



## **FINAL REPORT**

### **Myelin Biology 2015: Glial Neuronal Interactions**

#### Meeting Details:

Venue: Fitzroy Island Resort, Queensland, Australia

Dates: Friday, August 28 - Monday, August 31, 2015

Organizers: Ben Emery (Oregon Health & Science University) and Kaylene Young (University of Tasmania)

Meeting Website:

<https://www.regonline.com/builder/site/Default.aspx?EventID=1644069>

This meeting continued a proud tradition of Myelin satellites to the ISN biennial meeting, bringing international myelin researchers together at idyllic Fitzroy Island for four days after the ISN-APSN/ANS joint meeting in Cairns. The scientific program covered a range of topical subjects in both the peripheral and central myelination fields, with a strong mix of highly established scientists and emerging researchers presenting their work. The relaxed (but rather isolated!) location led to a highly collegial and interactive meeting, with robust scientific discussion often continuing well beyond the sessions and into the evenings at the bar and the beach.

### Registration:

Invited Speaker	AU\$0
Lab Head	AU\$400
Postdoc	AU\$250
Student	AU\$200
Social Guests	AU\$250

Registration included ferry transport to and from Fitzroy Island, a BBQ welcome reception, a conference dinner, breakfasts, lunches, WiFi access, morning & afternoon teas and conference materials.



*Tea-breaks*

### Participants:

The meeting hosted 78 participants from around the world, with many coming directly from the Cairns ISN-APSN-ANS joint meeting. Participants were from the U.S.A., the U.K., Australia, Germany, France, Japan and Denmark, making it a truly international gathering. Twenty-eight of these participants were early-career researchers (students or postdocs). The relatively small and isolated nature of the venue was perfect for encouraging interactions between the participants, with these early-career researchers in particular benefiting from the opportunity to share their data and network with more senior scientists. A full list of participants is provided at the end of this report.



*Discussion during the poster session and talks.*

### Program:

The final program included two plenary lectures (by Prof. Klaus-Armin Nave, Max Planck Institute of Experimental Medicine, Germany and Prof. William Richardson, University College London, U.K.), nine symposia (with a total of 36 speakers) and a poster session (with 24 posters). Social events included a welcome BBQ and a conference dinner. In addition, almost all participants made use of the spectacular location to go on a glass bottom boat night tour of the reef or to go do diving or snorkeling on the free morning. The full program is provided below.



*Plenary speakers Prof. William Richardson (left) and Prof. Klaus-Armin Nave (right).*

### Sponsorship:

In addition to US\$20,000 from ISN, we attracted sponsorship from the National Multiple Sclerosis Society (US\$5,000), the Menzies Institute for Medical Research (AU\$3,300) and Multiple Sclerosis Research Australia (AU\$2,500).



*The setting was ideal for open and informal scientific discussion... as well as making the most of the Queensland coast and reef during breaks.*

### Travel Awards for Student/Early Postdoc Speakers:

Based on outstanding abstracts, five early career researchers (students and early postdocs) were selected for a presentation in the Student/Early Postdoc session and provided a AU\$500 travel award (kindly sponsored by the National Multiple Sclerosis Society and Multiple Sclerosis Research Australia): WenPing Kuo, Andrew P Robinson, Carlie L Cullen, Haley Titus-Mitchell and Georg von Jonquieres.



*Travel award winners Haley Mitchell and WenPing Kuo presenting.*

### Special Thanks:

The organizers would like to thank everyone who has provided administrative and logistical help with the organization of this meeting, especially Sheilah Jewart, Stewart Wells, Daniela Achatz and Haley Mitchell. We thank Klaus-Armin Nave for his photography during the meeting, some of which is featured in this report. We'd like to thank the financial supporters of the meeting, the International Society for Neurochemistry, the National Multiple Sclerosis Society, Multiple Sclerosis Research Australia, and the Menzies Institute for Medical Research. Finally, we'd like to thank all the participants for their involvement – we hope the meeting was as enjoyable for you as it was for us.



## Final Budget:

Funds were managed via the Menzies Institute for Medical Research, Tasmania.

ISN's generous support (US\$20,000) was used to fully cover the conference catering (AU\$16,896.85), conference room and AV hire (AU\$545.45) and to fully subsidize transport to Fitzroy Island for all participants via the Fitzroy Fast Cat (AU\$4,007.27).

The predicted surplus after the final incoming ISN payment is \$0 AUD.

### Breakdown of funds (in AU\$):

<b>Income</b>	
First payment for ISN Grant: US\$16,000	\$16,483.35
Outstanding balance from ISN grant: US\$4,000	\$5,280.00
Registration Fees from website	\$6,398.00
Multiple Sclerosis Research Australia Grant	\$2,500.00
National Multiple Sclerosis Society Grant	\$5,687.36
Donation by Menzies Institute for Medical Research	\$3,298.56
<b>Total:</b>	<b>\$39,647.27</b>

<b>Expenses</b>	
Reimbursement for plenary speakers	\$9,464.00
Deposit for Conference, Fitzroy Island	\$454.55
Conference Catering	\$16,896.85
Poster Board Hire and shipping	\$1,842.60
Conference Room Hire and AV	\$545.45
Fast Cat transfers to Fitzroy Island	\$4,007.27
Lanyards and name tags	\$423.00
Stationary	\$54.35
Myelin Biology Conference 59736 Balance Fitzroy Island	\$813.45
Personal Reimbursements/Prizes for ECR Travel Awards	\$2,650.00
Personal Reimbursements other speakers	\$1,050.00
Website Management/Registration Program	\$1,435.75
Bank fees	\$10.00
<b>Total:</b>	<b>\$39,647.27</b>

<b>Anticipated Balance:</b>	<b>\$0.00</b>
-----------------------------	---------------

# Scientific Programme

Friday August 28 – Monday August 31, 2015

## Friday August 28

- 8:00 Ferry departs Cairns to Fitzroy Island (included)  
*Be at the marina 1 hour in advance (Next ferry departs 11:00)*
- 9:00 Registration Desk Open in Resort Lobby
- 13:00 Welcome (Ben Emery and Kaylene Young)
- 13:15 **Plenary Lecture: William Richardson**  
*Adaptive myelination and motor skills learning*
- 14:30 **Symposium 01: Molecular and Cellular Mechanisms of oligodendroglial Communication**  
Chair: Ben Emery
- Bernard Zalc:** *A Xenopus laevis transgenic line to monitor spontaneous or enhanced remyelination in response to conditional demyelination*
- Babette Fuss:** *Extracellular cues as regulators of oligodendrocyte differentiation and myelination*
- Eva-Maria Kraker-Albers:** *Exosomes in oligodendrocyte-to-neuron communication*
- Dominik Sakry:** *OPCs players in the neuronal network*
- 16:30 Tea / Coffee Break
- 17:00 **Symposium 02: Development and Structure of Peripheral Myelin**  
Chair: Kelly Monk
- Kelly Monk:** *Molecular mechanisms of Schwann cell development and regeneration*
- Laura Feltri:** *Essential role for prohibitins in myelination revealed by proteomic analysis of early axo-glial interactions*
- Takeshi Yoshimura:** *GlcNAc6ST-1 regulates sulfation of N-glycans and myelination in the peripheral nervous system*
- Matthew Rasband:** *Paranode function depends on spectrin and ankyrin-based cytoskeletons*
- 19:30 Welcome Reception and BBQ - Foxy's Bar

## Saturday August 29

- 7:00-8:00 Breakfast (included)

- 8:00           **Symposium 03 - Late Breaking Abstracts**  
Chair: Jia Liu  
**Stephen Miller:** *Early life oligodendrocyte death results in later life immune-mediated CNS demyelination - support for the inside-out hypothesis of MS pathogenesis*  
**Richard Lu:** *MicroRNA control of myelination and remyelination in the CNS*  
**Anne Desmazières:** *Nodes of Ranvier assembly in the central nervous system during myelination and repair*  
**Hiroko Baba:** *Loss of PLD4 in activated microglia affects myelination in brain development*
- 10:00           Morning Tea / Coffee Break
- 10:30           **Symposium 04: Demyelinating Disease and Remyelination**  
Chair: Steve Petratos  
**Matthias Klugmann:** *Gene therapy in animal models of leukodystrophy*  
**Larry Sherman:** *Hyaluronidases as potential therapeutic targets for demyelination*  
**Lawrence Wrabetz:** *Consequences and therapy of ER stress in myelinating glia*  
**Bruce Trapp:** *Myelin modulates axonal viability by regulating axonal mitochondrial shape, distribution and interactions with SER*
- 12:30           Lunch (provided)
- 14:00           **Symposium 05: Signalling Pathways in Oligodendrocyte Development**  
Chairs: Junhua Xiao and Rashmi Bansal  
**Junhua Xiao:** *The roles of neuronal TrkB receptors in central nervous system myelination during postnatal development*  
**Rashmi Bansal:** *FGFRs and downstream signalling mechanisms in the regulation of myelin growth and maintenance*  
**Holly Cate:** *Modulating BMP signalling to enhance myelin repair from endogenous progenitor cells*
- 15:30           Tea / Coffee Break
- 16:00           Poster Session
- 18:30           Free Time

**Sunday August 30**

- 7:00-10:00    Breakfast (included)

**Free Time for snorkelling, hiking and intense collaboration**



- 13:00 **Symposium 06: Myelin Plasticity: Interplay between Neural Activity and Myelination**  
Chair: Kaylene Young
- Bruce Appel:** *Activity-dependent mechanisms of axon selection and myelination*  
**Michele Monje:** *Adaptive white matter - neuronal activity promotes oligodendroglialogenesis and myelination in the mammalian brain*  
**Ragnhildur Thora Karadottir:** *Neurons calling: neuronal regulation of OPC differentiation in health and disease*  
**Kazuhiro Ikenaka:** *How does an oligodendrocyte select axons to myelinate?*
- 15:00 Tea / Coffee Break
- 15:30 **Symposium 07: Myelin Membrane Biogenesis and Wrapping**  
Chair: Gesine Saher
- Charles ffrench-Constant:** *Innate myelin-sheath length is an intrinsic property of oligodendrocytes*  
**Jae Young Lee:** *Nogo receptor 1 regulates axo-glial units in the central nervous system*  
**Corey Heffernan:** *Necl4 cell adhesion molecule complexes with CTL1 in Schwann cells to regulate choline transport and lipid biogenesis*  
**Wendy Macklin:** *Behavioural consequences of dysmyelination*
- 17:45 **Symposium 08 - Student/Early Postdoc Session**  
Chair: Haley Titus-Mitchell
- WenPing Kuo:** *Oligodendroglial exosomes protect neurons and influence axonal transport*  
**Andrew P Robinson:** *Pathologic T cell cytokines have contrasting effects on oligodendrocyte progenitor cells*  
**Carlie L Cullen:** *Non-invasive stimulation of oligodendrogenesis in vivo.*  
**Haley Titus-Mitchell:** *Signaling Pathways Controlling CNS Myelin Compaction in Gain of Function Rasopathies.*  
**Georg von Jonquieres:** *Targeting oligodendrocytes in rAAV mediated gene replacement therapy for Canavan Disease.*
- 19:30 Dinner - Foxy's Bar

**Monday, August 31**

- 7:00 Breakfast (included)
- 8:30 **Plenary Lecture: Klaus Nave**

*A novel role of oligodendrocytes in maintaining axonal energy metabolism*

9:30

**Symposium 09: Stem and Progenitor Cell Responses to Injury**

Chair: Franca Cambi

**Tobias Merson:** *Distinct properties of niche- versus parenchyma-derived oligodendrocytes in the remyelinating brain*

**Fraser Sim:** *Transcriptional regulation of human OPC fate*

**Stephen Back:** *Distinct Hyaluronan Size-Ranges Initiate a RhoA-dependent Signaling Pathway that Mediates PreOL Arrest and Myelination Failure in Perinatal Cerebral White Matter Injury*

12:15

Ferry departs for Cairns

*(Next Ferry departs 17:00)*

## Participants

<u>Registrant</u>	<u>Institute</u>	<u>Country</u>
Carlie Cullen	University of Tasmania	Australia
Sabah Mozafari	Universite Pierre et Marie Curie	France
Klaus-Armin Nave	MPI of Experimental Medicine	Germany
Christina Dühring Fenger	University of Southern Denmark,	Denmark
Gesine Saher	MPI of Experimental Medicine	Germany
Gianluca Figlia	ETH Zurich	Switzerland
Marcus Giacci	The University of Western Australia	Australia
Hiroko Baba	Tokyo University of Pharmacy and Life Sciences	Japan
Aminath Azhan	The Ritchie Centre, Monash University	Australia
Mary Tolcos	The Ritchie Centre, Monash University	Australia
Peter Van Wijngaarden	Centre for Eye Research Australia & University of Melbourne	Australia
Bill Richardson	University College London	United Kingdom
Kelly Monk	Washington University	USA
Ragnhildur Thóra Káradóttir	University of Cambridge	United Kingdom
Ben Emery	Oregon Health and Science University	USA

---

Kaylene Young	University of Tasmania	Australia
Claude Shofield	National Multiple Sclerosis Society	USA
Franca Cambi	University of Pittsburgh	USA
Aron Hill	Monash University	Australia
Biliana Veleva-Rotse	Oregon Health and Science University	USA
Tom Phan	Social Guest	USA
Bruce Trapp	Cleveland Clinic	USA
Rashmi Bansal	Univ. of Connecticut Medical School	USA
Yumiko Ikenaka	National Institute for Physiological Sciences, Japan	Japan
Haley Titus-Mitchell	Cincinnati Children's Hospital Medical Center	USA
Dominik Fröhlich	University of New South Wales	Australia
Georg Von Jonquieres	University of New South Wales	Australia
Yoshihide Yamaguchi	Tokyo University of Pharmacy and Life Sciences	Japan
Anne Desmazieres	ICM, UPMC INSERM U1127, CNRS7225	France
Lamia Bouslama-Oueghlani	UPMC/ICM	France
Pavel Honsa	Institute of Experimental Medicine	Czech Republic
Martin Valny	Institute of Experimental	Czech Republic

---

---

	Medicine	
Jan Kriska	Institute of Experimental Medicine	Czech Republic
David Dzamba	Institute of Experimental Medicine	Czech Republic
Yoshio Bando	Asahikawa Medical University	Japan
Violetta Zujovic	ICM Brain and Spine	France
Richard Lu	Cincinnati Children's Hospital Medical Center	USA
Wen Ping Kuo-Elsner	University of Mainz	Germany
Anne Boullerne	University of Illinois at Chicago	USA
Stephen Back	Oregon Health and Science University	USA
Junhua Xiao	University of Melbourne	Australia
Stephen Miller	Northwestern Univ. Medical School	USA
Bruce Appel	University of Colorado	USA
Michelle Monje	Stanford University	USA
Babette Fuss	Virginia Commonwealth University	USA
Laura Feltri	University at Buffalo	USA
Dominik Sakry	University of Mainz	USA
Larry Sherman	Oregon Health and Science University	USA
Doug Feinstein	University of Illinois at	USA

---

	Chicago	
Takeshi Yoshimura	NI for Physiological Sciences	Japan
Jia Liu	Mount Sinai School of Medicine	USA
Ziggy Harrison-Tikisci	University of New South Wales	Australia
Corey Heffenan	Rutgers, The State University of New Jersey,	USA
Akiko Hayashi	Tokyo University of Pharmacy and Life Sciences	Japan
Shannon Beasley	University of Queensland	Australia
Rainer Akkermann	University of Melbourne	Australia
Min Kim	Monash University	Australia
Jae young Lee	Monash University	Australia
Steven Petratos	Monash University	Australia
Natalie Lai Man Wu	Cincinnati Children's Hospital Medical Ctr	USA
Toby Merson	Florey Institute of Neuroscience and Mental Health	Australia
Matthias Klugmann	University of New South Wales	Australia
Eva-Maria Krämer-Albers	University of Mainz	Germany
Holly Cate	University of Melbourne	Australia
Fraser Sim	University at Buffalo	USA
Lawrence Wrabetz	University of Buffalo	USA

---

Kazuhiro Ikenaka	National Institute for Physiological Sciences, Japan	Japan
Michael Sereda	Max Planck Institute for Experimental Medicine	Germany
Matthew Rasband	Baylor College of Medicine	USA
Akiko Hayashi	Tokyo University of Pharmacy and Life Sciences	Japan
Andrew Robinson	Northwestern University	USA
David Gonsalvez	University of Melbourne	Australia
Wendy Macklin	University of Colorado School of Medicine	USA
Charles French Constant	University of Edinburgh	United Kingdom
Curtis Hay	University of Melbourne	Australia
Camila Wrabetz	Social Guest	USA
Thomas Wrabetz	Social Guest	USA
Sue Richardson	Social Guest	USA

---

|