Neuroscience Leaders Meeting
Stradbroke Island, 9-10th April 2010

Present:
Professor Cliff Abraham, Director, Brain Health and Repair Research Centre, Department of Psychology, University of Otago, ACAN Management Committee
Professor Perry Bartlett, Director, Queensland Brain Institute, University of Queensland
A/ Prof John Bekkers, ACAN Course Director, Australian National University
Dr Sarah Caddick, Principal Advisor, Neuroscience to Lord Sainsbury, Gatsby Foundation
Professor Marcello Costa, Flinders Medical Centre, Flinders University; Co-Chair, South Australian Neuroscience Institute
Professor Geoff Donnan, Director, Florey Neuroscience Institutes, University of Melbourne
Professor Sarah Dunlop, President, ANS, The University of Western Australia, ACAN Management Committee
Dr Alan Finkel, Chancellor, Monash University; Chair, ACAN Management Committee
Dr Clarke Raymond, ACAN Course Deputy Director, Australian National University
Professor Linda Richards, National Chair, Australian Brain Bee Challenge, University of Queensland
Professor Pankaj Sah, for Prof Bartlett, 9th April, Queensland Brain Institute, University of Queensland
Professor Peter Schofield, Director, Prince of Wales Medical Research Institute, University of New South Wales
Professor David Vaney, Past President, ANS, University of Queensland, ACAN Management Committee

Apologies:
Professor Ian Hickie, Director, Brain and Mind Research Institute, University of Sydney

1. PREAMBLE

The meeting on Stradbroke Island, Queensland, attracted leaders of institutions and organizations in Australia and New Zealand involved in neuroscience research and education.

The group met under the auspices of the Australian Neuroscience Society and used this unique opportunity to discuss the current status and future of neuroscience and its funding in Australia and New Zealand. The visit by Dr Sarah Caddick, Gatsby Foundation, provided an opportunity to compare Australian/New Zealand perspectives of neuroscience research funding and advocacy with current international trends.

The roundtable discussions were conducted in a friendly environment which enabled frank exchanges and clarification of historical difficulties. The hallmark of the discussions was an express wish to reach significant and genuine national strategic agreements.

2. IN PRINCIPLE AGREEMENTS

During the discussions (outlined under 3 below), the group expressed a number of important in-principle agreements, namely that:

- ANS has long exercised a leadership role and, given its multiple strengths together with issues currently facing neuroscience research, is well placed to contribute towards forming a peak body for neuroscience in Australia and New Zealand.

- ANS represents, in the main, basic neuroscientists and does so for by far the majority (membership ~1,000) of neuroscientists in Australia and New Zealand. We act as a peak body by providing information dissemination services, membership support, coordination etc. ANS also provides advocacy and representation to the public (State based activities including Australian Brain Bee Competition etc). However, ANS does not represent views on neuroscience to government; rather, we leave lobbying to FASTS/ASMR. Furthermore, we do not have a broad membership of clinical neuroscientists and the professions such as neurology and psychiatry. A peak body would be expected to fulfil all of these roles and would be strengthened by representation that includes both basic and clinical neurosciences and the professions including neurology and psychiatry.

- The profile of neuroscience in Australia should be increased by taking a unified approach to neuroscience advocacy and education at all levels. ANS and the major neuroscience institutions should explore mechanisms to enable coordination of neuroscience advocacy and education.

- Existing and newly established Institutes (affiliated with Universities or Independent Institutes) and Institutes / Institutions / Virtual organisations encompassing neuroscience research in Australia and New Zealand (**APPENDIX I**) have proved highly effective in clustering neuroscientists and in leveraging existing structures to develop neuroscience research.

- The National Neuroscience Initiative (NNI) proposed by Neurosciences Australia to draw new funding for neuroscience should be broadly supported within the current budget and election cycles so as to maximise its chance of success.

- The roles of NSA beyond this period may depend on several factors, including the success of the NNI, the corporate governance of NSA, and possible changes in the size and scope of ANS activities.

- The leaders of the institutions that were represented will take these shared commitments to their constituencies.

3, DISCUSSION POINTS The following summarises the group's discussions:

3A. The group identified a number of major issues facing neuroscience research in Australia

- A recent analysis of NHMRC and ARC funding suggests that, based on Neuroscience and Clinical Neuroscience research codes, there has been a consistent relative decline in relative NHMRC neuroscience funding over last 5 years despite a significant increase in overall funds.

- The “Measuring Up” (NHMRC Publication, Butler and Henadeera, Attachment 1) was mentioned briefly but not discussed in detail since it was not available to the participants.
  Post-meeting:
  The executive summary of “Measuring Up” states that “....neuroscience remains the discipline with the lowest impact, albeit this time above the world benchmark”.
  Impact is defined as “Relative citation and journal impact”.
  Relative citation impact is calculated by dividing the average number of citations per NHMRC publication in a given subfield by the average number of citations for all publications in that subfield, i.e. the world citation rate for that subfield. A relative citation impact of >1 indicates a higher/better position than the world average while <1.0 indicates a low performance. Ditto for journal impact.

- There is a lack of substantial setup funding for early career research fellows to help them establish their own labs.

- With some notable exceptions, Australian neuroscience research has operated largely in an environment that lacks philanthropic funding raising the question as to whether this avenue should be pursued further.

- Once full salaries are costed, there is little remaining funding to undertake experiments.

3B. The group discussed a number of issues facing the Australian Neuroscience Society

On the website, the Society states the following:

“2. Object
2.1 The primary object of the Society shall be the advancement of the neurosciences by facilitating the dissemination of information pertaining to neuroscience, in teaching and research, by conducting meetings, seminars and lectures at local and national levels.

2.2 An additional object is the actual undertaking of research for the benefit of Australia, by clarifying the actions of the nervous system and how diseases of the nervous system can be treated. This may take the form of presenting novel data at workshops and / or the publishing of novel data generated by members of the Society.”

Issues discussed:

- ANS is the currently the peak body for Australian neuroscience since its membership of ~1000 represents the majority of basic neuroscientists as well as many engaged with clinical research. However, the Society does not have extensive links with the professions, such as neurology and psychiatry.

- The major role of the Society is to run its annual scientific meeting which it has accomplished highly successfully since 1981.

- An integrated role is the involvement in teaching. Although neuroscience teaching *per se* has attracted less interest at scientific meetings in recent years, the Society and its members have taken on additional roles in teaching, training and education:

- The Australian Course in Advanced Neuroscience (ACAN) became part of ANS in 2009. ACAN trains PhD students and postdocs in high-end electrophysiology and imaging techniques; it has an annual cost of ~$130K pa, with contributions from ANS being $20K in 2008 and 2009. The course runs at a loss ~$75K pa, which is funded from the $500K endowed by The Finkel Foundation.
- ANS supports the Australian Brain Bee Challenge (ABBC) which was started in 2006. ABBC costs about $250K pa to run at the present time, with QBI contributing ~ $135K, Australian participating States ~ $60K, New Zealand ~$42K and ANS ~$15K pa.
- The membership is also regularly involved at the State level by contributing to Brain Awareness Week and Science Meets Parliament and, in addition, by delivering various public outreach lectures and events.

- The size of the Society is such that it is on a cusp: it is too small to afford a full-time Secretariat but is large enough to need professional staff to fulfill, and perhaps expand, its role as a national peak body.

- Additional roles for the ANS secretariat to fulfill the Society's role as a peak body might include:
  - Mapping the key strengths of Australasian neuroscience to raise our regional and international profile.
  - Public and professional communication including website development.
  - Year round advocacy and lobbying specifically for neuroscience given that FASTS and ASMR lobby generally for medical research.
  - Assistance with ACAN and ABBC.
  - Fundraising.

- Support was voiced regarding Institutional membership to provide funds for such a Secretariat. It was noted that introducing Institutional members and establishing a paid Secretariat would require changing the Constitution.

ACTIONS:
Sarah D and David to report to the Mid Year Council Meeting, 28th June 2010.
Sarah D to canvass ANS Members' opinions regarding the role of ANS during her visits to various Institutions as President in 2010.

3C. The Group discussed the National Neuroscience Initiative (NNI) of Neurosciences Australia (NSA)

- A summary document outlining the rationale to request $100m over 5 years has been submitted to the Federal Government. The specific emphasis is on stroke, dementia and depression with aim of decreasing disease burden, an emphasis that was driven primarily by the Federal Government.

- The Group acknowledged the lack of a basic neuroscience component as part of the NNI.

- The Group noted that, despite having gained considerable buy-in, some neuroscientists and institutes had been cautious about the proposal but were nevertheless willing to work together to achieve greater representation and move forward.

- One potential risk voiced was that the initiative might not attract new funding, instead being sourced from within current NHMRC funds.

- The NNI is currently awaiting a decision in the May Budget, or possibly during the next Election, whereupon detailed projects would be developed.

- A number of other aspects were discussed including:
  - changes in the governance of NSA that might facilitate greater involvement of neuroscience organisations that are not presently members of NSA, including ANS
  - development of a basic neuroscience component parallel to the clinically oriented initiative
  - possible opportunities for leveraging associated money from New Zealand sources should collaborative research initiatives be identified and elaborated

3D. The Group undertook a "round table" to discuss current neuroscience strengths and interests

- Themes included: adult stem cells, neuronal diversity, circuit development and plasticity, mental illness, neural development to aging, neural circuits to behaviour and development of advanced imaging tools.

- Two recurring and overarching themes were "plasticity" and "imaging", which encompass other current high-impact approaches such as the connectome and emergent properties from neural circuits to behaviour.

- Other themes might be identified with wider representation.

- One possible initiative that was discussed was to hold a workshop around current imaging techniques and plasticity.
  Post-meeting:
  Alan Finkel and Sarah C have been developing this initiative. Further information will follow separately.

3E. Australian Neuroscience in a global context

- The standing of Australian neuroscience globally was raised. It was agreed that more information was needed.
  Post-meeting: Sarah D undertook an analysis (**APPENDIX II**) based on the number of neuroscience papers that have been published in various countries (Bala and Gupta, 2010, Mapping of Indian Neuroscience Research: A scientiometric analysis of research output during 1999-2008. Neurology India 58:35-41) (Table 1).

- Numbers of neuroscience papers were expressed per capita (Australia ranks 5th in the world for the number of neuroscience papers per capita, Table 2) and per GDP (Australia ranks 1st in the world for the number of neuroscience papers per GDP,Table 3).

- These data are indicative only.

APPENDIX I: Neuroscience Institutes (affiliated with Universities or Independent Institutes) and Institutes / Institutions / Virtual organisations dedicated to neuroscience, or having dedicated neuroscience elements, in Australia and New Zealand. (Note: Neuroscience research and teaching are also undertaken at wide range of University Schools and Departments not listed.)

Australian Capital Territory:
John Curtin School of Medical Research and Research School of Biology, ANU (combined as Eccles Institute of Neuroscience (EIN), currently virtual, real institute early 2012 with completion of new EIN building

New South Wales:
Brain and Mind Institute, University of Sydney
Children's Medical Research Institute
Garvan Institute
Hunter Medical Research Institute
Prince of Wales Medical Research Institute, UNSW
Schizophrenia Research Institute
Macquarie University

New Zealand:
Centre for Brain Research, University of Auckland
Brain Health & Repair Research Centre and Centre for Neuroendocrinology, University of Otago
Van der Veer Institute, Christchurch

Queensland:
Eskitis Institute for Cell and Molecular Therapies, Griffith University
Queensland Brain Institute, University of Queensland
Queensland Institute of Technology
Queensland Institute of Medical Research

South Australia:
Flinders University
South Australian Neurosciences Institute
South Australian Health and Medical Research Institute (SAHMRI)
University of Adelaide

Tasmania:
Menzies Research Institute, University of Tasmania

Victoria:
Melbourne Brain Centre comprising
    Florey Neuroscience Institutes
    University of Melbourne
    Mental Health Research Institute
Monash Neuroscience and Mental Health Network, Monash University
Murdoch Children's Research Institute

Western Australia:
West Australian Neurosciences (UWA, Murdoch, Curtin, Edith Cowan)

APPENDIX II: Analysis of numbers of neuroscience papers by country per capita and by country per GDP

Table 1 Numbers of neuroscience papers.
Adapted from: Bala & Gupta A Bala and BM Gupta, 2010. Mapping of Indian Neuroscience Research: A scientiometric analysis of research output during 1999-2008.
http://www.neurologyindia.com/article.asp?issn=0028-3886;year=2010;volume=58;issue=1;spage=35;epage=41;aulast=Bala#

Country	Number of neuroscience papers 2008	% share of papers 2008	Rank 2008
USA	18,359	35.09	1
UK	5665	10.72	2
Germany	4664	8.83	3
Japan	3544	6.71	4
Canada	3237	6.13	5
Italy	2845	5.38	6
France	2697	5.10	7
China	2534	4.79	8
Netherlands	1830	3.46	9
Australia	1786	3.38	10
Spain	1579	2.99	11
Brazil	1257	2.38	12
Switzerland	1156	2.19	13
Columbia	1063	2.01	14
South Korea	1051	1.99	15
Sweden	987	1,87	16
Israel	900	1.70	17
Belgium	739	1.40	18
India	715	1.35	19
Turkey	694	1.31	20
Taiwan	615	1.16	21
Denmark	535	1,01	22
Austria	485	0.92	23
Finland	452	0.85	24
Poland	419	0.79	25
Russia	405	0.77	26
World	52836		

Table 2. **Numbers of neuroscience papers by country, per capita**

Note, Australia (22,327,398) has 0.13% of the world's population (16,817,900,000)

[1] http://en.wikipedia.org/wiki/List_of_countries_by_population (2009 data)

Country	No. Neuroscience Papers 2008	Population (m) 2009 [1]	No. Neuroscience Papers per capita x 10^{-4}	RANK per capita
Netherlands	1,830	16	1.14	1
Sweden	987	9	1.11	2
Canada	3,237	34	0.95	3
UK	5,665	62	0.91	4
Australia	1,786	22	0.81	5
USA	18,539	309	0.59	6
Germany	4,664	82	0.57	7
Italy	2,845	60	0.47	8
France	2,697	65	0.42	9
Spain	1,579	46	0.34	10
Japan	3,554	127	0.28	11
China	2,534	1,337	0.019	?

Table 3. **Numbers of neuroscience papers by country, per GDP**

[2] http://en.wikipedia.org/wiki/List_of_countries_by_GDP_(nominal) (IMF data, 2009)

Country	No. Neuroscience Papers (2008)	GDP millions USD 2009 [2]	No. Neuroscience Papers per million GDP x 10^{-2}	RANK per GDP
Australia	1,786	381,880	0.468	1
UK	5,665	2,183,607	0.259	2
Canada	3,237	1,336,427	0.242	3
Sweden	987	405,440	0.234	4
Netherlands	1,830	794,777	0.230	5
Germany	4,664	3,352,742	0.139	6
Italy	2,845	2,118,264	0.134	7
USA	18,539	14,256,275	0.130	8
Spain	1,579	1,464,040	0.108	9
France	2,697	2,675,951	0.101	10
Japan	3,554	5,068,059	0.070	11
China	2,534	4,908,982	0.052	?