

## Queensland Brain Institute **2017 Annual Report**

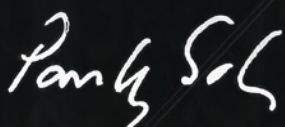


# Director's message

2017 was another year of strong achievement in our research output, as reflected in the number and quality of our peer-reviewed publications in leading scientific journals, and our grant success in both the NHMRC Project Grant and the ARC Discovery Project schemes. It was particularly pleasing that many of our younger recruits obtained grant funding.

QBI's clinical links were strengthened through a joint appointment with Mater Neuroscience; Professor Peter Nestor, a clinical neurologist from the German Center for Neurodegenerative Diseases, started in October. Refurbishment of the Ritchie building occurred during much of the year, and a number of Faculty have moved across into the new space; the breakthrough from the Clem Jones Centre for Ageing Dementia Research (CJCADR) into the Ritchie building on Level 3 is also complete, and seamlessly links the two buildings. This space forms a visible clinical interface for QBI, and will include a Memory Clinic for testing patients with neurodegenerative diseases.

In August, QBI hosted the first official visit of the newly appointed International Research Review Board. Half of the Faculty were reviewed, and the research focus, current and future, of the Institute was reviewed. The remaining half are also scheduled for review in December 2018. The initial Report was very supportive, and noted that the breadth of neuroscience research was impressive, and that QBI is a world-leading Institute that enjoys high international visibility. Recommendations outlined in the Report will be examined in detail over the coming year.



**Professor Pankaj Sah**  
Director, Queensland Brain Institute

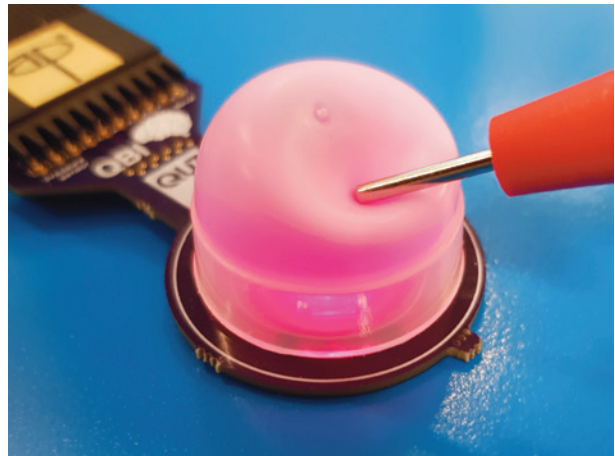


# Research highlights

There were several major research discoveries in 2017, as well as the progression of a number of research outcomes towards commercialisation.



**Professor Jürgen Götz** and **Dr Rebecca Nisbet** have found that ultrasound can enhance the effectiveness of an immunotherapeutic in a mouse model of Alzheimer's disease. Following the 2015 discovery that ultrasound by itself could improve Alzheimer's pathology in mice, the latest research adds another powerful tool to our fight against dementia: ultrasound as an adjunct therapy to improve the delivery of therapeutics for brain disorders.



**Dr Marcin Kielar** developed an optical force sensor with **Professor Pankaj Sah**, thus creating a new human-machine interface based on organic electronics. This innovative, modern day technology can convert conventional plastic or glass into smart surfaces. The original pressure sensor is based on organic light-emitting diodes and organic photodetectors and pressure sensing is achieved through changes in light intensity.



**Dr Fatima Nasrallah** began a groundbreaking concussion study that aims to detect brain changes following a concussion. The study will recruit healthy athletes for brain scans with follow-up at regular intervals if they experience concussion. Dr Nasrallah says that identifying early brain changes following concussion will help researchers know how long the brain requires to rest and heal. The study follows the 2016 launch of QBI's **#nobraingame** campaign to fund research into concussion.



QBI's Senior IT Manager **Mr Jake Carroll** has played a key role in procuring a powerful supercomputer for brain research at UQ. The supercomputer, expected to be operational by February 2018, will help process the extremely high-resolution images captured with state-of-the-art microscopes. Neuroscience research today produces huge amounts of data, and leading-edge computing infrastructure is essential for enabling researchers to do their job.



**Professor Linda Richards** has found a common developmental brain disorder may be linked to a condition in which people involuntarily mirror movements in opposing limbs. Professor Richards and her group found that mutations in the *DCC* gene produced a developmental condition known as agenesis of the corpus callosum, which results in a partial or complete absence of nerve fibres connecting the right and left sides of the brain. The same gene is implicated in mirror movement disorder.



**Dr Marta Garrido** and colleagues at The University of Queensland, the University of Newcastle, and University College London have found a biomarker with the potential to reduce the rate of misdiagnosis in schizophrenia, which is currently estimated to be around 10 per cent. The team will study the use of this technique in people at risk of developing a mental disorder to try and predict how likely they are to develop schizophrenia.



**Professor Mandyam (Srini) Srinivasan's** work into the flight preferences of honeybees has shown bees have individual biases toward flying left or right through obstacles, and the discovery could lead to strategies for steering drone aircraft fleets. This work has continued from research funded by the ARC Linkage Projects and in collaboration with QUT and Boeing Defence Australia Ltd.



Building on work from 2016, **Professor Darryl Eyles** found that vitamin D plays an important role in the development and prevention of autism. Giving vitamin D supplements to mice during pregnancy completely prevented autism traits in their offspring. The discovery provides further evidence of the crucial role vitamin D plays in brain development and could have potential implication for future therapeutics.

# Clinical trials



Participants in the exercise and cognition trial.

## Cadence BZ trial

This trial aims to determine whether a common food preservative, sodium benzoate, can assist psychosis recovery.

## Cadence M trial

This trial will test whether rind from the tropical fruit mangosteen might help in the treatment of schizophrenia.

## Exercise/Cognition trial

This study aims to establish exercise guidelines for the elderly that will help prevent or even reverse cognitive decline. The trial is being run in collaboration with UQ's School of Human Movement and Nutrition Sciences.

## OCD/DBS trial

Run in conjunction with the Asia-Pacific Centre for Neuromodulation, this will test the effectiveness of deep brain stimulation in treating severe obsessive-compulsive disorder.

## MND trial

This trial will test whether a drug, which blocks the effects of the protein EphA4, can prevent the progression of motor neurone disease. The EphA4 protein ordinarily prevents regrowth of nerves; blocking the protein has the potential to remove the brakes from the repair process.

# Partnerships

QBI continued to develop a number of key strategic research collaborations with Australian and overseas research partners, and national or global businesses, including several new collaborations for 2017, whilst maintaining a number of existing, strategic collaborations.

QBI entered into 82 research collaborations including visiting academic arrangements, collaborative research or research services, and clinical trial agreements. The key collaborations are as follows:



QBI continued to work with Boston Scientific, a medical device company, in relation to conducting new research at the Asia-Pacific Centre for Neuromodulation.



Professor Perry Bartlett's team is working with NuNerve Pty Ltd to progress the EphA4fc potential therapeutic to clinical trial.



QBI assisted in developing UQ's collaboration with the Southern University of Science and Technology (SUSTech) University in Shenzhen, through the signing of a further agreement around the exchange of PhD students between UQ and SUSTech.



QBI-IT commenced development and deployment of the world first 'Wiener' deconvolution supercomputing facility with HPC. This work, done in collaboration with UQ's research institutes and the RCC, will produce a supercomputer optimised for processing the super high-resolution images needed in neuroscience.



QBI extended its collaboration in China with the Bao'an People's Hospital in Shenzhen, with QBI researchers providing training and education to clinicians in Deep Brain Stimulation.



QBI has significant support in the concussion area of research, to support Dr Nasrallah's study into concussion.



QBI entered into a major industry project, establishing an umbrella research agreement to engage Hydrix Engineering Pty Ltd to develop a prototype ultrasound medical device for treating dementia.



Professor Fred Meunier's work with Korean company CNGBio to establish the neurotrophic effect of the combined Ginseng and Lion's mane mushroom extracts.

# Grants

QBI had a particularly successful year in being awarded competitive funding in both the ARC and NHMRC grant rounds, with a success rate of 46.9% for NHMRC Project Grants (national average 15.2%) and 33.3% for ARC Discovery Projects (national average 17.8%).

## Alzheimer's Research (UK)

Target Validation Pathfinder Grant

**Elizabeth Coulson** [administered by UQ SBMS]

## Australian Research Council

ARC Discovery Projects

**Victor Anggono**

*Regulation of synaptic vesicle endocytosis by membrane-sensing proteins*

**Geoffrey Goodhill**

*Advanced statistical methods for analysing maps in the visual brain*

**Frederic Meunier**

*Unveiling the intra and intermolecular steps underpinning vesicular priming*

## Australia-China Young Scientists Exchange Program

Australia-China Science and Research Fund Grant

**Victor Anggono**

## Avant Mutual

Doctor in Training Research Scholarship Program

**Shuichi Suetani**

*A comparison study of three physical activity measurement tools examining acceptability in people with psychotic disorders*

## Contributing to Australian Scholarship and Science

CASS Travel Grants

**Jean Giacomotto**

**Rodrigo Suárez**

## Cure SMA

Basic Research Grant

**Jean Giacomotto**

*Zebrafish models of Spinal Muscular Atrophy optimised for chemical genetics and drug discovery. From proof-of-principle to new insights and treatments*

## FightMND

Translational Research Grant-in-Aid

**Perry Bartlett, Andrew Boyd, Mike Gerometta, Robert Henderson, Pamela McCombe**

*A novel ephrin receptor A4-Fc fusion protein for the treatment of sporadic MND*

## Group of Eight Australia

Germany joint research co-operation scheme

**Kai-Hsiang Chuang**

*Understanding functional and metabolic brain connectivity in mice*

## Ian Potter Foundation

Travel Grant

**Lena Oestreich**

## International Brain Research Organization

International Travel Grant

**Laura Fenlon**

## Mater Research

BICARE Grant

**Tatjana Ewais, Jakob Begun, Kai-Hsiang Chuang and Simon Knowles**

*A randomised-control validation trial of Mindfulness-based cognitive therapy (MBCT): An eight-week mindfulness program for youth living with Inflammatory Bowel Disease and co-morbid depression*

## Motor Neurone Disease Research Institute of Australia Inc

Grants-in-Aid

**Jean Giacomotto, Edor Kabashi and Naomi Wray**

*New and innovative polygenic approach for understanding and modelling MNDs in zebrafish*

**Shuyan Ngo**

*Metabolic exploration in neurodegenerative disease (MEND): synergy between derangements in systemic and muscle metabolism in MND [administered by UQ SBMS]*

## Port of Brisbane

Community Grant

**Diana Kleine (on behalf of Corawatch)**

## Queensland Government

Advance Women's Academic Fund Maternity Funding

**Marta Garrido**

**Fatima Nasrallah**

**Leonie Kirszenblat**

Department of Environment and Heritage Protection Community Sustainability Action grant

**Justin Marshall (on Behalf of CoralWatch)**

*How do I save the Great Barrier Reef?*

## Society for Mental Health Research

ECR Project grant

**Shuichi Suetani, Dan Siskind and John McGrath**

*Acceptability of physical activity measures in people with psychotic disorders*

Australian Government Funding Scheme	Successful QBI applications	QBI Success rate	National Success rate
ARC Discovery Projects	3	33.3%	17.8%
ARC Discovery Early Career Researcher Award (DECRA)	2	66.7%	16.7%
NHMRC Projects	15	46.9%	15.2%
NHMRC Research Fellowships	1	50%	not published
NHMRC Boosting Dementia Research Leadership Fellowships	1	25%	not published

## National Health and Medical Research Council

### NHMRC Project Grants

**Peter Visscher, Naomi Wray and Jian Yang**

Complex trait genomics [administered by UQ IMB]

**Perry Bartlett, Fatima Nasrallah and Daniel Blackmore**

Exercise reverses cognitive decline in aged animals by growth hormone stimulation of neurogenesis in the hippocampus

**Darryl Eyles and Oliver Howes**

A new animal model of the prodrome in schizophrenia: Enhanced Dopamine in Prodromal Schizophrenia (EDiPs)

**Darryl Eyles and Urs Meyer**

Maternal vitamin D supplementation in a maternal immune activation model of schizophrenia: mechanisms of prevention

**Jürgen Götz and Frederic Meunier**

Tau and its master regulator Fyn in neurons

**Massimo Hilliard and Frederic Meunier**

Understanding axonal fusion: an alternative mechanism to repair injured axons

**Zhitao Hu and Joshua Kaplan**

Investigation of the function of the scaffolding protein LIN-2/CASK in cholinergic synapses

**Joseph Lynch**

The alpha5 GABA-A receptor: delineating an emerging therapeutic target

**Rodrigo Medeiros**

Impact of interleukin-18 on Alzheimer's disease

**Rodrigo Medeiros**

Investigating interleukin-37 as a treatment and biomarker for Alzheimer's disease

**Frederic Meunier, Justin Cooper-White, Rohan Teasdale and Elizabeth Coulson**

Unravelling the mechanism coupling synaptic activity with neurotrophin signaling in the nervous system

**Frederic Meunier and Emma Sierecki**

Unravelling a new fatty acid pathway involved in neuroexocytosis and memory

**Linda Richards, Elliot Sherr, and Richard Leventer**

Astroglial remodelling of the interhemispheric midline is regulated by deleted in colorectal cancer (DCC) signalling and is required for corpus callosum formation

**Pankaj Sah**

Neural circuits that mediate fear extinction

**Steven Zuryn and Massimo Hilliard**

Epigenetic determination of neuronal vulnerability and neurodegenerative disease

**Jason Mattingley, Paul Dux, and Hartwig Siebner**

Do ongoing cognitive demands affect the efficacy of transcranial electrical brain stimulation in young and older healthy adults?

## Rebecca L Cooper Medical Research Foundation

### Research Grant

**John McGrath, Helen Gooch, Pankaj Sah, Victor Anggono, Darryl Eyles and Thomas Burne**

Voltage-gated calcium channels and vitamin D: investigating the convergent links between risk factors for schizophrenia

**James Kesby**

Understanding early dopamine function and schizophrenia



# Grants

## The University of Queensland

UQ Genomics Strategic Funding

**Peter Visscher Mark Blows, David Evans, Ben Hayes, Grant Montgomery, Joseph Powell, Naomi Wray and Jian Yang, Jian**

*UQ Genomics Complex Trait Genomics Analytical Hub*

UQ Global Strategy and Partnerships Seed Funding

**Geoffrey Goodhill and Pankaj Sah**

UQ Major Equipment and Infrastructure grant

**Geoffery Goodhill, Linda Richards, Frederic Meunier, Helen Cooper, Justin Marshall, Bruno van Swinderen, Robert Parton and Rumelo Amor**

*Two-photon light-sheet microscope*

**Pankaj Sah, Linda Richards, Perry Bartlett, Jürgen Götz, Elizabeth Coulson, Thomas Burne, Fatima Nasrallah, Danisha Jhaveri, Jana Vukovic, Kai-Hsiang Chuang, Pato Opazo, Darryl Eyles, Helen Cooper, Frederic Meunier, Timothy Bredy and Daniel Blackmore**

*Establishment of surgery and behavioural laboratory for longitudinal, multimodal examination of the rodent brain*

UQ NHMRC Equipment Grant

**Linda Richards, Pankaj Sah, Perry Bartlett, Daniel Blackmore, Thomas Burne, Darryl Eyles, Helen Cooper, Jürgen Götz, Frederic Meunier and Robert Sullivan**

*Histology Cryostat*

UQ Early Career Researcher Grant

**Nela Durisic**

*Effects of de novo epilepsy mutations on function and synaptic clustering of GABAA receptors*

**James Kesby**

*Psychosis and goal-directed action in schizophrenia: the role of dopamine in the associative striatum*

**Rodrigo Suárez and Lilach Avitan**

*Spatial, temporal and functional dynamics of early cortical waves. Using marsupials to study 'embryonic' brain development in vivo*

## Tour de Cure

Scott Canner Young Researcher Grant

**Jens Bunt and Linda Richards**

*Activation of the NFIB pathway as a treatment for glioblastoma*

## US Department of the Air Force

Asian Office of Aerospace Research and Development

**Justin Marshall**

*Bio-inspired GPS-free navigation using mantis shrimp (stomapod) vision*

## Wesley Medical Research Ltd

Project Grant

**Dr Shuyan Ngo** [administered by UQ SBMS]

# Fellowships

## CSL Limited

**Professor Geoff Faulkner**

CSL Centenary Fellowship

## Danish National Research Foundation

**Professor John McGrath**

Niels Bohr Professorship

## German Research Foundation

**Dr Martyna Grabowska**

Postdoctoral Fellowship

## National Health and Medical Research Council

**Professor Linda Richards**

NHMRC Research fellowship

**Dr Rodrigo Medeiros**

NHMRC Boosting Dementia Research Fellowship

## The Royal Australasian College of Physicians

**Dr Shuichi Suetani**

Boosting Dementia Research Leadership Fellowship

## The University of Queensland

**Dr Fabio Cortesi**

UQ Development Fellowship

**Dr Leonie Kirszenblat**

UQ Development Fellowship

**Dr Md Asrafussaman Riyadh**

UQ Development Fellowship

## United Nations Educational, Scientific and Cultural Organization

**Professor Ross Cunnington**

UNESCO Neuroscience Fellowship

## Westpac

**Ms Laura Leighton**

Future Leaders Scholarship

# Awards and honours

In 2017, QBI researchers were once again recognised via numerous high-profile appointments and honorary awards: Professor Perry Bartlett, the Institute's founding Director, was chosen as the Queensland Senior Australian of the Year in recognition of his work in understanding the brain, and in helping deliver Queensland a world-class brain research institute; Professor Linda Richards was elected President of the Australasian Neuroscience Society; Professor Jian Yang was awarded the Frank Fenner Prize for Life Scientist of the Year; and Dr Lilach Avitan was elected as a 'Superstar of STEM' by Science & Technology Australia. A more complete list of awards is given below.

## Australasian Neuroscience Society

**Professor Linda Richards**  
Elected president of ANS

## Australian Academy of Science

**Dr Tong (Iris) Wang**  
JG Russell Award

## Australian Computer Society

**Mr Jake Carroll and Mr Irek Porebski**  
Digital Disruptor Award

## Australian Government

**Associate Professor Terry Coyne**  
Medal of the Order of Australia (OAM)

## Australian Information Industry Association's Queensland iAwards

**QBI and the UQ Research Computing Centre**  
Merit in the category of Infrastructure for Data Intensive Science

## Australian Research Council

**Dr Tong (Iris) Wang**  
Discovery Early Career Researcher Award

**Dr Jocelyn Widagdo**  
Discovery Early Career Researcher Award

## Australian Society for Medical Research

**Professor Jian Yang**  
Queensland Senior Researcher Award

## Brain and Behavior Research Foundation

**Associate Professor Timothy Bredy**  
NARSAD Independent Investigator Award

**Dr Zhitao Hu**  
NARSAD Young Investigator Award

## German National Academy of Sciences

**Professor Mandyam Srinivasan**  
Elected to the membership of the Academy



Professor Perry Bartlett receives a Queensland Greats Award

## National Australia Day Council

**Professor Perry Bartlett**  
Queensland Senior Australian of the Year

## Queensland Government

**Professor Perry Bartlett**  
Queensland Greats Award

## Science and Technology Australia

**Dr Lilach Avitan**  
Superstar of STEM

## Strömrgren Foundation

**Professor John McGrath**  
Erik Strömrgren Medal

## The Prime Minister's Prize for Science

**Professor Jian Yang**  
Frank Fenner Prize for Life Scientist of the Year

## The University of Queensland

**Dr Marta Garrido**  
UQ Foundation Research Excellence Award

**Mr Paul Marshall**  
UQ Alumni Friends Golden Jubilee Bursary

## Women in Technology

**Dr Laura Fenlon**  
PhD Career Start Award

# QBI Executive and Faculty

## QBI Executive



**Professor Pankaj Sah**  
Institute Director



**Professor Linda Richards**  
Deputy Director  
(Research)



**Mr John Kelly**  
Deputy Director  
(Strategic)



**Ms Helen Weir**  
Deputy Director  
(Operations)

## QBI Faculty

**Dr Victor Anggono**  
Synaptic neurobiology

**Professor Perry Bartlett**  
Neurogenic regulation of cognition

**Associate Professor Tim Bredy**  
Cognitive neuroepigenetics

**Associate Professor Thomas Burne**  
Developmental neurobiology

**Associate Professor Kai-Hsiang Chuang**  
Functional and molecular neuroimaging

**Associate Professor Helen Cooper**  
Neural migration

**Professor Elizabeth Coulson**  
Nerve cell survival

**Associate Professor Terry Coyne**  
Neurosurgery and deep brain stimulation

**Professor Ross Cunnington**  
Brain and action

**Professor Barry Dickson**  
Locomotor circuits in *Drosophila*

**Professor Darryl Eyles**  
Neurobiology of mental health

**Professor Geoff Faulkner**  
Computational and molecular biology

**Dr Marta Garrido**  
Computational cognitive neuroscience

**Professor Geoffrey Goodhill**  
Computational, systems and developmental neuroscience

**Professor Jürgen Götz**  
Basic neuroscience and ageing dementia

**Associate Professor Massimo Hilliard**  
Molecular and cellular neurobiology

**Dr Zhitao Hu**  
Neurotransmitter release

**Dr Dhanisha Jhaveri**  
Cellular regulation of stress and depression

**Professor Tianzi Jiang**  
Brainnetome and neuroimaging

**Dr Zhaoyu Li**  
Neural circuits and behaviour

**Professor Joseph Lynch**  
Molecular neuroscience

**Professor Justin Marshall**  
Sensory neurobiology

**Professor Jason Mattingley**  
Cognitive neuroscience

**Professor John McGrath**  
Epidemiology and clinical trials

**Dr Rodrigo Medeiros**  
Neurodegenerative diseases

**Professor Frederic Meunier**  
Single molecule neuroscience

**Professor Grant Montgomery**  
Complex trait and disease genomics

**Professor Bryan Mowry**  
Psychiatric genomics

**Dr Fatima Nasrallah**  
Functional neuroimaging and brain injury

**Professor Peter Nestor**  
Cognitive neurology

**Dr Patricio Opazo**  
Synaptic memory

**Mr Geoff Osborne**  
Flow cytometry

**Professor Michael O'Sullivan**  
Regenerative neurology

**Dr Michael Piper**  
Neural stem cells

**Professor Linda Richards**  
Brain development and disorders

**Professor Pankaj Sah**  
Synaptic plasticity

**Professor Peter Silburn**  
Neurosurgery and deep brain stimulation

**Professor Mandyam Srinivasan**  
Neuroscience of vision and aerial robotics

**Associate Professor Bruno van Swinderen**  
Cognitive and behavioural neuroscience

**Professor Peter Visscher**  
Neurogenetics and statistical genomics

**Dr Jana Vukovic**  
Neuroimmunology and cognition

**Professor Stephen Williams**  
Synaptic integration in neural networks

**Professor Naomi Wray**  
Neurogenetics and statistical genomics

**Associate Professor Margie Wright**  
Imaging genomics

**Professor Jian Yang**  
Neurogenetics and statistical genomics

**Professor Peter Nestor**  
Cognitive neurology

**Dr Steven Zuryn**  
Epigenetics and mitochondrial biology

# QBI Students

There were a total of 117 Higher Degree by Research (HDR) students enrolled at QBI, which included 7 Master of Philosophy candidates. 19 HDR students graduated in 2017.

## 2017 Graduates

### Lacey Jae Atkins MPhil

Principal Advisor: Professor Elizabeth Coulson  
*An investigation of risk factors for Alzheimer's disease in obstructive sleep apnoea patients*

### Siân Baker PhD

Principal Advisor: Professor Jürgen Götz  
*Investigating in vivo the principles governing the spread of tau phosphorylation and amyloid-beta excitotoxicity*

### Madhusoothanan Bhagavathi Perumal PhD

Principal Advisor: Professor Pankaj Sah  
*Organization of a reverberating cell assembly in the basolateral amygdala: networks, circuits, and synapses*

### Baptiste Couvy-Duchesne PhD

Principal Advisor: Associate Professor Margaret Wright  
*Breaking down the genetics of depression using brain endophenotypes*

### Ilvana Dzafic PhD

Principal Advisor: Professor Bryan Mowry  
*The neuroimaging and genetics of emotion perception in schizophrenia*

### Laura Fenlon PhD

Principal Advisor: Professor Linda Richards  
*Contralateral targeting of the corpus callosum*

### Luke Hearne PhD

Principal Advisor: Professor Jason Mattingley  
*Characterisation of functional brain networks underlying cognitive reasoning and intelligence*

### Gerhard Leinenga PhD

Principal Advisor: Professor Jürgen Götz  
*Investigations of the effects of scanning focused ultrasound in mouse models of Alzheimer's disease*

### Robert Maier PhD

Principal Advisor: Professor Naomi Wray  
*The genetic architecture of psychiatric disorders*

### Morgane Nouvian PhD

Principal Advisor: Dr Judith Reinhard  
*Neural and molecular mechanisms underlying the olfactory modulation of aggression in honeybees*

### Natalie Rens PhD

Principal Advisor: Professor Ross Cunnington  
*Neural dynamics of voluntary decision-making*

### Chase Sherwell PhD

Principal Advisor: Professor Ross Cunnington  
*Predictive timing in perception and action*



**Dr Laura Fenlon** went from strength to strength after completing her PhD. Following on from a Women in Technology award in 2016, Laura published six papers during her PhD, including a co-first-author in the prestigious journal, *Neuron*. She was also awarded the Krieg Cortical Kudos Scholar Award for graduate students from one of the world's oldest neuroscience societies, the Cajal Club. Laura is now a Q Development Fellow in the Richards laboratory at QBI.

### Reuben Strydom PhD

Principal Advisor: Professor Mandyam Srinivasan  
*Bio-inspired strategies for autonomous aerial navigation, guidance and interception*

### Yajie Sun PhD

Principal Advisor: Professor Pankaj Sah  
*Anatomy and physiology of the central extended amygdala*

### Rachel Templin PhD

Principal Advisor: Professor Justin Marshall  
*Circular polarization vision in stomatopod crustaceans*

### Tong Wu PhD

Principal Advisor: Professor Tianzi Jiang  
*Functional network study on the wild type and DISC1 transgenic mice*

### Di Xia PhD

Principal Advisor: Professor Jürgen Götz  
*The molecular mechanism of the Tau-Fyn interaction and dendritic targeting in neurons*

### Hon Yap PhD

Principal Advisor: Associate Professor Bruno van Swinderen  
*Electrophysiological analyses of sleep states in Drosophila*

### Yan Zhang PhD

Principal Advisor: Professor Joseph Lynch  
*Physiological properties of glycinergic synapses with defined subunit compositions*

# Philanthropy

QBI received a total of \$8,596,806 in donations in 2017, from 502 donors. Of note was the generous \$5M philanthropic donation from the Brazil Family Foundation to fund 5 years of research through the establishment of the Brazil Family Program in Neurology. This program has a focus on research in Stroke and Motor Neurone Disease (MND).

Another significant gift was a \$1M philanthropic grant by FightMND towards Professor Perry Bartlett's MND program in EphA4.

## Impact of Philanthropy

Philanthropic donations play a vital role in helping our scientists accelerate their research into new ideas and innovations, allowing them to make ground-breaking discoveries and ultimately, improve lives.

Our scientists are focused on answering fundamental science questions related to how the brain functions. This research can then be adapted to discover treatments to fight some of the most challenging diseases our society is facing including dementia, motor neurone disease (MND), stroke, Parkinson's disease, depression, anxiety and schizophrenia.

Your generosity is important to us and helps us address unmet needs—supporting young researchers; backing early stage, high-risk, high-reward projects; and as seed funding to secure government support for larger initiatives and research centres. The support of loyal donors assists QBI to have a large impact on health, wellbeing and society through the cultivation of the next generation of scientists and innovators.

Thank you for your belief in and support of our work.

## How to support the Queensland Brain Institute:

### Donations

There are many ways in which you can help support QBI's research effort, including:

- Make a donation for a specific research area
- Purchase scientific equipment
- Fund scholarships for talented students
- Provide fellowships for early- to mid-career scientists
- Support Professorial Chairs
- Undertake laboratory dedications
- Provide gifts in memoriam
- Fundraise using the community fundraising platform Everyday Hero

### Bequests

By leaving a bequest to QBI in your will, you are leaving a lasting legacy that accelerates current research and preserves future projects. Bequests can include:

- A percentage of an estate
- The residuary of an estate (what remains after all other gifts and costs have been deducted)
- A gift of a specific sum of money
- A particular asset, such as property, works of art, shares, or an insurance policy

Under current legislation, gifts to the Queensland Brain Institute are tax deductible. To discuss how you can support the Institute, please contact us at:

Telephone: **+61 7 3346 6413**

Email: **[communications@qbi.uq.edu.au](mailto:communications@qbi.uq.edu.au)**

Website: **[www.qbi.uq.edu.au/donate](http://www.qbi.uq.edu.au/donate)**

# Donors to QBI in 2017

Professor Pankaj Sah receives a donation from TravelSIM CEO Jamien Zimmermann.



A sincere thank you to ALL our donors, including those who prefer to remain anonymous.

## Bequests

QBI expresses its sincere appreciation for the charitable bequests received from the following estate in 2017.

Estate of Barry Max Stevenson

## Principal donor organisations

FightMND  
Mater Foundation  
Motor Neurone Disease Research Institute of Australia Inc  
The Brazil Family Foundation  
The University of Queensland in America, Inc.  
UQ Endowment Fund Limited

## Major donor organisations

Anonymous organisation  
BICARE Inc.  
Cambooya Pty Ltd  
Medtronic Australasia Pty Ltd  
St Andrew's War Memorial Hospital  
The Clem Jones Foundation  
The Helpful Foundation  
The Rotary International District 9640 Ltd  
The Stafford Fox Medical Research Foundation  
The Sylvia & Charles Viertel Charitable Foundation  
The Trustee for Tour De Cure Trust  
The Yulgilbar Foundation

## Donor organisations

Anonymous organisations (3)  
Allensleigh Pastoral Company  
Ashintosh Foundation  
ausDoCC  
Australia Post  
Boston Scientific Pty Ltd  
Classic & Muscle Car Club of Ipswich  
Coorparoo Village Residents Committee  
Emergency Services Charity Golf Day  
HopgoodGanim Lawyers  
Lions Club of Tully  
Loganlea Pharmacy and Maridale Park Pharmacy  
Maclean Distributors Pty Ltd  
McGarry Partners  
Morgans Foundation  
Nicol Foundation  
Order of the Eastern Star, Grand Chapter of Queensland  
Primaplas Pty Ltd  
PwC Australia  
QT Mutual Bank Limited  
Rebecca L Cooper Medical Research Foundation Ltd  
Romac Investments Pty Ltd  
Sequoia Foundation  
Siemon Investments Pty Ltd  
Soroptimist International Brisbane South Inc  
Stage Five P/L ATF Stage Five Trust  
Suncorp Group Limited  
Sunshine Coast Football Club  
Sunshine Coast Legal Pty Ltd  
Temron Pty Ltd  
The Donald and Joan Wilson Foundation  
The Flight Centre Foundation Trust  
The Ian Potter Foundation  
Toxfree  
TravelSIM Australia Pty Ltd  
Whyte Orthodontics  
Your Creative Palette

# Donors to QBI (continued)

## Individual donors

Anonymous (106)	Jill Corrigan	Donald Grimley	Narelle Lee	Clare Phillips
Kent Adams	Raychelle Corzo	Alan Grummitt	Maxwell Lennox	John Piccini
Arnaud Ahier	Mikaeli Costello	David Haddock	Linda Levett	Marion Pole
Harry Ahrens	John Coulson	Cheryl Hamilton	Maija Liiv	Paul Potter
Mohammad Alauddin	Christine Cowell	Kelly Hamilton	Steffanie Linde-Balko	Glenda Powell AM
Lara Aldridge	Daphne Craw	Margaret Hammer	Stuart Lindenmayer	Heather Proellocks
Megan Alexander	Donny Crawford	Luke Hammond	Russell Lingwoodock	William Quarterman
David Allan	Ann Crawford	Stefanie Hardacre	Jean Lissenden	Graham Rees
Judy Amos	David Croft	Colleen Harper	Keith Locke	Jacqueline Reid
Susan Andersen	Julie Curd	Jody Harris	Christine Lonergan	Alex Reid
Betty Anderson	Robert & Janet Curgenven	Stephen Harris	Beryl Lynagh	Luke Rendell
Jennifer Andrews	Andrew De Kretser	Charlie Hender	Shannon Lynam	Anne Reynolds
Margo Andrews	Via Delaney	Gregory Henricks	Mary Lyons	Nicholas Reynolds
Beverley Angus	John Di Mauro	John Heussler AM	Robert MacDonnell	Kristy Reynoldson
Liz Anstey	Leonie Dickson-James	Anthony Heynen	Hilda Maclean	Linda Richards
John Armstrong	Karl Dodd	Margaret Hibbs	Daphne Maclean	Ruth Richardson
Melanie Armstrong	Nicole Donahoo	Robyn Hilton	Andrea Markey	Steve Riddle
Jean Ashford	Peter Donahoo	Judi Hinspeter	Janice Marshall	David Ritchie
Major Bagraith	Paola Donato	Gregory Hollingworth	Barrie Mawby	Katherine Robbins
Beverley Barry	Stella Donato	Lindsay Hollingworth	Maree Maxfield	Maureen Robbins
Carolyn Barry	Alessandra Donato	Adrian Holt	Lewis Mayne	Carmen Roberts
Anthea Barry	Ris Douglass	Tracey Hopkins	Siobhann McCafferty	Joao Rosa
Gregory Bartlett	Eduard Drizik	Nadine Hoskins	Gail McCallum	Anne Ross
Perry Bartlett	Tracey Duff	Faith Howell	Amanda McKay	Sally Russell
Meredith Baxter	Ruth Duncan	Susan Hucker	Moya McKenzie	Kiara Ryan
Pauline Beames	Kylie Dunn	Leonard Humphreys	Marnie McLaren	The Late Geoffrey Sattler
Peter Bell	Julie Dunn	Lyle Humphreys	Michael McMahan	
Katherine Bell	Susan Dyson	Brent Hundloe	Cath McMurchy	John Sawtell-Rickson
Judith Bell	Brady Earnhart	Raymond Hurley	Leon McNamara	Roderick Schafer
Alan Bennett	Wendy Edmond	Noyce Hurst	Jude McWhirter	Janine Schmidt AM
Elena Bertuna	Susan Edwards	Alexandra Hutchinson	Alex & Mary Milanovic	Deborah Schonfeld
Robyn Besley	Cinzia Egodagamage	Desmond Jack	Mary Milanovic	Graham Schrodter
Alan Biggs	Barbara Elliott	Natasha Jackson	Michael Mills	John Seymour
Margot Biggs	Clarence Evans	Catherine Jacobs	Jules Mitchell	Martina Sheehan
Wendy Blacker	Kenneth Eyre	Iver James	Diane Morris	Chris Sichter
Mary Blakeney	Robyn Farrell	Roxanne Jemison	David Muir	John Siemon
Sarah Blatchford	Robert Fitchew	Ronald Johnson	Andrew Muir	Donna Simon
Lara Bliss	Shaun Flanigan	Darryl Johnson	Bevan Muldoon	Catherine Simons
Anthony Blue	Judith Foote	Bernie Johnson	Denis Nave	Susan Smallwood
Simon Bottomley	Anthony Forder	William Johnston	Judith Nedderman	Andy Smith
Sally Bourne	Roscoe Foreman	Daryl Johnstone	Yolanda Newman	Marina Smith
Beatrice Bowen	Robert Franklin	Rosemary Kajewski	Leighton Niesler	Michelle Snape-Jenkinson
Jennifer Brennan	Sarah Frecker	Chiselyn Kavanagh	Virginia Nink	Michael Spooner
Elizabeth Brennan	Adrienne Freeman	Janice Kefford	Robert Nitz	Jamie Spragg
Jennifer Brennand	Anita Freemantle-Bates	Alistair Kennedy	Helen Noad	Elke Stapf
Laura Brix	Alison Friswell	Fiona Kennedy	John Nolan	Janice Steel
Jodie Broad	Kelsey Gagnon	Ruth Kerr OAM	Linda Norton	Maia Steele
Richard Brownhill	Joe Gangemi	Sarah King	Michael Oakes	Maureen Stevenson
Joan Bryan AO	Julia Gardner	Yvonne Kirkegard	Simon O'Brien	Kevin Stewart
Andrew Burgess	The Late Raymond Garske	Michael Kisluk	Patricia O'Connor	Jean Styles
Peter Cairns	Adriana Garzarella	Terrence Kitchin	David O'Driscoll	Stephanie Surm
Catherine Calthorpe	Antoinette Gault	Maurice Koens	Hellen Officer	Stephen Sverdlhoff
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Victoria Calvert	Barbara Gilmore	Jacqueline Koutsis	Michelle Olsen	Margaret Thew
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Constantine Carides	Amy Gilnsen	Amadeo Kuypers	Marie O'Neill	David Thompson
Elene Carides	Gayle Ginnane	Jennifer Kynaston	Andrew Osborne	Anne Tobin
Rosanne Casale	Maria Gomez	Maria La Vecchia	Anna Osborne	Anthony Toohey
Angela Chapman	Ruth Gough	Sandra Lacey	Peter Paine	Hong Toy
Kay Christensen	Noella Grant	Peter Landy	Maja Palacios	I-Lun Tseng
Lavinia Codd	Peter Grant	Nikki Langton	Suzanne Parker	Sandra Tuesley
Edwin Codd AM	Ross Grimley	Kamyra Laurenson	Linda Pedley	Tara Turner
Catrina Codd		Joan Lawrence AM	Heshala Perera	Sarah Ullrich
Gillian Colasimone		Ross Layther	Leah Perry	Mark Urquhart
Francis Conway		Betty Lee	Suzie Phillips	



## Qld Emergency Services Charity Golf Day supports Dementia Research

On an annual basis, emergency services workers and corporate staff from Queensland Ambulance, Queensland Fire and Emergency Services and Queensland Police take to the greens at the Emergency Services Charity Golf Day, to network and raise funds for dementia research at UQ's Queensland Brain Institute (QBI).

Starting out as a joint networking event for emergency service workers, the Golf Day has grown over the years to include philanthropy as a goal, raising over \$10,000 for QBI's research into dementia research over the past four years. Their fundraising efforts are supported by generous long term sponsors including Telstra, Fujitsu-Lenovo and VoIP.

Funds raised go towards the Peter Hilton Research Fellowship, which was established by Robyn Hilton, in memory of her late husband Peter Hilton, who died from Alzheimer's disease in 2011.

Fiona Ferrier, one of the organisers of the golf day, is a childhood friend of Robyn's and saw how living with dementia affected Peter, inspiring her to help support research to find a treatment for this devastating disease.

Dr Liviu-Gabriel Bodea is the current Peter Hilton Research Fellow and his research explores the interactions of the nervous and immune systems during memory and learning, and how these systems are disrupted in dementia.

Philanthropy is critical to the research at the Queensland Brain Institute and we are very grateful for the support of Queensland Emergency Services Staff and other individuals and organisations that fundraise on QBI's behalf. For more information on how you can be involved with fundraising for QBI visit [qbi.uq.edu.au/get-involved](http://qbi.uq.edu.au/get-involved)

### Individual donors (continued)

Paula Van Loon	Tracy Whipple
Geoff Voller	Patsy Wigham
Emma Walkinshaw	Jason Wilkins
Richard Wallace-Barnett	Margaret Wilkins
Garry Waugh	Dorothea Wilkinson
Adrian Webb	Irene Willett
Anne-Marie Webber	Margaret Williams
Catherine Webster	Clive Williams OAM
Helen Weir	David Wood
Gillian Wetkin	Peter Woodward
Trent Whyman	Craig Worling
	Bozena Zembrzuski



# Public engagement



QBI researchers demonstrate their experiments to the Australian Brain Bee Competitors.

2017 saw QBI once again host a range of events that variously targeted scientists and members of the public. Highlights included the annual Merson Lecture, which this year was given by Australia's Chief Scientist Dr Alan Finkel AO. An ex-neuroscientist and engineer, Dr Finkel talked about the importance of combining brain research with a focus on technological tools and applications.

This year's Peter Goodenough Memorial Lecture was given by Professor John Parker of Saluda Medical, an Australian company commercialising a spinal stimulation device for the management of chronic pain. Coincidentally, this lecture perfectly fit the theme of Dr Finkel's Merson Lecture.

On March 13 and 14, members of QBI including Associate Professor Bruno Van Swinderen and the SLRC's Stephanie MacMahon visited Innisfail State College in Far North Queensland to raise awareness of QBI and the SLRC, spark interest in science amongst year 10 students and assist preparations for the Australian Brain Bee Challenge. The students participated in a number of workshops to learn about neuroscience and the brain, and the staff participated in a professional development session on digital multi-tasking, drawing from SLRC research on the impact of multi-tasking on cognitive functioning. The visit was a wonderful success with both students and teachers learning lots about the work of QBI.

CJCADR once again ran a one-day Public Dementia Forum that looked at the dementia problem from the perspectives of research, treatment and care, and the dementia-focused Hand Heart Pocket Gala was once more run in conjunction with Alzheimer's Australia.

The Australian Brain Bee Challenge Queensland Final was attended by 124 students from 39 schools across Queensland. The students spent the day participating in the neuroscience competition, as well as touring QBI's state-of-the-art facilities and mingling with QBI's neuroscientists.

QBI had over 250 people come through the building when it opened its doors to the public as part of Brisbane Open House. As well as viewing the building, visitors had the chance to hear from CJCADR researchers discussing dementia research and how it translates to clinical trials and potential future treatments.

QBI also hosted a number of community tours and provided speakers to various community events.

## Commemorative Lectures

### Peter Goodenough Memorial Lecture

Professor John L Parker  
Saluda Medical  
13 September

### Merson Lecture

Dr Alan Finkel AO  
Chief Scientist of Australia  
24 October

## Public Lectures

### Autism: Progress in Understanding the Genetics

Professor Elliot Sherr  
Brain Development Research Program, UCSF  
8 May

### The anatomy of violence: the biological roots of crime

Professor Adrian Raine  
University of Pennsylvania  
30 October

## Community events

### Ross Maclean Fellowship Raceday

11 February

### International Women's Day Lunch

8 March

### Innisfail State College visit

13-14 March

### CJCADR Public Dementia Forum

11 May

### Queensland Final of the Australian Brain Bee Challenge

18 July

### Parkinson's & Movement Disorders Information Session for Patients & Carers

2 September

### Brisbane Open House: Dementia Research, from the bench to the public

8 October

### Parkinson's disease research breakfast

25 September

### Hand Heart Pocket Gala Evening

21 September

## The BRAIN series

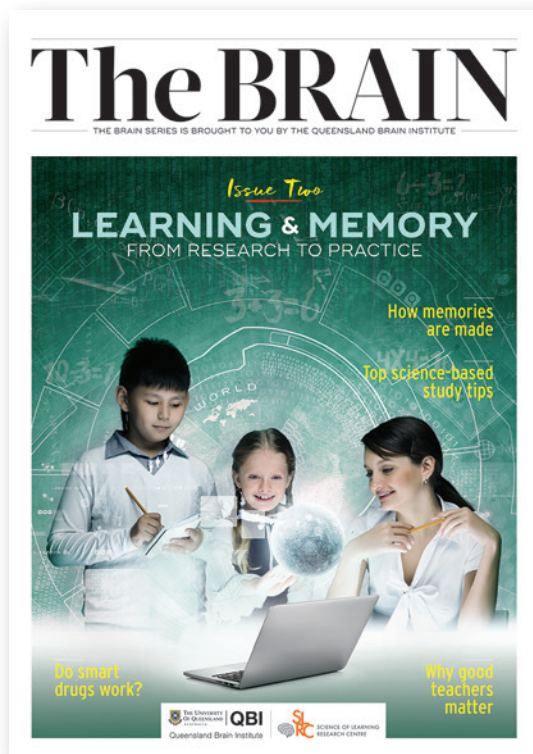
QBI produced a further two issues of The BRAIN magazine. Issue Two on Learning & Memory was published in June, whilst Issue Three on Dementia was published in September. The BRAIN: Learning & Memory was distributed to every school across Australia, and The BRAIN: Dementia was sent out via the Dementia Australia network. Both issues were also distributed via the Australian Financial Review.

### Learning & Memory

Issue Two, July

### Dementia

Issue Three, September



# Scientific seminars & symposia



Attendees at the Australian *C. elegans* Symposium

QBI was fortunate to once again host outstanding speakers at its seminars, which continue to be well attended. This year also saw the organisation of the inaugural Australian *C. elegans* Symposium (ACeS), drawing together a community of researchers dedicated to this excellent model organism. QBI also hosted the second SCiNDU (Systems & Computational Neuroscience Down Under) conference after a highly successful inaugural event in 2015.

Finally, QBI continued to run its weekly seminar series, with an excellent mix of in-house and external (including international) speakers. A full list of community- and academic-focused events for the year is below.

## QBI-hosted symposia

### **Australian *C. elegans* Symposium**

25–27 October

### **Deep Brain Stimulation Symposium**

24–25 November

### **Systems & Computational Neuroscience Down Under (SCiNDU)**

13 December

### **The 2nd Super-Resolution Microscopy Symposium**

7 December

## QBI Neuroscience Seminars

### Professor Andreas Lüthi

Group Leader, Friedrich Miescher Institute for Biomedical Research, Basel, Switzerland  
*Deconstructing fear*

### Professor Li-Huei Tsai

Professor and Director, Picower Institute for Learning and Memory, Dept of Brain and Cognitive Sciences, Massachusetts Institute of Technology, Cambridge, USA  
*Using patterned neural activity to modify Alzheimer's disease pathology*

### Dr Jai Yu

Howard Hughes Medical Institute, Department of Physiology, University of California, San Francisco  
*Encoding and storing experience in hippocampal-cortical networks*

### Dr Zhaoyu Li

Life Science Institute, University of Michigan, USA  
*Synaptic and circuit mechanism of sensorimotor integration in C. elegans*

### Dr Jean Giacomotto

Queensland Brain Institute, The University of Queensland  
*Innovative genetic and chemical genetics approaches to understand and treat motor neuron diseases*

### Professor Geoff Faulkner

Mater Research and Queensland Brain Institute, The University of Queensland  
*Somatic L1 mosaicism: 'dark matter' in mammalian genetics*

### Dr Adam Walker

Department of Biomedical Sciences, Faculty of Medicine and Health, Macquarie University, NSW  
*Investigating the disease mechanisms of MND and frontotemporal dementia related to TDP-43 pathology*

### Jing Zhao

Queensland Brain Institute, The University of Queensland  
*Role of EphA4 in regulating adult hippocampal neurogenesis and motor neuron disease*

### Tong Wu

Queensland Brain Institute, The University of Queensland  
*Functional brain network study on wild type and DISC1 transgenic mice*

### Professor Brent Reynolds

Department of Neurosurgery, University of Florida, USA  
*Eco-Oncology: Applying principles of ecology to improve outcomes in oncology*

### A/Professor Zhiyi Wei

Department of Biology, Southern University of Science and Technology of China (SUSTech)  
*Structural Insights into Presynaptic Active Zone Assembly*

### Professor Scott Tyo

The University of New South Wales at the Australian Defence Force Academy, Canberra  
*Do You see What I See? Exploiting advanced properties of light and mimicking biological vision systems to develop new imaging and sensing methods*

### Dr Andrew Higginson

Psychology Department, University of Exeter, UK  
*Learning to be ill? Adaptive decision-making systems with limited information may cause ill health*

### Reuben Strydom

Queensland Brain Institute, The University of Queensland  
*Bio-inspired Strategies for Autonomous Aerial Navigation, Guidance and Interception*

### Dr Christian Winterflood

Zurich, Switzerland  
*Applications of supercritical angle and single-molecule fluorescence*

### Lacey Atkins

Queensland Brain Institute, The University of Queensland  
*An investigation of risk factors for Alzheimer's disease in obstructive sleep apnoea patient*

### Professor Lars Ittner

School of Medical Sciences, UNSW  
*On the molecular role of Tau in regulating post-synaptic toxicity*

### Professor Brenda Gannon

Centre for Business and Economics of Health, The University of Queensland  
*Connecting health economics and brain research*

### Professor Geoff Faulkner

Mater Research Institute and Queensland Brain Institute, The University of Queensland  
*Somatic L1 mosaicism: 'dark matter' in the mammalian brain*

### Dr Vincent Daria

ANU College of Medicine, Biology and Environment  
*Understanding brain circuits using nanotechnology and photonic tools*

### Professor George Augustine

Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore  
*Optogenetic mapping of novel cerebellar circuits*

### Professor Linda Richards

Queensland Brain Institute, The University of Queensland  
*Interhemispheric axonal plasticity in developmental brain disorders*

### Madhusoothanan Bhagavathi Perumal

Queensland Brain Institute, The University of Queensland  
*Organization of a reverberating cell assembly in the basolateral amygdala*

### Robert Maier

Queensland Brain Institute, The University of Queensland  
*Improving genetic risk prediction in psychiatric disorders and other complex traits*

### Dr Jana Vukovic

Queensland Brain Institute and the School of Biomedical Sciences, The University of Queensland  
*Understanding the role of microglia as regulators of adult neurogenesis in the intact and injured brain*

### Dr Susannah Tye

Director, Translational Neuroscience Laboratory, Mayo Clinic Depression Center, Rochester, USA  
*Metabolic Deficits in Antidepressant Resistance are a Functional Target for Neuromodulation*

### Dr Hari Subramanian

Asia-Pacific Centre for Neuromodulation, Queensland Brain Institute, The University of Queensland  
*The midbrain periaqueductal gray: A novel circuit for treatment of intractable neurogenic autonomic disease via neuromodulation*

### Professor Michael Nilsson

Director, Hunter Medical Research Institute, NSW  
*Emerging avenues in stroke rehabilitation: focus on recovery and secondary neurodegeneration*



**Anthony Harris**

Queensland Brain Institute, The University of Queensland  
*The role of neural oscillations in human visual attention and awareness*

**Dr Jeehyun Kim**

Lab Head, Developmental Psychobiology Laboratory, Behavioural Neuroscience, The Florey Institute, VIC  
*Understanding the development of emotional memory to treat anxiety and addiction*

**Professor Loren Frank**

Department of Physiology, University of California, San Francisco  
*Neural substrates of memories and decisions*

**Professor David Tremethick**

Head of the Dept of Genome Science, The John Curtin School of Medical Research, ANU, Canberra  
*What does reproduction and memory have in common? The epigenetic regulator H2A.B*

**Professor Sunil Gandhi**

Department of Neurobiology and Behaviour, School of Biological Sciences, University of California, Irvine  
*Rewiring the circuits of high acuity spatial vision*

**Professor Christian Haass**

Department of Biochemistry, Ludwig-Maximilians University  
*TREM2 in Alzheimer's disease: from microglial dysfunction to human patients*

**Professor Michael Milford**

Science and Engineering Faculty, Queensland University of Technology, Garden Point Campus, Brisbane  
*From Rats to Robot Navigation and Beyond*

**Professor Aleksandra Filipovska**

Laboratory Head, Mitochondrial Medicine and Biology, Harry Perkins Institute of Medical Research, Perth, WA  
*The role of mitochondrial dysfunction in neurodegenerative diseases*

**Professor Alison Goate**

Director, Ronald M. Loeb Center for Alzheimer's disease and Department of Neuroscience, Icahn School of Medicine at Mount Sinai  
*Rare and Common Genetic Variation implicates microglial function in Alzheimer's disease risk*

**Associate Professor Frini Karayanidis**

Director, Functional Neuroimaging Laboratory, School of Psychology, University of Newcastle, NSW  
*Age-related decline in cognitive control: Role of CV risk factors*

**Professor Barry Dickson**

Queensland Brain Institute, The University of Queensland and Janelia Research Campus, Howard Hughes Medical Institute, Virginia, USA  
*The neurobiology of Drosophila mating behavior*

**Dr Justin Wong**

Head, Gene Regulation in Cancer Lab, Gene and Stem Cell Therapy Program, Centenary Institute of Cancer Medicine & Cell Biology, University of Sydney  
*Intrinsic nonsense: why we should stop ignoring them?*

**Dr Iris Wang**

Queensland Brain Institute, The University of Queensland  
*Neuronal trafficking: Linking mechanisms to functions in live neurons*



**Professor John McGrath**

Queensland Brain Institute, The University of Queensland  
*Convergent evidence implicates vitamin D deficiency and voltage-gated calcium channel function in schizophrenia*

**Professor Pankaj Sah**

Queensland Brain Institute, The University of Queensland  
*Anxiety and depression: the search for better therapeutics*

**Associate Professor Tim Bredy**

Queensland Brain Institute, The University of Queensland  
*Evolving insights into the qualitative nature of RNA and its functional diversity in the brain*

**Melvyn Yap**

Queensland Brain Institute, The University of Queensland  
*Electrophysiological analyses of sleep states in Drosophila*

**Dr Dhanisha Jhaveri**

Mater Research Institute and Queensland Brain Institute, The University of Queensland  
*Regulation and function of distinct neurogenic precursors in the adult brain*

**Professor Stephen Williams**

Queensland Brain Institute, The University of Queensland  
*Cholinergic modulation is an essential component of neocortical circuit computations*

**Dr Melissa Sharpe**

Princeton Neuroscience Institute & National Institute on Drug Abuse, Princeton, New Jersey  
*The contribution of dopamine to the model-based world*

**Jenny Pavlides**

Queensland Brain Institute, The University of Queensland  
*Integrating genome-wide association study data with gene expression to understand complex traits and common diseases*

**Dr Rena Li**

Beijing Institute of Brain Disorders, Capital Medical University  
*Sex-specific targets to Alzheimer's disease*

**Dr Yong Shen**

University of Bordeaux, France  
*Why is single molecule, BACE1, involved with multiple types of brain disorders?*

**Prof Daniel Choquet**

University of Bordeaux, France  
*The interplay between synapse nanoscale organization and function*

**Dr Jean-Baptiste Sibarita**

University of Bordeaux, France  
*Pushing the limits of SMLM toward deeper, more colours and more throughput imaging*

**Dr James Daniel**

Molecular Neurobiology Group, Max Planck Institute of Experimental Medicine, Göttingen, Germany  
*Wrestling with SUMO at the synapse*

**Professor Mandayam A Srinivasan**

Director, TouchLab, Massachusetts Institute of Technology, USA, University College London, UK  
*Haptics: science, technology, and applications*

# Publications

In 2017, QBI authors published 336 peer-reviewed, original research articles, 19 of which were in *Nature* journals, and three of which were in *Science* journals. Three articles were featured as covers in their respective journals (see below). In addition, QBI researchers authored 1 book and 12 book chapters, as well as 4 peer-reviewed conference papers.

2017 also saw growth in the number of original research articles submitted to QBI's open-access Nature Partner Journal, *npj Science of Learning*. QBI researchers continue to serve as editors for this journal, including the Editor-in-Chief role.

## Scientific publications

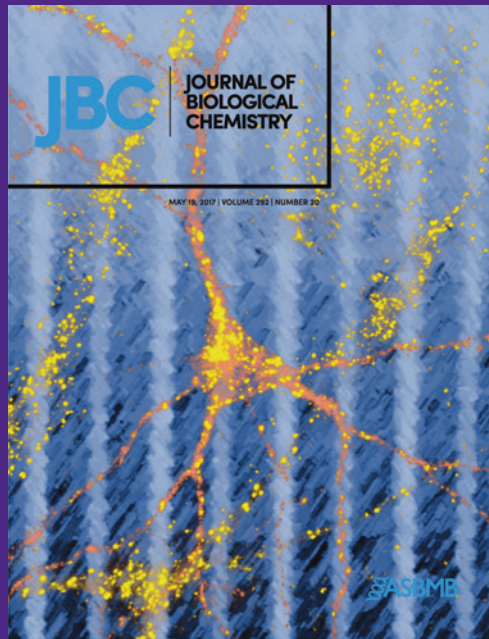
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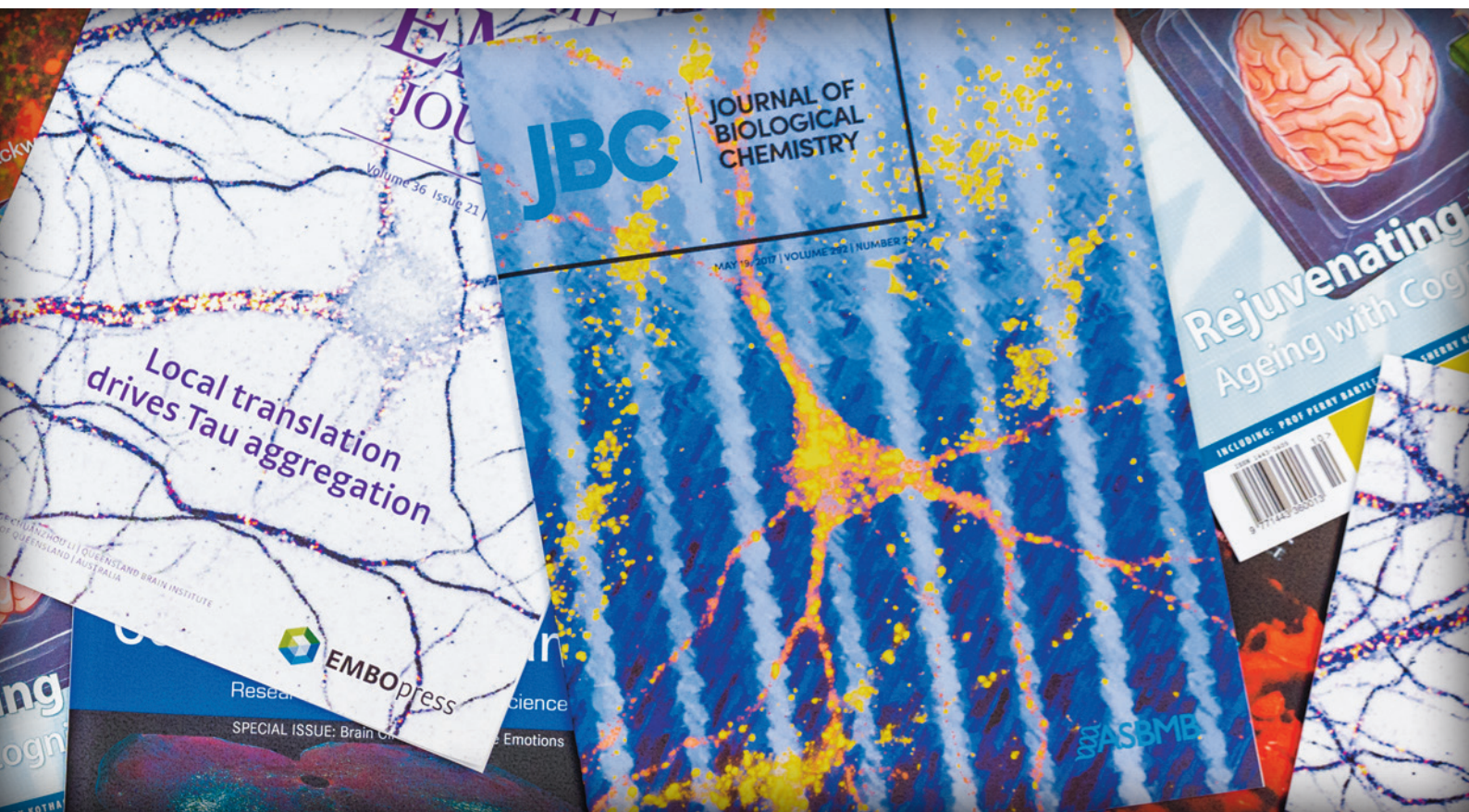
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