

HEADLINES

The Newsletter of the Neuroscience Institute of Schizophrenia and Allied Disorders. OCT 2003.

The Beginnings of BETA Research

After a year-long campaign by the South Coast community, schizophrenia research gets the best Beta imager in the world.

The successful completion of the campaign to raise \$200,000 for a schizophrenia research Beta Imager was celebrated with an opening ceremony at the University of Wollongong on 28 August.

Marilyn Mitchell, Patron of the 'Gift of Hope' brain donor program, spoke compellingly of her 20 years of struggle with schizophrenia, leaving the audience in no doubt about the new machine's potential significance to the millions of people who suffer from the illness.

NISAD Scientific Director Prof. Philip Ward said the Beta Imager was central for the discovery of how the brain's chemical systems malfunction in schizophrenia.

"This machine will enable NISAD researchers to obtain results in hours which used to take months. Using this new knowledge, we may develop new treatments with fewer side-effects and better control of the debilitating symptoms," said Prof. Ward.



NISAD Senior Research Officer Dr. Katerina Zavitsanou proudly displays the first Beta Imager results, while campaign initiator Don McDonald, and Scientific Director Prof. Philip Ward stand beside the \$200,000 machine. Thanks to Illawarra Mercury for the photo.

The only one of its kind in the Southern Hemisphere, the Beta Imager is the result of a huge fundraising campaign championed by NISAD's Don McDonald, and strongly supported by South Coast unions, Wollongong Council, corporate leaders, Rotary Clubs, and news media.

University Contributes Research Fellowship

To match the South Coast community's heroic fundraising efforts, the University of Wollongong

has initiated a new 5-year post-doctorate Fellowship in schizophrenia research – the first such position to be funded by any NSW university.

The new Research Fellow, Dr. Chao Deng, will join Assoc. Prof. Xu-Feng Huang of the University's Department of Biomedical Science, NISAD Senior Research Officer Dr. Katerina Zavitsanou, and PhD student Kelly Newell in utilising the powerful research potential of the Beta Imager. Other Australian research groups will also access the machine.

One of the first research studies to benefit from the new Beta Imager will be Dr. Katerina Zavitsanou's investigation into the effects of cannabis, a common trigger for first episode psychosis among teenagers.

While recent studies have reported that frequent cannabis use is associated with increased risk for depression and anxiety among teenagers, the mystery remains why some young users develop mental illness, and others do not.

As reported in the March HeadLines, Dr. Zavitsanou's work has indicated that brain tissue from schizo-

NISAD THANKS

Alex Darling, Lord Mayor of Wollongong

Kerrie O'Connor
Illawarra Mercury

Stephen Mayers
'Light and Hope'

CFMEU
Miners Division

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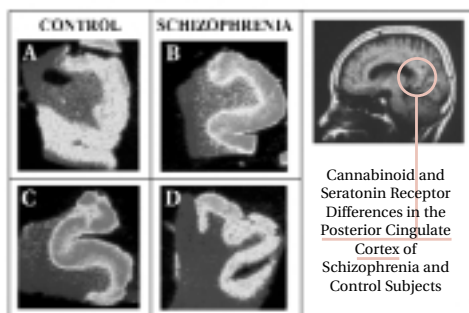
Joy Mining

Rotary and Lions Clubs

South Coast Labor Council

Schizophrenia Fellowship

And special thanks to
the many other individual
organisations and donors
to the Beta Imager
campaign.



NISAD's Beta Brain Research

The Beta Imager is already doing good work, analysing numbers of specific neuroreceptors in targeted areas of post-mortem brain tissue.

The images A-D show by darker tinting that schizophrenia-affected brains contain abnormally large numbers of cannabinoid receptors (A-B) and abnormally small numbers of serotonin receptors (C-D).

phrenia subjects contains abnormally large numbers of cannabinoid neuroreceptors (which play an important role in memory formation and goal-directed behaviour), suggesting that such brains are particularly vulnerable to any disruptive effects of using cannabis.

Further research has now shown that such brains also contain abnormally small numbers of serotonin receptors – an important mood modulator.

The Beta Imager will accelerate progress in any further explorations of this promising line of research.

NISAD Sponsors Take A Bow

The Annual Sponsors and Supporters Lunch was hosted and MC'd this year by NISAD Board member Peter Maher of the Macquarie Bank in Sydney, on 30 Sept.

More than sixty guests accepted the invitation to enjoy an elegant lunch, hear presentations from NISAD scientists, and to perhaps receive an award plaque from NSW Minister for Science & Medical Research Frank Sartor.

Speakers this year were Prof. Philip Ward, who outlined the Institute's research advances over the year, and Dr.

Albert Chetcuti who presented an illustrated overview of schizophrenia-related gene research activities.

Frank Sartor congratulated NISAD on its rapid progress since its inception in 1996, and expressed his strong endorsement of the support given to the Institute by the current NSW Minister for Health Morris Iemma, and also by his predecessors Craig Knowles and Andrew Refshauge. Don McDonald expressed the Institute's thanks to all supporters.

Continued overleaf...



Above: Alex Darling, Mayor of Wollongong, accepts a NISAD plaque from Frank Sartor. Right: New 3-Year Sponsors, Mr Tony Sulters of Westfield Construction, and Mr Heng Wong of Janssen-Cilag.



INSIDE

■ Sponsors and Supporters Awards

■ World's First Brain Donor TV Appeal?

■ \$400,000 for Study of Delusions

Continued from Page 1:

Sponsors Lunch Presentation List



Mr Bruce Bonyhady of ANZET accepts a special plaque on behalf of the Sylvia & Charles Viertel Foundation, which has awarded NISAD a total of \$360,000 since the Institute's inception.

3-Year Gold Sponsor: Westfield and Contractors/Workers

3-Year Silver Sponsor: Janssen-Cilag

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Westfund Mineworkers

'Grow ya Moe' Campaign Scores Well



Organised on behalf of NISAD, the South Sydney Rabbitohs' 'Grow ya Moe' competition reached a conclusion at half-time during the NRL Souths vs. Bulldogs encounter at Aussie Stadium on 3 August.

Sponsored by Gillette and ShopaDocket, the promotion involved Rabbitohs' fans competing to see who could grow the best moustache. The 5 finalists were judged on field at Aussie Stadium, and a \$5,000 donation cheque was presented by Gillette's Paul Rhodes to NISAD Communications Director Alan Tunbridge.

A further \$1,600 was raised from sale of fake 'moe' to the Rabbitohs and Bulldogs fans entering the stadium.

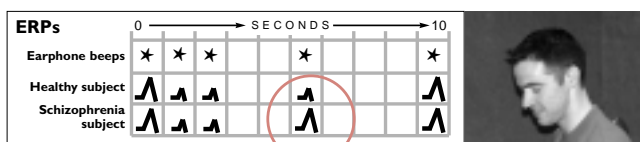
Many thanks to the 'moe' selling volunteers from Telstra Friends, Emma Reid, Terry Carol, Mike Crabtree, Shelley Robinson, and also to Deutsche Bank volunteers Ann Devine, Farid Rawan, Bridget McIntyre, and Monica.

Is 'hearing voices' caused by hyperactive neurons?

Nathan Clunas invited to present at the world's biggest neuroscience conference.

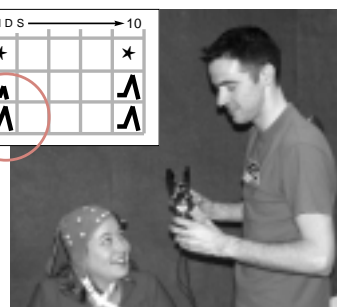
Supported by an Ian Scott Fellowship Grant from the Australian Rotary Health Research Fund, Nathan Clunas is in his second year investigating the brain function abnormalities that cause schizophrenia symptoms.

Based at the Schizophrenia Research Unit, Liverpool Hospital, Nathan's study has focussed on the brain's auditory system because 'hearing voices' is one of the most common symptoms. As predicted in HeadLines March 2002, Nathan's ERP studies have shown that auditory systems in schizophrenia-affected brains have a much faster 'recovery cycle' (recovery of the neurons' excitability after firing). This abnormality may account for the



EVENT Related Potentials (ERPs)

When healthy and schizophrenia-affected research subjects hear the first beep through the earphones, their brains' auditory systems respond strongly. If the beep is repeated immediately, the response is much weaker in both subjects. This is a normal ERP response. But if a longer interval is left before the following beep, healthy subjects will again record a weak response, but schizophrenia subjects may respond as strongly as they did to the first beep - indicating a faster 'recovery cycle' (recovery of the neurons' excitability). This functional abnormality is thought to contribute to the inability to maintain attention and to attend selectively to relevant information which is symptomatic of schizophrenia.



Measuring the brain's response to auditory stimulation: Nathan Clunas fits earphones over the 'Electrocap' worn by a research subject.

inability to maintain attention, and other symptoms of the illness.

Nathan has received the rare honour of an invitation to give a platform presentation of his paper, "Altered Auditory Recovery Cycle Function in

Schizophrenia: An ERP Study", at the Annual Meeting of the Society for Neuroscience, to be held in New Orleans in November. Last year, 25,000 people attended this conference, the largest of its kind in the world.

NSW Invests in the Brain Banker from Japan

Assoc. Professor Izuru Matsumoto of Fukushima Medical University, Japan, was granted a prestigious NSW Govt. BioFirst Award as part of the package offered to attract his research expertise to Australia, and to help develop the NSW Tissue Resource Centre.

Launched by Bob Carr in 2001, NSW BioFirst Awards are intended as top-ups for packages offered to notable overseas biotechnology professionals by NSW publicly funded research institutions. Worth \$100,000 a year for three years, an award may be spent on necessary equipment, facilities and support staff appropriate to specific research programs. Prof. Matsumoto's new position at the University of Sydney is also supported by National Institute of Health (USA), National Health and Medical Research Council, University of Sydney Department of Pathology and Faculty of Medicine, and NISAD.

Prof. Matsumoto's achievements



L-R: Professors Nick King, Richmond Jeremy, Clive Harper and David Burke welcome Prof. Izuru Matsumoto (centre) to the University of Sydney.

include the development of Japan's first human brain bank and brain donor program, and the organisation of the first Asia-Pacific conference on brain banking for neuro-psychiatric research. His current research includes investigations into schizophrenia using brain

tissue, DNA microarray analysis, and animal models.

At the University of Sydney, Prof. Matsumoto will work closely with NISAD and other scientists involved in the 'Using Our Brains' and NISAD 'Gift of Hope' tissue donor programs.

Lee Drury Joins NISAD Team

NISAD is delighted that Lee Drury has joined the staff to help raise funds and awareness for schizophrenia research.

Lee comes from a high level position as a National Sales Manager for a major hotels group. Like so many NISAD champions, her reasons for joining the Institute are personal:

"I long for a day when my father's fight against mental illness will receive

as much care, love, support and understanding as my mother's fight against cancer. Both illness have touched my family greatly, one however, remains largely unspoken about"

Please contact Lee to discuss opportunities you can create in your community group, or your workplace to raise awareness and funds desperately needed to find a cure for Schizophrenia.

L.drury@nisad.org.au (02) 9295 8362



At the Sponsors Lunch, L-R: Lee Drury, Len Ainsworth, Margaret Ainsworth (NISAD Gold Sponsor), and Don McDonald, Director, NISAD/NSW Health Partnership Project.



Dr Tina Hinton says thanks to Mr Alfons Rosenstauss, Chair of the Rebecca Cooper Foundation

Dr Tina says thanks to NISAD

Tina Hinton is the first NISAD-supported PhD Scholar to graduate as a Doctor. Her scholarship support was provided from a \$75,000 grant from the Rebecca L Cooper Medical Research Foundation, chaired by Mr Al Rosenstauss.

Achieving her Doctorate with a thesis on schizophrenia, Dr Tina is now an Associate Lecturer in the Department of Pharmacology, University of Sydney. She is continuing her research in medication effects on GABA receptors.



NISAD Launches Australia's First TV Brain Donor Appeal

Launched on 10 October via all Sydney Metro TV channels, NISAD's new 30 sec. Community Service Announcement is aimed at recruiting more enrolments for the 'Gift of Hope' brain donor program. As the voiceover says:

"We now know that schizophrenia is a brain disease that permanently disables more young people than any other illness. That's why Australian

schizophrenia research needs brain tissue donors to help find a cure.

"Whether you have schizophrenia or not, and whatever your age may be, please call (02) 8394 4603 to enrol as a NISAD brain donor, and pledge a Gift of Hope to the young people of the future."

If you live in the Sydney Metro area, please phone the number to receive full details on becoming a brain donor.

\$400,000 Awarded to Study Hallucinations and Delusions

NISAD Affiliated Scientist Robyn Langdon and Scientific Director Philip Ward launch major psychosis investigation.

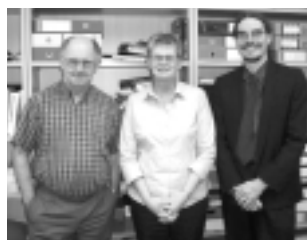
The Australian Research Council has funded a \$400,000, 5-year study entitled 'Cognitive neuropsychiatry: understanding delusional belief and delusional hallucination from a cognitive neuropsychological perspective'.

The study will be supervised by Dr. Robyn Langdon at the Macquarie Centre for Cognitive Science, and by Prof. Philip Ward at the Schizophrenia Research Unit, Liverpool Hospital.

Cognitive neuroscience

Delusions and hallucinations are the archetypal signs of madness. Paranoid beliefs, grandiose religious confabulations, 'hearing voices', and seeing 'little green men' are such common symptoms of psychosis that they have been used to portray 'insane' characters in the arts throughout history. Sufferers of such symptoms often resist all appeals to commonsense and reason: they insist that their interpretation of events is true; that the 'visions' they see, or the 'voices' they hear, are real.

For well over a century, scientists have recognized that all the wonders of the mind are the province of the brain. Perception, emotion, planning and action, learning and memory, and all other aspects of cognition take place in the brain. The study of how the biological brain produces all the



L-R: Prof. Max Coltheart, Dr. Robyn Langdon, Prof. Philip Ward.

intangible qualities of mind is called cognitive neuroscience.

What is a delusion?

With the collaboration of Prof. Max Coltheart, Scientific Director of the Macquarie Centre for Cognitive Science, one aspect of the project is to recruit 60 schizophrenia subjects, and an equivalent number of controls, in a quest to better understand the causes of delusions.

The study will include an investigation into the 'two-deficit' theory which proposes that two distinct cognitive abnormalities must be present for a delusion to occur (Langdon & Coltheart, 2000). 'Deficit 1' involves the production of an abnormal thought, and 'deficit 2', the inability to review and reject that thought as implausible. The 'two-deficit' theory of delusion is the only existing cognitive neuropsychological model which attempts to explain all delusional conditions.

Using a variety of methods, this research aims to identify the specific functions of the brain that are disrupted in delusory thinking, thereby contributing to the design of more precise and effective anti-psychotic treatments.

Newcastle Shows What Integrated Research Can Do

Brain bank, DNA bank, ERP, fMRI, and 'Gene Chips' working together against schizophrenia.

Gene Bank Seeks Deposits

The brainchild of NISAD scientists Dr. Paul Tooney and Dr. Carmel Loughland, the Hunter DNA Bank for Schizophrenia and Allied Disorders was granted ethical approval in March, and has now started to collect blood samples – the source of the DNA information to be stored.

The aim of the DNA Bank is to accumulate a large number of DNA samples from people with schizophrenia, and also from people with allied disorders such as bipolar and major depression. Samples from close relatives of these contributors, as well as from volunteers with no family history of mental illness, are also required.

Eventually, the DNA Bank will become a valuable resource for researchers who are trying to identify which genes are associated with mental illness.

NISAD has employed Jessica Hanson to establish a database for storing the DNA information as it is collected. The Hunter Medical Research Institute has funded the University of Newcastle to employ Raewyn Billing as Technical Officer to extract DNA information from donated blood samples.

Initially, recruitment for the DNA Bank will be restricted to the Hunter region of NSW.

HeadLines readers in the Hunter wishing to help can call Michelle Poole or Jessica Hanson in Newcastle on 4924 6660, or toll free from anywhere else on 1800 639 295.

The official launch of the Hunter DNA Bank is scheduled for late November, at Hunter Area Pathology Services, in the John Hunter Hospital. If you would like to attend the event, please RSVP 1800 639 295.

Newcastle 'Gene Chip' Study Gets Results

The gene research for which the Hunter DNA Bank was created is already well underway at the University of Newcastle. NISAD PhD student Nikola Bowden is using 'gene chip' microarray technology to investigate genes in blood samples and tissue donated by schizophrenia subjects.



L-R: Gene angels Raewyn Billings and Jessica Hanson manage NISAD's DNA 'investments'.

Managing the DNA component of the collaborative cross-discipline study described on page 1 of HeadLines' March edition, Nikola has collected blood samples from 14 matched pairs of volunteers (one with schizophrenia and one without, but both sharing similar ages and other characteristics). Early microarray analysis has shown a number of genes consistently changed in the schizophrenia samples as compared to the control samples.

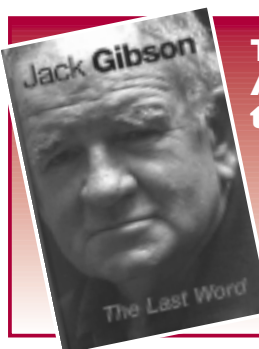
In another component of the collaborative study, Nikola is using postmortem tissue samples from the superior temporal gyrus in 10 brains: 5 from donors with schizophrenia, and 5 from others with no history of mental illness. This brain region is being targeted as a result of the findings from the NISAD 'mismatch negativity' research reported in the March HeadLines. Data from this study is currently being analysed.



Nikola Bowden investigates brain tissue and blood samples to identify schizophrenia genes.

By the end of the year, all cDNA microarrays will be completed and fully analysed, and a list of genes altered in schizophrenia will be compiled. Such research could have a profound impact on our understanding of what causes schizophrenia, as well as on the development of better diagnosis, treatment and preventative strategies for the disorder.

Originally funded by the Ronald Geoffrey Arnott Foundation, and the Perpetual Foundation, the University of Newcastle gene study has been helped forward by a new grant from the JS Love Trust.



Take Jack Gibson's Advice - and Donate to NISAD

Legendary rugby league player and coach Jack Gibson tells all in his latest book, and dedicates royalties to NISAD.

Now available at all good book stores!



Peter Maher



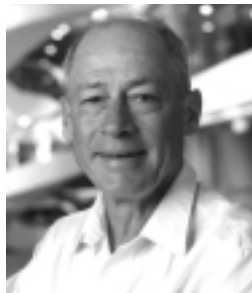
Andrew Mohl

Boardroom Developments

Three new Directors have joined the Board: Peter Maher, Group Head of the Financial Services Group, Macquarie Bank; Andrew Mohl, Managing Director and Chief Executive Officer, AMP Ltd, and Graham Shaw, Managing Director, Interfine Holdings.

Since the beginning of the year, NISAD Directors Bernard McNair and Peter Young have stepped down from the Board after donating valuable service to the Institute.

Bernard McNair was a founding Director of NISAD, and a past President of the Schizophrenia Fellowship of NSW. He carries on his valuable work as a major advocate for mental health issues in Australia.



Don McDonald's Parliament House Farewell

Since 1992, when NISAD was just an idea in the minds of a determined group of scientists and parents, Don McDonald's persuasive advocacy has won support for schizophrenia research from government, corporations, trades unions and workplaces. A Parliament House event is now being planned to mark Don's retirement in March next year. More details will follow in the Feb 2004 HeadLines.

Woollahra Council and Sydney Souths Aid Recovery Centre

Responding generously to an appeal by Don McDonald, South Sydney Juniors Rugby League Club has donated \$150,000 over 3 years to the new Woollahra Council-supported Urban Arts Base (UAB) in Double Bay.

UAB offers young Sydney people recovering from first-episode psychosis a youth-friendly environment where they can engage in a range of arts activities such as sculpture, mosaic, murals, and photography.

Collaborating with WAYS Youth Services and SE Sydney Area Health, UAB is supported by Woollahra Council, the Myer Foundation, and



NISAD is also helping out the new Urban Arts Base in Double Bay by donating the talents of Communications Director Alan Tunbridge for designing and producing the colour brochure about the centre. Call 9328 3014 for your copy.

Tamarama Rock Surfers. WAYS also provides assistance in accessing employment/training opportunities when required.



Prof. Philip Ward shows exactly why schizophrenia is a brain disease.

Record Turnout for Garvan/NISAD Seminar

The 300 seat NAB Auditorium in the Garvan Institute offered standing room only at the 'Understanding Mental Illness' public seminar held on 14 October.

MC'd by Prof. Peter Scholfield, Director of the Garvan's Neurobiology Research Program, the seminar asserted that mind and brain disorders are the largest causes of disability, and presented current best-practice strategies for management, treatment, and research.

Speakers included Ms Marilyn Mitchell, Dr Maryanne O'Donnell, Dr Cathy Issakidis, Prof Philip Ward, and Prof Peter Scholfield - plus a lively audience question time at the end.

Farewell and Thanks to Maria and Jim

Joining NISAD in 1998, Maria Sarris has played an integral role in the development of the NSW Tissue Resource Centre. She has moved on to a position as Manager of the Microscopy and Image Analysis Unit, School of Medical Sciences, UNSW. Jim Sheedy joined NISAD in 2001 as Research Officer with the NISAD Register, and has played a significant role in its development. Our sincere thanks to both Maria and Jim, and best wishes for the future.



Patron: Her Excellency, Professor Marie Bashir AO, Governor of NSW

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- Mr John Teer
- Telstra Foundation
- Tyrrell's Wines
- Westfund Mineworkers

Westpac: the fun of fundraising!

The Westpac Compensation Team demonstrated how much fun fundraising could be when they organised a Trivia Night at Sydney's Hellenic Club on 17 July.

On behalf of NISAD Schizophrenia Research and the Starlight Foundation, 170 Compensation Team Members and their friends got together to have a good time while doing good for others.

As well as a fiercely fought Trivia session, participants enjoyed bidding for auction items including a signed Canterbury Bulldogs' jersey and cap, boxing gloves signed by Anthony Mundine and Danny Green, and dinners at some of Leichhardt's top cafes.

Westpac matched all donations made during the evening, bringing the total up to \$2,000.



L-R: Westpac's Karen Dawson, Bruno Profilio, and NISAD's Office Manager Annette Carter.

NISAD Office Manager Annette Carter explained the work of NISAD, and thanked all involved for their contributions.

The Westpac Compensation Team hopes to make the Trivia Night an annual event, and Team Leader Bruno Profilio promised to make next year's event even more fun.

To include yourself on the mailing list to receive free HeadLines, call (02) 9295 8407. Visit the NISAD website at www.nisad.org.au

HeadLines is written, designed and produced by NISAD Communications Director Alan Tunbridge. The opinions expressed in HeadLines do not necessarily represent the views of all NISAD's participating scientists.



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