

VOLUME 40, ISSUE 8, SEPTEMBER 2020

# Australian Pain Society NEWSLETTER



BLOG

WEB



THE  
AUSTRALIAN  
PAIN SOCIETY



## Editor's Note



*Dr Joanne Harmon*

Hi everyone, the year is indeed progressing fast and I am sure you would all agree that our thoughts and prayers are with all APS members who have been negatively impacted by the current pandemic.

We have an action-packed newsletter for you all.

Great news, the APS conference will be delivered in a flexible format. This is a terrific method to increase exposure, and a wonderful way to increase impact. Abstract and workshop submissions are now open. If you have a great idea for a pre-conference workshop, propose a topic and share your knowledge with our APS community.

Know a rising pain researcher who is a star? Nominations are now open for 2021 and now is the time to get your proposals in. Check out the interview by Dr Lincoln Tracy with our APS 2020 rising star recipient Dr Samuel Robinson.

It is great to be able to showcase some new publications by our APS members in this newsletter. Checkout the systematic review of randomised trials on deprescribing opioids in chronic non-cancer pain by Mathieson et al. (2020) and their findings on how patient focused deprescribing interventions did not increase the risk of both serious adverse events, and adverse events. The recent publication by Schmid, Fundaun and Tampin (2020) on entrapment neuropathies is proposing an argument for how contemporary management should be personalised, and the requirement of consideration for the multidimensional profile of an individual patient is a must read article. Also the systematic review and meta-analysis by Xie et al. (2020) on comparing central pain processing in individuals with non-traumatic neck pain and healthy individuals is another must read article. Their findings

of moderate-quality evidence of mechanical hyperalgesia at remote nonpainful sites in patients with nontraumatic neck pain compared with controls that is indicating altered central pain processing is of great interest. The BPR (Basic Pain Research) SIG Journal Watch report is in by Iredale & Graham (2020) and they share their discovery on the presence of analgesia network in the emotional brain during general anaesthesia. Highlighting not only the importance of basic research into fundamental mechanisms, but also paving the way for its use in new dimensions for future translation such as pathological pain. It is such a fabulous opportunity to be able to communicate on recent publications by our members, and our readers are asked to please be mindful to share their articles as they come to hand as well. The BPR SIG is also proud to launch their "BPR Pain Hour" online forum, see inside for details.

Until next time, take care

**Joanne Harmon**























Fellowship. He is chief investigator or co-investigator on multiple previous and current research grants from government agencies and charities in Australia and internationally. He has received travel expenses for speaking at conferences from the professional organisations hosting the conferences. He is an investigator on the SHaPED trial which received heat wraps at no cost from Flexeze. AM has received untied research funding from GlaxoSmithKline to the Sydney Pharmacy School for a postgraduate student scholarship under his supervision. MU is chief investigator or co-investigator on multiple previous and current research grants from the UK National Institute for Health Research, Arthritis Research UK and is a co-investigator on grants funded by the Australian

NHMRC; he is an NIHR Senior Investigator. MU has received travel expenses for speaking at conferences from the professional organisations hosting the conferences. MU is a director and shareholder of Clinvivo Ltd that provides electronic data collection for health services research and is part of an academic partnership with Serco Ltd related to return to work initiatives. MU is a co-investigator on two NIHR funded studies receiving support in kind from Stryker Ltd. MU has accepted honoraria for teaching/lecturing from CARTA; was an editor of the NIHR journal series, and a member of the NIHR Journal Editors Group, for which he received a fee; and a co-investigator on an NIHR funded trial of opioid withdrawal ISRCTN49470934.

## Entrapment neuropathies: a contemporary approach to pathophysiology, clinical assessment, and management

*Thank you to APS member Brigitte Tampin and her colleagues Annina Schmid and Joel Fundaun for sharing the following recent publication.*

**Article first published online:**

July/August 2020 (Volume 5, Issue 4)

**Journal Reference:** PAIN Reports

**DOI:** <http://dx.doi.org/10.1097/PR9.0000000000000829>

**Link:** [https://journals.lww.com/painrpts/Fulltext/2020/08000/Entrapment\\_neuropathies\\_a\\_contemporary\\_approach.4.aspx](https://journals.lww.com/painrpts/Fulltext/2020/08000/Entrapment_neuropathies_a_contemporary_approach.4.aspx)

**ABSTRACT**

Entrapment neuropathies such as carpal tunnel syndrome, radiculopathies, or radicular pain are the most common peripheral neuropathies and the most common cause for neuropathic pain. They often remain challenging to diagnose and

manage in a clinical setting. Our review provides an update on the aetiology and pathophysiology of entrapment neuropathies, based on evidence from both preclinical and clinical studies. Potential underlying pain mechanisms are brought into perspective with clinical findings. We discuss the contemporary assessment and highlight some diagnostic pitfalls. The evidence for non-invasive and surgical management of common entrapment neuropathies is summarised and future areas of research are identified.

**Declaration**

The authors have no conflict of interest to declare. A.B. Schmid is supported by the National Institute for Health Research (NIHR) Oxford Biomedical Research Centre (BRC). Brigitte Tampin was supported by the Government of Western Australia, Department of Health, and Raine Medical Research Foundation. The views expressed are those of the authors and not necessarily those of the NHS, the NIHR or the Department of Health.



# BPR Pain Hour: The search for safer opioids



## 08 September 2020 at 1-2pm AEST via Zoom

The Australian Pain Society, like many societies, is tackling the loss of their annual scientific meeting by providing a range of new online content to engage and connect clinicians and researchers across the country.

To support these efforts, the Basic Pain Research Special Interest Group (BPR SIG) is launching a new monthly online series, known as the “BPR Pain Hour”, to showcase the latest research from Australian pain researchers, in the lead up to the Annual Scientific Meeting in Canberra, April 2021.

The mission of our SIG is to share, improve and promote scientific knowledge and understanding of the mechanisms of nociception and pain across all levels of investigation: from molecular and cellular analyses, to pre-clinical or clinical studies.

This forum will provide an informal platform to promote and share our research and insights, from ECRs (including students) and senior colleagues.

### SESSION 1: The search for safer opioids

#### Summary:

With an ongoing desire for pharmaceutical companies to improve the therapeutic index of opioids, the FDA has recently approved a new synthetic opioid that is proposed to be “safer” for clinical use. This has subsequently sparked a new wave of debate around those intrinsic

properties of opioids that are most important for achieving analgesia with optimal clinical safety. Basic pain research and molecular pharmacology has an important role to play in this drug discovery discussion, by precisely defining those opioid receptor signalling processes that are important for achieving analgesia while avoiding side-effects such as tolerance or respiratory depression.

The speakers for our first session have applied new pharmacological approaches to systematically probe  $\mu$  opioid receptor function, and reveal the importance (or lack thereof) of opioid analgesics to mediate processes such as  $\beta$ -arrestin signalling to minimise opioid side effects. These pharmacological studies may be of interest to basic researchers and clinical researchers alike, offer new insights into those drugs that have recently been approved for clinical use, and may support future drug discovery efforts for the development of safer opioid analgesic drugs.

#### The invited speakers:

Prof Macdonald Christie, University of Sydney, NSW

Dr. Arisbel Batista Gondin, Monash Institute of Pharmaceutical Sciences, Vic.

All are welcome to attend, including postgraduate students.

We look forward to seeing you there, please [register here](#)

## General anaesthesia leads to the discovery of an analgesic network in the emotional brain

Hua, T., Chen, B., Lu, D. et al. General anesthetics activate a potent central pain-suppression circuit in the amygdala. *Nat Neurosci* 23, 854–868 (2020). <https://doi.org/10.1038/s41593-020-0632-8>

**Link:** <https://pubmed.ncbi.nlm.nih.gov/32424286/>

**Reviewers:** Jacqueline A Iredale and Brett A Graham School of Biomedical Sciences and Pharmacy, Faculty of Health and Medicine, University of Newcastle.

### Review of the paper

The actions of anaesthetics, producing loss of consciousness and sensory experience, are fundamental for our ability to care for traumatic injury and use highly invasive surgical procedures to treat disease without pain. The use of anaesthetics has a long history in medicine, reaching back to the first use of Ether for painless neck tumor surgery by William T. G. Morton in 1864<sup>1</sup>. Yet despite this, the mechanisms underpinning general anaesthetics and the interrelationship between anaesthesia and analgesia have remained obscure. This journal watch report highlights new research in mice that has discovered a small population of nerve cells located in the amygdala, a brain region commonly associated with emotional experience. The study uses an impressive array of modern neuroscience techniques to build the case that amygdala nerve cells do respond to general anaesthetics, and represent a specific analgesic network holding great promise as a future target for analgesic treatments<sup>2</sup>.

This study arose from previous research by this group, that has defined three nerve cell populations activated by general anaesthetics, found in the hypothalamus, the nucleus bed of the stria terminalis and the amygdala. These earlier experiments also succeeded in resolving a role

for the hypothalamic population (located in the supraoptic nucleus), acting by inducing slow-wave sleep during anaesthesia<sup>3</sup>. An important conclusion of this work was the existence of specific and dissociable neuronal networks responsible for different aspects of general anaesthesia. The addition now of an analgesia network highlights the complex actions of general anaesthetics on the central nervous system and the value of continuing to seek detailed mechanisms even for procedures that are well established and in routine use. The study began by using Fos, a marker protein selectively expressed in nerve cells when they are excited, and this was to identify populations activated by general anaesthetics. Confirming that an anaesthesia-sensitive population was located within the central nucleus of the amygdala and expressed GABA, giving an inhibitory action within brain circuits. Subsequent work sought to identify a genetic signature to reliably identify these cells, however, this was unsuccessful, and it was concluded several GABAergic subpopulations were likely to be involved.

Without a genetic signature to selectively manipulate the novel central amygdala anaesthesia network, all subsequent experiments used an approach termed 'Capturing Activated Neuronal Ensembles' (CANE) to genetically mark activated cells for experimental manipulations. Firstly CANE-mediated expression of a genetically-encoded calcium indicator (GCaMP6m) were used to monitor the activity of the novel amygdala network. This experiment used surgically implanted miniature fluorescence microscopes positioned to focus on central amygdala nerve cells while animals underwent general anaesthesia. This experiment showed substantial overlap of the amygdala cells activated by multiple general anaesthetics including; isoflurane, ketamine/xylazine, and dexmedetomidine, thereby confirming the generalizability of their actions. Calcium imaging also showed some of the central amygdala network responded transiently during anaesthesia

induction, and some exhibited sustained activation. Given the well-established role of the central amygdala in fear and anxiety, CANE-mediated expression of optogenetic probes were used to allow light stimulation (via an implanted fibre optic in the central amygdala) to activate and inactivate this network. The absence of behavioural effects during optogenetic manipulation of the amygdala network during a range of anxiety and fear tests argued against any role of this population in emotional responses.

Secondly, CANE-mediated optogenetics was used to test whether the central amygdala network had a role in pain processing and analgesia. This series of experiments confirmed that optogenetic activation of the central amygdala network reduced the sensitivity of nociceptive mechanical, heat, and cold reflexes. Conversely, optogenetic inhibition of this network increased the sensitivity of these reflexes and produced an aversion to environments where this inhibition occurred. Observations of this type are commonly termed 'conditioned place aversion' and are interpreted as an indicator of negative affective experience. In addition to these assessments of nociceptive pain, nociceptive reflexes were also assessed using inflammatory and neuropathic models of pain. Optogenetic activation of the central amygdala network under these conditions was able to suppress both forms of pathological pain, and reinforces its role as a central analgesic system. Finally, CANE-mediated expression of green fluorescent protein (GFP) was used to label the central amygdala network and all its connections. This experiment confirmed the network projected broadly to many pain-processing regions of the brain including the prefrontal cortex (pre-limbic and cingulate), insular cortex, cortical amygdaloid nucleus, periaqueductal gray, and the parabrachial nucleus. Therefore, the novel central amygdala analgesic network is ideally positioned to strongly inhibit activation of many pain-processing regions of the brain.

### The take-home message

In summary, we highlight in this manuscript an exciting development in our understanding of both anaesthesia and analgesia. The work also showcases how modern neuroscience techniques are combining to produce an unprecedented view of the brain circuits that contribute to our experience of pain, and with the future potential of harnessing these networks to treat pathological pain. From a research perspective, this work also reinforces the importance of basic research into fundamental mechanisms and how this work can open new avenues for future translation.

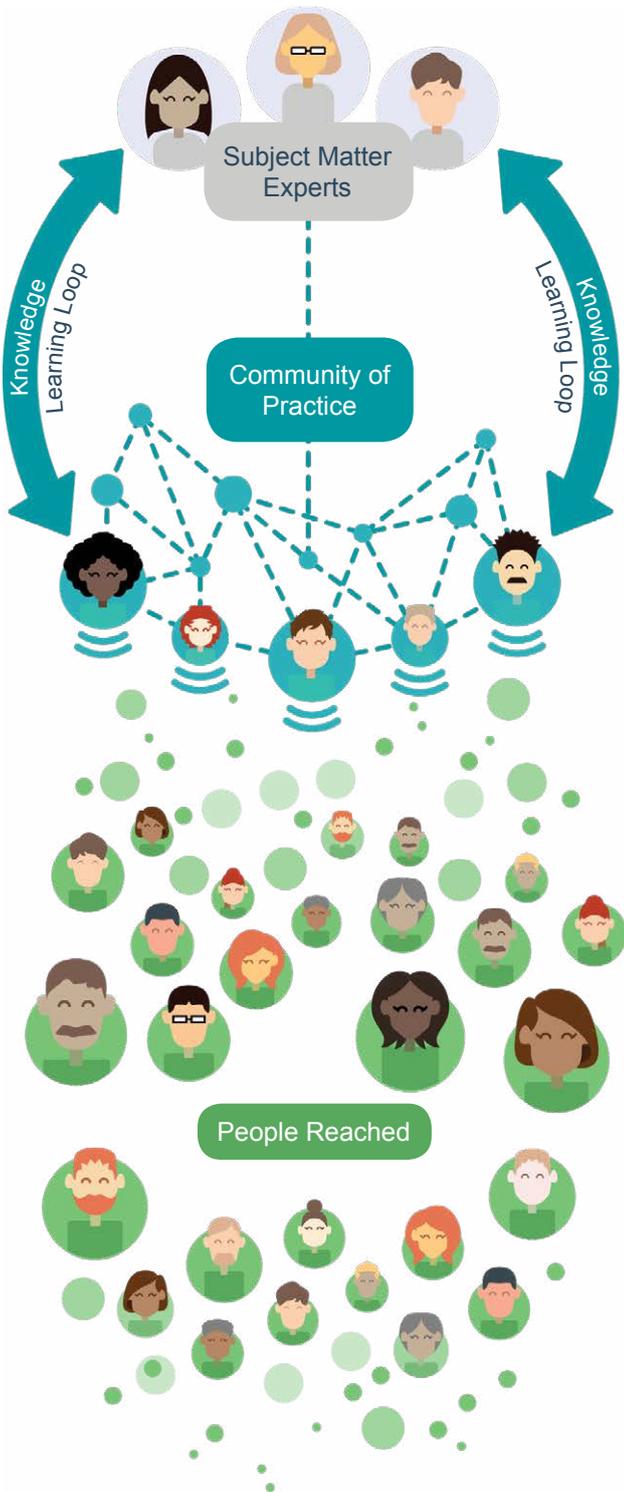
### Declaration

The reviewers have nothing to declare.

### References

1. Ortega RA, Lewis KP, Hansen CJ. Other monuments to inhalation anesthesia. *Anesthesiology*. 2008;109(4):578-587. doi:10.1097/ALN.0b013e318186318c
2. Hua T, Chen B, Lu D, et al. General anesthetics activate a potent central pain-suppression circuit in the amygdala. *Nat Neurosci*. 2020;23(7):854-868. doi:10.1038/s41593-020-0632-8
3. Jiang-Xie LF, Yin L, Zhao S, et al. A Common Neuroendocrine Substrate for Diverse General Anesthetics and Sleep. *Neuron*. 2019;102(5):1053-1065.e4. doi:10.1016/j.neuron.2019.03.033

## The ECHO Model™



## Moving Knowledge, Not People

Project ECHO (Extension for Community Healthcare Outcomes) is a movement to demonopolize knowledge and amplify the capacity to provide best practice care for underserved people all over the world. The ECHO model is committed to addressing the needs of the most vulnerable populations by equipping communities with the right knowledge, at the right place, at the right time.

## Four Principles of the ECHO Model



Use Technology to leverage scarce resources



Share “best practices” to reduce disparities



Apply case-based learning to master complexity



Evaluate and monitor outcomes

## Benefits of Becoming a Part of the ECHO community



Access Communities



Reduce Disparities



Promote Consistency



Rapid Dissemination

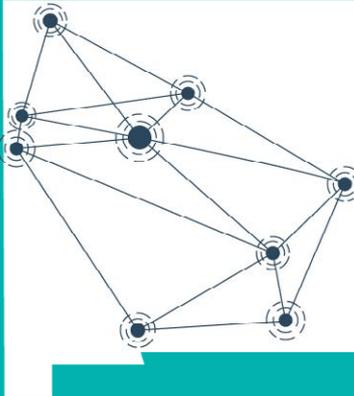


Increase Professional Knowledge



Isolation Decrease

# Project ECHO®



## Project ECHO's Story

Launched in 2003, Project ECHO grew out of one doctor's vision. Sanjeev Arora, M.D., a social innovator and liver disease specialist at the University of New Mexico Health Sciences Center in Albuquerque, was frustrated that he could serve only a fraction of the hepatitis C patients in the state. He wanted to serve as many patients with hepatitis C as possible, so he created a free, educational model and mentored community providers across New Mexico in how to treat the condition. A New England Journal of Medicine study found that hepatitis C care provided by Project ECHO trained community providers was as good as care provided by specialists at a university. The ECHO model is not traditional "telemedicine" where the specialist assumes care of the patient, but is instead telementoring, a guided practice model where the participating clinician retains responsibility for managing the patient.

## Building a Global Community

Dozens of teleECHO™ programs addressing common complex conditions take place every week—and their reach extends far beyond New Mexico. Global interest is mounting. ECHO programs operate in North and South America, Europe, Australia, Africa and Asia.



## Changing the World, Fast

Replicating the ECHO model across the U.S. dramatically increases the number of community partners participating in ECHO, enabling more people in rural and underserved communities to get the expertise they need.

**215+**

U.S. Partners

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For more information on Project ECHO visit: [echo.unm.edu](https://echo.unm.edu)





THE INTERNATIONAL  
SPINAL CORD SOCIETY  
ANNUAL SCIENTIFIC MEETING  
**ISCoS 2020: VIRTUAL**

**1 - 5 September 2020**  
**#ISCoS2020GoesVirtual**  
[www.iscosmeetings2020.org](http://www.iscosmeetings2020.org)

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\*Please note rates shown are in USD \$ and inclusive of tax as applicable by region.

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**ANZSPM 20**  
Auckland, New Zealand  
17 - 20 September 2020  
PALLIATIVE CARE IN AN UNCERTAIN WORLD



**ins**  
International  
Neuromodulation  
Society

**2<sup>ND</sup> Joint Congress of the  
INS European Chapters**  
**/ 15-17 October 2020**  
**/ Paris, France**





## 2021 AUSTRALIAN PAIN SOCIETY 41ST ANNUAL SCIENTIFIC MEETING

*In the IASP Global Year Against Back Pain*

18 - 21 April 2021 • National Convention Centre Canberra, ACT



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Expressions of interest online at:  
[dcconferences.com.au/aps2021](https://dcconferences.com.au/aps2021)

**REGISTRATIONS OPEN  
4 NOVEMBER 2020**

### DEADLINES

Topical Sessions	28 September 2020
Free Papers & Posters	27 October 2020
Rising Star Award	27 October 2020
Early Bird Registration	23 February 2021

### INCLUDING

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Welcome Reception  
Conference Gala Dinner



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**Professor Allan Basbaum**

Allan Basbaum is a professor and Chair of the Department of Anatomy at the University of California San Francisco, USA. His research addresses the molecular mechanisms that underlie the generation of persistent pain after tissue or nerve injury.



**Professor Siri Leknes**

Siri Leknes is a Professor of Social and Affective Neuroscience at the University of Oslo, Norway and a Senior Researcher at Oslo University Hospital. Her lab, the Leknes Affective Brain lab (LAB lab) studies how the brain and body give rise to pleasurable and painful feelings, and how these feelings are connected to decisions and behaviour.



**Dr Amanda C de C Williams**

Amanda C de C Williams is Reader (Associate Professor) in clinical health psychology at University College London; consultant clinical psychologist at the Pain Management Centre, University College London Hospital, UK; and research consultant for the International Centre for Health and Human Rights.



## Neuromodulation Society of Australia & New Zealand 14<sup>th</sup> Annual Scientific Meeting (NSANZ 2021)

*Neuromodulation, Value Based Care*

SAVE  
THE  
DATE!

### Cadaver Workshop

NSANZ Cadaver Workshop will be held as a pre-conference workshop on Friday 13 August 2021 at QUT MERF, The Prince Charles Hospital.

Two full day workshops available on either Radiofrequency Procedures or Neurostimulation.

### KEY DATES

1 February 2021	Poster abstract submission open
13 April 2021	Registrations open
17 May 2021	Poster abstract submission close
5 July 2021	Early bird registration deadline

13-15 AUGUST 2021  
Sofitel Brisbane Central, Queensland

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## Save the date

The 2021 Combined Spring Meeting  
of the Faculty of Pain Medicine and the  
Hong Kong College of Anaesthesiologists

# Moving with pain

15-17 October 2021  
Millennium hotel  
Queenstown, New Zealand

#painCSM21



# ANZAOMS2021

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AUSTRALIAN AND NEW ZEALAND ASSOCIATION OF  
ORAL & MAXILLOFACIAL SURGEONS

11 – 13 November 2021  
Grand Chancellor, HOBART







## New Members at 24 August 2020

Dr Ahmed Al Atrqchi	Neurosurgery
Ms Victoria Arton	Nursing
Dr Kate Drummond	Pain Medicine Physician
Dr Andrew Horwood	General Practice
Dr Anju Tessa James	Pain Medicine Physician









## Office Bearers



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**Ms Fiona Hodson**  
Hunter Integrated Pain Service  
John Hunter Hospital Campus  
New Lambton NSW 2305  
Tel: 02 4922 3435 Fax: 02 4922 3438



**PhD Scholarship Chair:**

**A/Prof Michael Farrell**  
Department of Medical Imaging and  
Radiation Services  
Monash University  
Clayton VIC 3800  
Tel: 03 9905 6094 Fax: 03 9902 9500



**SPC Chair:**

**A/Prof Kevin Keay**  
Department of Anatomy  
University of Sydney  
Sydney NSW 2006  
Tel: 02 9351 4132 Fax: 02 9351 2817



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**Secretariat:**

**DC Conferences Pty Ltd**  
PO Box 637  
North Sydney, NSW 2059  
Tel: 02 9016 4343  
Email: [aps@apsoc.org.au](mailto:aps@apsoc.org.au)  
Website: [www.apsoc.org.au](http://www.apsoc.org.au)



**IASP Liaison:**

**Professor Michael Nicholas**  
Pain Management Research  
Institute  
Royal North Shore Hospital  
St Leonards NSW 2065  
Tel: 02 9926 7894 Fax: 02 9662 6279  
Website: <https://www.iasp-pain.org>



**Communications Coordinator:**

**A/Prof Anne Burke**  
Central Adelaide Local Health  
Network  
Royal Adelaide Hospital  
Adelaide SA 5000  
Tel: 08 7074 2835 Fax: 08 7074 6247



**Newsletter Editor:**

**Dr Lincoln Tracy**  
School of Public Health and  
Preventive Medicine  
Monash University  
Melbourne VIC 3004  
Tel 03 9903 0288



**Newsletter Assistant Editor:**

**Dr Joanne Harmon**  
School of Clinical and Health  
Sciences  
University of South Australia  
Adelaide SA 5000  
Tel 08 8302 1442