



A new understanding

Problem solving and reasoning could all be improved in schizophrenia thanks to the findings of this recent study.



An improvement in day-to-day thinking ability would be a relief for many people with schizophrenia, and a new study, published in the prestigious international scientific journal *Molecular Psychiatry*, may show how that can be achieved for those people with schizophrenia who have an “at risk” genetic type.

Neurotransmitters act on specific receptors in the brain in a similar way to a key in a lock when transmitting information between brain cells called neurons. Previous work has shown that when the neurotransmitter connection to the N-methyl-D-aspartate (NMDA) receptor is blocked in healthy people the result is odd behaviour, trouble thinking and false beliefs. These are all behaviours that resemble some of the symptoms and thinking problems of schizophrenia. Similarly, when these same locks are blocked in people with schizophrenia, their symptoms get worse.

The new study, led by Professor Cyndi Shannon Weickert, examined the NMDA receptor (which is made up of different parts) in the brain of people with schizophrenia and a comparison group of people without the illness. Professor Shannon Weickert and her team found that one part of the NMDA receptor, called NR1, was reduced in the brains of people with schizophrenia relative to the comparison group. They also found that another part of the NMDA receptor (called NR2C), was also reduced in the brains of people with schizophrenia. Together, these may lead to a lower number of NMDA receptors in the brains of people with schizophrenia and block information flow.

In the same study, the team also examined the genes that code for the production of these NMDA receptors in a separate group of people with schizophrenia and people without schizophrenia. They found that people with schizophrenia who had

one type of the gene that codes for a part of the NMDA receptor (called NR2B) made less of the NR1 part of the receptor. They also found that these same people with schizophrenia who carried this type of gene also had worse problem solving ability.

Combined, these results provide a better idea of the genetic contributors to cognitive impairment in schizophrenia, and reveal further avenues for our researchers to explore,

which will result in greater understanding of this complex illness. For example, we can now test treatments that target the NMDA receptor, especially in people with schizophrenia who have the “risk” type of NMDA receptor gene identified in this study since they would be expected to obtain the most cognitive benefit from this type of treatment.

CEO's Report

We've identified the genetic "locks" to a number of cognitive issues in schizophrenia, now to search for the keys.

I often think it is regrettable that so much emphasis is placed on psychotic symptoms (delusions and hallucinations) in schizophrenia – in description, explanation, diagnosis and treatment. While such symptoms are certainly conspicuous and distressing, they tend to respond very well to treatment and do not account for the extent of disability so often experienced in schizophrenia. Rather, the sources of disabilities – inability to work, social withdrawal, paralysing inertia – lie elsewhere, among the less conspicuous features of subtle cognitive impairment and the 'negative' symptoms of blunted emotional expression, apathy and lost motivation. We do not have particularly effective treatments for these forms of disability, but there is intense scientific interest in discovering new treatments that do have an impact in this area. That is why the article in this issue describing our "New understanding" is so important.

“While variations in the molecular subunits of these receptors have a genetic basis, they also offer molecular locks for which we can now search for molecular keys – keys to reverse their effects...”

In schizophrenia, reductions in the functioning of NMDA receptors in the cerebral cortex interfere with the inhibitory effects of small interneurons in the cortex, leading to disinhibition of other neurons and consequent excitotoxic effects. Such effects disrupt the high frequency electrical activity in the brain necessary for proper functioning of consciousness, and interfere with working memory and other cognitive operations. These

mechanisms have flow on effects, including reduction in dopamine activity in the prefrontal cortex that underlies the experience of 'negative' symptoms.

In the research described on the front page, Professor Cyndi Shannon Weickert has uncovered what may be the molecular basis for this underactivity of NMDA receptors.



Professor Vaughan Carr. CEO, Scientific Director

She and her team have demonstrated a decrease in critical molecular subunits within the NMDA receptors in schizophrenia, and linked at least one of these to impaired cognitive functioning.

These results suggest potential molecular targets for treatment. While variations in the molecular subunits of these receptors have a genetic basis, they also offer molecular locks for which we can now search for molecular keys – keys to reverse their effects, correct the functioning of the faulty receptors, undo the cognitive impairments and reduce the expression of "negative" symptoms. To do so would be an outstanding accomplishment, a goal that many scientists around the world are striving for – a goal that could potentially relieve a great deal of suffering connected with schizophrenia.

Researcher Profile

Alessandra Raudino

Research Area: Developmental Psychology

Educated: Padua, Italy and Reading, UK

Doctorate: Anxiety in British and Italian Children: The role of maternal parenting behaviours

Personal Interests: Travel, European cinema, cooking, swimming



Travel-loving Alessandra on the Scottish coastline

It comes as no surprise that someone who loves exploring new horizons when she travels was keen to be involved in a study with an incredibly broad scope. Alessandra Raudino, a Sicilian by birth who has also lived in Budapest, Reading, and Christchurch moved to Sydney in 2011 to take up the role of Postdoctoral Research Fellow with the NSW Child Development Study as part of the Research Unit for Schizophrenia Epidemiology.

The longitudinal study of 87,000 children in New South Wales will span 20 years, from birth until they leave their teenage years. "The study investigates risk and resilience factors for mental health and other adverse social outcomes in later years," Alessandra explains.

Alessandra's previous experience in psychology has seen her working in a Hungarian orphanage as well as a school for special needs, and studying children's internalising and externalising problems, so working with the Schizophrenia Research Institute has allowed her to continue to explore her interest in child development and welfare.

What most excites Alessandra about her current work is the size of the study and its possible implications. "Other studies of a similar nature involve maybe 1500 children, but this study is a population level study," she explains, "which will give us the opportunity to work at the policy level and help to better inform government about school-based methods of mental health promotion.

"Next year we will do an assessment that looks at behaviour, social adjustment, creativity, self-esteem and physical health. My ultimate hope is that this information will help us find ways to improve quality of life and wellbeing, and reduce the burden of mental ill-health."

When she's not busy organising ethics and grant applications, analysing data and writing reports for scientific committees, Alessandra relaxes by cooking (though she won't reveal her secret family recipe for parmigiana) and planning her next overseas adventure to India. As always, the lure of a vast, new territory holds great appeal for Alessandra.

Where there's a Will...

One simple gesture today could have a beneficial effect for years to come.

When her brother passed away, Elizabeth Hannon decided she would honour his memory and the close relationship they shared in the form of a bequest. "My brother was diagnosed with schizophrenia in 1999 and passed away in 2007," she explains over the phone when asked why she left part of her estate to the Institute. "I didn't have a will prior to making the bequest, but the process was fairly easy. I bought a basic will kit from the post office, had somebody help me write it up and had it signed by a Justice of the Peace."

Similarly, Shan Keary found the process of leaving a gift a simple matter. "It was really easy," she confirms. "I got some information in the post from the Institute about making a bequest, went to a solicitor to make sure the wording was correct and put it in my will. I do know someone with schizophrenia, a lovely fellow, and when I see him I see how it has affected his life. For that reason I wanted to choose a charity that was providing help or finding a cure."

"Leaving a bequest means you leave a lasting legacy, your money goes where you want it to go, particularly to something you feel strongly about,"

says Elizabeth. For Shan, the desire to include the Institute in her will was a matter created by her current circumstances. "I'm not working at the moment, so I'm reluctant to give regularly but I wanted my money to go

somewhere of my choosing when I no longer need it," she explains. "Doing this made me think about what my values are and what's important to me. I think it's a good thing for people to think about, especially if you're not able to give regularly now."

"I'm hoping my bequest means more money will be made available to something I support and can benefit other people," Elizabeth says of the money she has left to the Institute. "I think it's important to work out what you want to do with your finances when you're no longer here and have a say in how it is used," agrees Shan. "If the people who are close to you are already provided for, you can then think about giving to organisations that need it."

"It's a common misconception that including a charity in a will is a time-consuming process or that it is something that only the very wealthy do," says Kel Beckett, Director of Development for the Institute, "however the reality is quite the opposite. The majority of people who leave a bequest have lived typical lives but want their charitable gifts to continue giving long after they are gone."

If you would like more information, or the correct wording, please contact Kel Beckett on (02) 9295 8692.

The JUDY GIBSON story

Judy Gibson freely admits that schizophrenia doesn't just affect one person, it can affect an entire family. The tragic death of her son Luke in 1988 prompted Judy and her late husband, rugby league coach Jack Gibson, to raise funds and awareness for schizophrenia research, resulting in **over \$1.5 million in just over 10 years.**

From organising formal fundraising dinners and donating proceeds from Jack's four books to attracting influential people to the cause, their generosity and diligence was relentless. This passionate commitment has provided vital support to the Institute and educated many about the need for research into schizophrenia.

Judy Gibson continues as an invaluable advocate of the Institute's mission. "I chose to leave a gift in my will to the Schizophrenia Research Institute because it is a terrible illness and mental health has not been given the attention that it deserves," she has said. "It has been a great experience to watch the growth of the Institute but they need our help to continue this urgent work. I hope you'll join me in leaving a gift in your will to this very worthy cause."

"By joining Judy Gibson in confirming a bequest to the Schizophrenia Research Institute, you will become a member of The Judy Gibson Society," says Kel Beckett. "Being a member of this group of special supporters acknowledges the shared mission for the Institute, to discover the ways to find the causes and a cure for schizophrenia." Membership benefits include personal invitations to regular tours, morning teas and information sessions.



What's your goal for 2013?

If you want to get fit, travel more or raise money for charity in 2013, this will tick all of the boxes.



Mei exploring the Lake District in England

"I'm not going to lie, I'm petrified of fundraising," laughs 28-year-old Mei Wong from Sydney. "I haven't done anything since the 40-Hour Famine when I was much younger." 2013, however, is the year that Mei has decided she will challenge her personal boundaries and achieve some exciting goals. Mei has signed up to take part in the China Trek in October and has set a target to raise \$8000 for the Schizophrenia Research Institute.

Mei will join with three other workmates who have each signed up to raise money for charity and participate in different adventure treks. Together, they will create fun events to raise awareness and money for their chosen charities. "I wanted to choose a charity that meant something to me," Mei explains. "Mental illness has affected our family, my grandma had dementia and my aunt has bipolar disorder so I've seen how it can affect a life. Supporting the Institute is such a good cause and it feels better to be able to talk to people about something that is close to my heart."

With her fundraising plan firmly established – a film night with

workmates and an End of Summer party – Mei's next challenge was fitness. 2012 saw her break out of her comfort zone and train for the City2Surf run in August, an event she enjoyed so much she has maintained her running schedule. "I might have to change my diet a little," she concedes. "More vegetables and protein, and less sugar."

This will be Mei's first trip to China. "Going to China will be a wonderful experience and seeing the Great Wall is definitely on my bucket list. It'll be so breathtaking. People usually only do day trips and see such a small part of the wall, but we'll be there for five days."



Spark
You're invited!

The Institute's annual black tie gala event will be held on **Saturday, 6th April at the Sydney Hilton.**

Entertainment will include a capella group Soul Food, speed painter and 2011 Entertainer of the Year Brad Blaze and big band High Rollers.

To book tickets call Renee Hampson on **(02) 9295 8698** or email r.hampson@schizophreniaresearch.org.au.

To join Mei and others on the Trek, register your interest at www.inspiredadventures.com.au and look for the Great Wall Adventure Trek in October. You can also call Renee Hampson on **(02) 9295 8698** for more information.

What will you give up for Schizophrenia Awareness Week?

May 13-19 is your chance to say **STOP!** for schizophrenia.



There aren't too many opportunities to stub a toe on the sands of Bondi Beach, but that doesn't mean the odd swear word doesn't slip out of the mouths of Bondi Rescue lifeguards Rod "Kerrbox" Kerr, Corey Oliver, Jesse Pollack and Trent "Maxi" Maxwell. But come the third week of May, these four STOP ambassadors will be watching what they say and raising money for schizophrenia research at the same time. "I've been known to let a few 'f' words go on TV," laughs Kerr, "I've had to be beeped a few times, so this will definitely be a challenge for me." Fortunately he has a few replacement words up his sleeve for those moments when only an expletive will do. "I'll probably be saying 'arc' a few times," he admits.

The lifeguards are all doing it in support of fellow lifeguard Matt Dee, whose sister had schizophrenia, to raise awareness not only of this mental illness, but also of the despair that can come with it. "Sometimes you don't know that people are hurting," says Kerr. "Maybe all it takes is a phone call or checking up on someone to help make things a little better."

This year you can join the lifeguards and stop swearing for a week, or you can opt to stop another habit, such as chocolate, smoking, video games or wearing high heels, for the week or even the entire month of May. If sugar is your sweet poison you can remove it from your diet with the help of Sarah Wilson's

I Quit Sugar program. Simply click on the link on the STOP website to buy the eBook and Sarah will donate 40 percent of the cost to kickstart your fundraising.

For more information visit www.stopfor.com.au and register to become a STOPper.

Twitter #STOPforSZ

STOP
for schizophrenia
give it up for mental health



Get your teams ready for Sydney City Scramble

It's time to team up!

Get a group together and race around the city for the inaugural Sydney City Scramble.

Register now to be one of around 50 teams searching the streets of Sydney for cryptic clues to complete some unusual, fun tasks in a race to be crowned Scramble Champions for 2013. This unique, annual event, which will happen on September 7, brings together friends and co-workers in a day of madcap adventure, laughs and fundraising.

The race will require strategy, communication, navigation and the ability to have a lot of fun but, just as importantly, it will raise awareness and funding for the Institute. So if you think you've got what it takes, **register your interest** with Renee Hampson at r.hampson@schizophreniaresearch.org.au or call (02) 9295 8698 for more information.

Mo' money for a mo-growing bro

Going an extra month with a hairy upper lip raised cash for schizophrenia research.

During the month of November much of Australia is awash in moustaches grown to raise money for charity, but come December the facial fashion statements are shaved in favour of a cleaner look, often to the relief of wives and girlfriends. One Adelaide gentleman, however, vowed to keep hold of his hirsute addition to raise money for the Institute and awareness of schizophrenia.

Ross Young, whose mo' was of the 70s-era cricket hero variety, let friends and family know via Facebook that a \$10 donation would hold the razor at bay for an extra day; his hope was to raise \$310 during the month of December. It seems his friends were more than eager to see the moustache live to see another day as the final tally of the fundraising adventure was \$345. "My wife was sad to see it go, she quite liked it," Ross says of the January 1 shave-off. Fortunately, November – and another moustache – is only a whisker away.



Champion fundraising effort by Ross Young

In Memoriam

We offer our condolences and send thanks to the following families who have asked mourners to donate to the Institute in lieu of flowers and in memory of their loved ones. Families and friends who may wish to set up a tribute page for a lost loved one and raise funds for the Institute can do so at www.everydayhero.com.au/event/inmemoriam.

Lewis Austin
Leonard Schneider III
Christine Hester
Adam Gazzard
Dr Del Weston and
Professor Gavin Mooney

Our thanks

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Many thanks to all of our supporters who have renewed their commitment to us and/or donated recently.

For privacy reasons we have chosen not to list all of our individual supporters but would like to take this opportunity to thank and acknowledge their generosity. The commitment of the community is vital to our ongoing success (October 2012 - February 2013).

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