons? Live longer and do more!
The 2019 Wolstencroft Lecture
Sponsored session

09:30 – 11:10 Parallel sessions S30–S35

S30: Vestibular cognition *D.Wilkinson Vestibular Stimulation: an adjuvant therapy for cognitive and psychiatric impairment? E.Ferre Vestibular contribution to human perception and cognition; P. zu Eulenburg The human vestibular cortex; B.Lenggenhager The plastic self: how vestibular signals influence the sense of self and embodied cognition*

W1

S31: Sleep and the neuroendocrine system *H.Oster Animal models of sleep, and neuroendocrine physiology; N.Santhi Human sleep, and neuroendocrine physiology; E.Van Cauter Sleep, Hormones and Metabolism; E.Harding Distinct preoptic neurons connect sleep onset and body cooling in response to a warm stimulus (10 minute talk); K.Kalafatakis Changes in the pattern of circulating cortisol differentially modulate daily mood oscillations and the resting state networks of the human brain (10 minute talk); J.Johnston, Chair*

L2

S32: Advances in Child Neurology 2019 *A.M.Childs SMA and DMD: what is best practice care?; K.Vezyrogou ATP1A3 related disease through the ages; H.Cross New ways forward in childhood epilepsy; M.Lim Autoimmune neurological disease in childhood*

L1

S33: New molecular approaches for understanding synapses, circuits, and behaviour *Y.Jones Semaphorin-plexin complexes, signalling and synapses - a structure-function perspective; M.Tripodi Using self-inactivating, trans-synaptic rabies virus to map and manipulate neural circuits; J.Kohl Functional Circuit Architecture Underlying Parental Behaviour; W.Wisden Molecular neurobiology of sleep circuits; M. Hastings Chair.*

A

S34: Vascular Neurology *K.Muir Neuroimaging techniques to optimise selection of acute ischaemic stroke patients for IV thrombolysis or mechanical thrombectomy; D.McCabe Update on translational platelet science / haemostasis in ischaemic cerebrovascular disease; A.Merwick Optimising risk-stratification to guide management following a transient ischaemic attack; A.Leff Novel approaches to rehabilitation following stroke*

W2b

S35: Educational neuroscience research into neurocognitive predictors of academic outcome *B.De Smedt Symbolic numerical processing is a key predictor of learning arithmetic; I.Dumontheil Inhibitory control and science and maths reasoning; G.Borst Sulcal morphology of the brain as an early cerebral constraint on future academic learning; M.Rosenberg-Lee Brain network interactions supporting inhibitory control during rational number processing*

W2a

11:10 – 11:40 Refreshment break

11:40 Plenary 9: Lora Heisler University of Aberdeen, UK
Hunger games: New insights into the brain control of hunger
The BSN plenary lecture
 The lecture will be preceded by presentations of poster prizes

12:50 Close of the Festival - see right for afternoon satellite sessions

Satellites: Wednesday afternoon



Brexit and Neuroscience

13:40- 15:30, W2a. Organised by BNA

What does Brexit mean for research & clinical practice? At the time of writing we still don't know what Brexit will look like. We've convened a panel of people who might know some answers! Come and discuss issues such as the impact on funding, travel & recruitment. With: The Federation of European Neuroscience Societies (FENS), the Academy of Medical Sciences, the Royal Society and Wellcome



Challenges in ageing

14:00- 16:00, Auditorium.

Organised by TILDA

This satellite explores challenges in ageing by drawing on the unique neuroimaging, vascular and phenotypic data from the Irish Longitudinal Study on Ageing (TILDA), addressing neural and neurovascular characteristics of ageing within a sample of Irish adults aged over 50.

Speakers: Rose Anne Kenny, Robert Whelan, Richard Carson, Fiona Newell



Political advocacy workshop

13:40- 15:30, W1. Organised by DNNI

Delegates will explore what science advocacy is and what it isn't; how to tell your story and relate your research to the bigger picture; engage with public officials; and engage the community as partners. Includes practice in 'elevator pitch' and role-playing exercises.

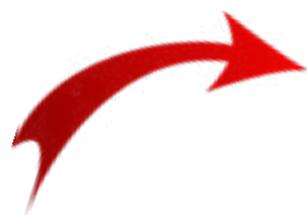


Lessons & Perspectives on Advocacy

15:30- 16:30, L1.

Convened by the Irish Brain Council

The IBC promotes neuroscience in Ireland via advocacy activities, essential for ensuring sustained funding for the future of brain research in this country. Learn more about advocacy with representatives from the European Brain Council; Society for Neuroscience Government and Public Affairs Committee; and Neuroscience Ireland.



**Enjoyed that?
 Look out for these!**

