

Autism Victoria's

2010 AUTISM SPECTRUM
DISORDER RESEARCH FORUM

Proceedings



- Location:** 24 Drummond Street, Carlton 3053 (near corner of Drummond St and Victoria Street; Melway Ref: 2B G11)
- Opening Hours:** 9 am to 6 pm, Monday to Friday
- Car Parking:** Limited parking available at front of building
- Transport:** **Parliament Train Station** is a 10 minute walk exiting at the Lonsdale Street exit; continue along Spring Street to Victoria Street and up Drummond Street.
Trams 1, 3, 5, 6, 8, 16, 64, 67 and 72 – disembark near the corner of Swanston and Victoria Streets, continue down Victoria Street towards Carlton Gardens and into Drummond Street.



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Contents

Forum Welcome from the Convenor of the ASD Professional Research Associates Group, A. Prof . Cheryl Dissanayake	2
2010 ASD Research Forum Program.....	3
Forum Opening and Keynote Address.....	6

Oral Presentation Abstracts

Session 1: Genetics – Chair Dr. Jordy Kaufman

Naomi Bishop, <i>La Trobe University</i>	7
Lynn Koyama, Emma Burrows, Anthony Hannan & Elisa Hill, <i>Florey Neuroscience Institutes / University of Melbourne</i>	8

Session 2: Memory – Chair Prof. Sabine Hammond

Sandra Saunders & Peter Rendell, <i>Australian Catholic University</i>	9
Jade Russo & Peter Rendell, <i>Australian Catholic University</i>	10

Session 3: Adults – Chair A. Prof. Mark Stokes

Jane McGillivray, David Hamilton & Helen Evert, <i>Deakin University</i>	11
Lauren Gook & Jane McGillivray, <i>Deakin University</i>	12

Session 4: Sleep – Chair A. Prof. Amanda Richdale

Emma Baker, Amanda Richdale, Michael Short & Michael Gradisar, <i>La Trobe University / Flinders University</i>	13
Courtney Michaels & Amanda Richdale, <i>RMIT University</i>	14

Session 5: Social Behaviour – Chair A. Prof. Susana Gavidia-Payne

Susan Douglas & Lesley Stirling, <i>University of Melbourne</i>	15
Giacomo Vivanti, Sally Ozonoff & Sally Rogers, <i>La Trobe University / M.I.N.D. Institute, University of California at Davis</i>	16
Kristelle Hudry & the PACT Consortium, <i>La Trobe University / PACT Consortium</i>	17

Session 6: Intervention – Chair Dr. Angelika Anderson

Caroline De Fina, Dennis Moore & Joanne Deppeler, <i>Monash University</i>	18
Belinda Minett & Jane McGillivray, <i>Deakin University</i>	19

Poster Presentation Abstracts

Stephanie Bland, Amanda Richdale & Angelica Rose, <i>La Trobe University/Voice and Movement</i>	20
Grace Thompson, Katrina McFerran-Skewes & Tony Wigram, <i>University of Melbourne / University of Aalborg / Anglia Ruskin University</i>	21
Zoe Robertson & Amanda Richdale, <i>La Trobe University</i>	22
Carmel Sivaratnam, April Philpott, Kylie Gray, Kim Cornish & Nicole Rinehart, <i>Monash University</i>	23
Joshua Whelan & David Hamilton, <i>Australian Catholic University</i>	24
Monique Seymour, Katie Wood & Rebecca Giallo, <i>Swinburne University / Parenting Research Centre</i>	25
Sean Harrop, Azhari Aziz & Naomi Bishop, <i>La Trobe University</i>	25
Azhari Aziz, Sean Harrop & Naomi Bishop, <i>La Trobe University</i>	26
Amanda Dettman, Azhari Assiz & Naomi Bishop, <i>La Trobe University</i>	27

Welcome from Associate Professor Amanda Richdale Representative, Professional Research Associates Group

Welcome to the ninth Autism Spectrum Disorder Research Forum. This forum is supported by Autism Victoria and is organised by the Autism Victoria Research Associates Group (formerly the Research Reference Group) and Autism Victoria. We are delighted to have Professor Murray Maybery as our keynote speaker. Professor Maybery is Professor (Cognitive Psychology) at the Centre for Child and Adolescent Related Disorders at the University of Western Australia. We extend him a warm welcome.

This forum has always been an opportunity to showcase work conducted by research students, and as in previous years we have a large number of student presentations and posters, including Honours, Masters and Doctoral students. As always we are able to offer a program that covers a wide range of topics important to our understanding of autism spectrum disorders, including biological, psychological and intervention related topics. It is testimony to the high quality research that is conducted in Victoria by both students and established researchers.

You may have noticed our name change. Earlier this year the Board of Autism Victoria decided to disband the Autism Victoria Professional Panel and consequently the Research Reference Group also ceased. The Research Reference Group did however maintain its membership and acquired a name change for the purposes of organising today's forum. The Board has thoughts of now having research associates and expert advisors as opposed to these former committees and we will have to wait and see what this will look like from 2011 forward.

We hope you enjoy your day today, both the papers and the posters, and meeting colleagues, and that you all come away having added to your store of knowledge and understanding of the autism spectrum.

As I wrote this A.Prof. Dissanayake, the convenor of the former Research Reference Group was at the Autism Europe Conference in Italy, but she is here at the forum today to welcome you personally.

Thank-you for both attending and participating in this forum. Enjoy!

Amanda Richdale, PhD, MAPS

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About Autism Victoria

Autism Victoria began over forty years ago as the Victorian Autistic Children's Association. Initially a parent-run organisation staffed by volunteers, Autism Victoria has grown to become the state's peak body for Autism Spectrum Disorders, and is now a key provider of information, advice and support to individuals, families, service providers and private practitioners. Over the last two years, Autism Victoria has grown from a staff of four to a staff of over 25, with expectation of continual growth in the coming years. Autism Victoria is a member-based, not-for-profit organisation and generates income from a range of sources including memberships, government funding, philanthropic trusts and private donations.

Autism Victoria receives funding from both the State Government Department of Human Services (DHS) and Department of Education and Early Childhood Development (DEECD) to provide an Information, Advice and Support service to families and professionals. Further funding is received from the Commonwealth Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA) to run the Autism Advisor program under the Helping Children with Autism package. The organisation is governed by a nine-member Board, elected on a rotational basis at the Annual General Meeting. The Board nominees are drawn from both a skills- and interest-base to enhance the governance of Autism Victoria.

The Autism Victoria Professional Research Associates Group was formed to replace the former Autism Victoria Professional Panel for the purposes of this event. This comprises of a panel of honorary consultants available to provide advice on professional and other issues related to Autism Spectrum Disorders, including research findings, policy development and media comment.

What can Autism Victoria do for me?

Autism Victoria operates an **Information Line (1300 308 699)**, to provide information to families, professionals, and interested members of the community about Autism Spectrum Disorders, as well as information and advice about related services and initiatives. Autism Victoria maintains a **website (www.autismvictoria.org.au)** and one of its features is a section dedicated to ASD research. The site offers the opportunity for researchers to describe their work, and for parents and individuals to nominate their interest in participating in research. Through the website, interested parties can also sign up for Autism Victoria's electronic newsletter, the **eSpectrum**, which provides up-to-date information about important updates, events, and general information related to Autism Spectrum Disorders. **Membership** of Autism Victoria is open to families, carers, professionals and students – anyone with an interest in ASDs. A membership form is available from the Autism Victoria office, or registrations can be taken online. There are several membership categories with fees ranging from \$25.00 per annum for students and pension card holders to \$75.00 per annum for professionals and agencies. Members receive full access to Autism Victoria's specialist **ASD Library**, four issues of the magazine, *The Spectrum*, and access to one of Autism Victoria's Family Counsellors. Membership also allows discount registration rates at Autism Victoria events, such as the ASD Research Forum and the Victorian Autism Conference, which due to its success in 2010 will be a biannual event. Details about VAC 2012 will be released shortly. As Autism Victoria grows, it introduces a number of new services and programs in addition to the services and supports that Autism Victoria already offers. The **Autism Accreditation** program will operate within one of our new divisions Amaze Accreditation. Our new brand and division logo will be launched later this year. If you are interested in finding out more about Autism Accreditation, please email accreditation@autismvictoria.org.au. Our other new division launched this year is **Amaze Knowledge**. Amaze Knowledge will deliver a range of learning opportunities to better facilitate understanding and support to individuals with Autism Spectrum Disorders (ASD) and associated needs. For further information please go to www.amazeknowledge.org.au

Time	Session Presenter and Title of Paper
8:45 - 9:00	Registration
9:00 – 9:10	Opening: A. Prof. Cheryl Dissanayake , Convenor, ASD Professional Research Associates Group
9:10 - 10:10	<p>Introduction of Keynote Speaker Chair - A. Prof. Cheryl Dissanayake:</p> <p>Prof. Murray Maybery</p> <p><i>Unique patterns of thinking and perceiving in autism and a possible role for prenatal testosterone in its aetiology</i></p>
10:10 -10:30	Morning Tea & Poster Presentations
10:30 – 11:10	<p>Session 1: Genetics - Chair: Dr. Jordy Kaufman</p>
10:30	<p>Paper 1: Bishop (La Trobe University)</p> <p><i>Emerging evidence for secretory pathway defects in autism</i></p>
10:50	<p>Paper 2: Koyama, Burrows, Hannan, & Hill (Florey Neuroscience Institutes / University of Melbourne)</p> <p><i>Altered social behaviour in a mouse model of autism</i></p>
11:10 – 11:50	<p>Session 2: Memory – Chair: A. Prof. David Hamilton</p>
11:10	<p>Paper 3: Saunders & Rendell (Australian Catholic University)</p> <p><i>Episodic future thinking in children with high-functioning ASD</i></p>
11:30	<p>Paper 4: Russo & Rendell (Australian Catholic University)</p> <p><i>Prospective memory in children with high-functioning ASD</i></p>
11:50 – 12:30	<p>Session 3: Adults – Chair: A. Prof. Mark Stokes</p>
11:50	<p>Paper 5: McGillivray, Hamilton, & Evert (Deakin University)</p> <p><i>The emotional health and well-being of young people with an ASD: Preliminary findings</i></p>
12:10	<p>Paper 6: Gook & McGillivray (Deakin University)</p> <p><i>Autism spectrum disorders in the criminal justice system: Identification, offence profile and personnel knowledge</i></p>
12.30-1.30	Lunch & Poster Presentations

Time	Session Presenter and Title of Paper
<p>1:30 – 2:10</p> <p>1:30</p> <p>1:50</p>	<p><u>Session 4: Sleep – Chair: A. Prof. Amanda Richdale</u></p> <p>Paper 7: Baker, Richdale, Short, & Gradisar (La Trobe University / Flinders University) <i>An investigation of sleep patterns in adolescents with high-functioning autism spectrum disorder compared with typically developing adolescents</i></p> <p>Paper 8: Michaels & Richdale (RMIT University) <i>Psychological correlates of sleep problems in children with high-functioning autism spectrum disorder: a comparison with typically developing children</i></p>
<p>2:10 – 3:10</p> <p>2:10</p> <p>2:30</p> <p>2:50</p>	<p><u>Session 5: Social Behaviour – Chair: A. Prof. Susana Gavidia-Payne</u></p> <p>Paper 9: Douglas & Stirling (University of Melbourne) <i>Collaborative pretense in the spontaneous play of children with autism</i></p> <p>Paper 10: Vivanti, Ozonoff, & Rogers (La Trobe University / M.I.N.D. Institute, University of California at Davis) <i>Children with autism use emotional but not referential cues to predict others' actions</i></p> <p>Paper 11: Hudry & the PACT Consortium (La Trobe University / PACT Consortium) <i>Evaluating preschoolers with autism using naturalistic observational assessments of interaction: stable rates of social-communication but varied engagement in shared attention</i></p>
<p>3:10 – 3:30</p>	<p>Afternoon Tea & Poster Presentations</p>
<p>3:30 – 4:10</p> <p>3:30</p> <p>3:50</p>	<p><u>Session 6: Intervention – Chair: Dr. Angelika Anderson</u></p> <p>Paper 12: De Fina, Moore, & Deppeler (Monash University) <i>Can using video modelling products enhance learning for young children with autism?</i></p> <p>Paper 13: Minett & McGillivray (Deakin University) <i>Pharmacology and autism spectrum disorders: care-givers' and individuals' perspectives</i></p>
<p>4:10 – 4:30</p>	<p><u>Summing up, announcements & close: A. Prof. Cheryl Dissanayake</u></p>

Author	Time*	Institution	Title of Poster
1. Bland, Richdale, & Rose	12:30 – 1:00	La Trobe University / Voice & Movement	<i>An evaluation of the "Drama for Every Day Life" program for children and adolescents with high-functioning autism spectrum disorder.</i>
2. Thompson, McFerran-Skewes, Wigram, & Ruskin	12:30 – 1:00	University of Melbourne / University of Aalborg / UK University	<i>An RCT investigating the effect of family centred music therapy on the social communication skills of preschool children with severe autism</i>
3. Robertson & Richdale	12:30 – 1:00	La Trobe University	<i>Friendships in adolescents and young adults: The role of personality characteristics, stress, depression and anxiety</i>
4. Sivaratnam, Philpott, Gray, Cornish, & Rinehart	12:30 – 1:00	Monash University	<i>A novel comprehensive theory of mind (ToM) measure sensitive for detecting ToM impairments in children from early childhood to adolescence</i>
5. Whelan & Hamilton	1:00 - 1:30	Australian Catholic University	<i>Stress and coping in parents of autistic children</i>
6. Seymour, Wood, & Giallo	1:00 - 1:30	Swinburne University / Parenting Research Centre	<i>Aspects of parenting a child with an autism spectrum disorder</i>
7. Harrop, Assiz, & Bishop	1:00 - 1.30	La Trobe University	<i>Autism and the mysterious Golgi-casein kinase</i>
8. Assiz, Harrop & Bishop	1:00 - 1:30	La Trobe University	<i>Splice variation in autism spectrum disorder genes</i>
9. Dettman, Assiz, & Bishop	1:00 – 1:30	La Trobe University	<i>Autism and Turner syndrome</i>

****The authors will be present at their posters at the times indicated to discuss their work and findings.***



Forum Opening & Keynote Address

FORUM OPENING 9:00am – 9:10am

Associate Professor Cheryl Dissanayake will open the forum and welcome Professor Murray Maybery to present our Keynote Address.

KEYNOTE ADDRESS 9:10am – 10:10am

Professor Murray Maybery

Unique patterns of thinking and perceiving in autism and a possible role for prenatal testosterone in its aetiology

Professor Maybery's work on autism is conducted through the UWA Neurocognitive Developmental Unit and WACARE (the W.A. Cooperation for Autism Research and Education) and has three directions: (1) identifying unique perceptual and cognitive features of the disorder; (2) establishing the extent to which these features extend to individuals with mild autistic traits; and (3) investigating a possible role of prenatal testosterone in the development of autism.

Oral Presentations

SESSION ONE

10:30am – 11:10am

Genetics

Chair: Dr. Jordy Kaufman

Emerging evidence for secretory pathway defects in autism.

Researcher: Naomi Bishop
University/Institution: La Trobe University
Contact: n.bishop@latrobe.edu.au

The secretory pathway plays a vital role within all human cells, including a key role in neuronal development and function. Secretion in neurons, while having many factors in common to that in non-neuronal cells, has specific challenges. For example, dendrites have been found to have satellite Golgi-like cisternal stacks, known as Golgi outposts, which are unique to neurons. The dependence of neurons on the secretory pathway for synaptic transmission, outgrowth, and remodelling, combined with the vast distances involved, means the impact of mutation in many secretory pathway genes has a greater impact on neuronal, rather than non-neuronal, cell function. Aberrations in cell secretion are being detected in increasing numbers of patients with autism spectrum disorders (ASDs) [1-7]. While large numbers of genes have been implicated as causative of ASDs, data will be presented suggesting that a recurring cellular deficit in ASD patients is alterations in cellular secretory pathway(s). I will discuss our latest finding aimed at understanding the role of two genes, DIA1 and DIA1R, in ASD etiology. Notably, both DIA1 and DIA1R are expressed in all cell types within the human body. Therefore mutations in these genes not only cause the neurological symptoms diagnostic of ASD, but will cause global deficits in the secretory pathway, thereby providing an explanation for the non-neurological co-morbidities of ASDs. Indeed, the identification of deletion/mutation of many different, yet ubiquitously expressed, genes in those with ASDs, indicates that ASD should be considered a systemic disorder that affects the brain, not simply a brain disorder.

Oral Presentations

SESSION ONE

10:30am – 11:10am

Genetics

Chair: Dr. Jordy Kaufman

Altered social behaviour in a mouse model of autism.

Researchers: Lynn Koyama, Emma Burrows, Anthony Hannan & Elisa Hill

University/Institution: Florey Neuroscience Institutes, University of Melbourne

Contact: elhill@unimelb.edu.au

Please contact the author for information on this research study.

SESSION TWO

Memory

11:10 – 11:50am

Chair: Prof. Sabine Hammond

<i>Episodic future thinking in children with high-functioning ASD</i>
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Researcher: Sandra Saunders
Supervisor: Peter Rendell
University/Institution: Australian Catholic University
Contact: forrester.sandy@gmail.com

Background: *Episodic Future Thinking*, is the ability to mentally project oneself into the future to pre-experience an event, such as planning and anticipating for what may lie ahead. Recent neuroscience research indicate that there is a strong relationship between the processes involved in remembering specific events from the past (episodic memory) and being able to generate detailed scenarios that might take place in the future (episodic future thinking). In addition, recent influential reviews propose that the ability to imagine the future is related to executive function processes. Previous studies on individuals with autism have found not only deficits in executive function but also episodic memory deficits and therefore it is likely that future thinking may be compromised in this population. Thirty children aged 8 to 12 years participated; 15 with an existing diagnosis of High Functioning Autism or Asperger’s Syndrome, and 15 controls, who were typically developing children recruited from a local primary school. Children were assessed using the autobiographical memory interview for future thinking which required each participant to re-construct specific mental images of events from their personal past as well as construct novel future events. The NEPSY II was used as an assessment of executive function. The autism group showed typical deficits on executive functioning. Results showed children with autism were substantially worse imagining future events (future thinking) and reconstructing past events compared to the control group. After controlling for executive functioning, the significant difference between groups remained and the effect size reduced slightly from .41 to .34. Both groups were significantly better at reconstructing past events than constructing future events but the difference was not significant after controlling for executive functioning, with effect size reducing from .23 to .11. These results will be discussed in light of current theories of future thinking and autism.

Oral Presentations

SESSION TWO

Memory

11:10 – 11:50am

Chair: Prof. Sabine Hammond

Prospective memory in children with high-functioning ASD

Researcher: Jade Russo
Supervisor: Peter Rendell
University/Institution: Australian Catholic University
Contact: jade.v.russo@gmail.com

Background: *Prospective memory (PM)* is not so much a distinct memory process, as a useful term to describe a set of tasks, that require individuals carrying out an intended action at some appropriate time in the future. These involve important everyday tasks such as child remembering to pass on a school notice to their parents. The ability to successfully engage in prospective remembering is thought to be critical in the development of independence. Prospective remembering is proposed to rely on a number of cognitive systems, in particular executive functioning. The current study examined PM performance within an autistic population, who are known to have impairments in executive functioning. Thirty children, aged 8 to 12 years participated; 15 with an existing diagnosis of High Functioning Autism or Asperger's Syndrome, and a control group of 15 who were considered to be typically developing. Children were assessed using a newly developed behavioural paradigm to assess PM; The Dresden Cruiser, which is a computerised driving game that requires participants to drive a car along a busy road (ongoing task) with the PM task of having to remember to refuel their car with petrol upon encountering a particular event (e.g., yellow car or yellow flower) or after a particular time. Results revealed, that although the autistic group performed significantly worse on time-based PM task they did not differ from controls on the event-based PM tasks. The effect size on the time-based PM task deficit was substantially reduced after controlling for some specific executive functioning skills. The autistic group had relatively more difficulty with a PM task that required monitoring time than a PM task that required noticing a cue in their environment. The results support the proposal that executive functioning is critical for PM performance and will be discussed in light of current theories of PM.

SESSION THREE

Adults

11:50 – 12:30pm

Chair: A. Prof. Mark Stokes

The emotional health and well-being of young people with an ASD: Preliminary findings

Researchers: Jane McGillivray, David Hamilton & Helen Evert

University/Institution: Deakin University

Contact: jane.mcgillivray@deakin.edu.au

Abstract: It is widely acknowledged that individuals with autism are particularly vulnerable to the experience of co-occurring anxiety and mood disorders (White et al., 2009; Hofvander, Delorme et al. 2009) with rates higher than in typically developing individuals (Chalfant et al., 2007). The purpose of this study is to determine the appropriateness of available assessment instruments for screening and evaluating depressed mood, anxiety and stress symptoms in young adults and adults with an autism spectrum disorder (ASD) and to obtain some preliminary data on the characteristics of these symptoms and their links with each other, as well as with maladaptive thoughts, in this population. Using this information and existing literature, an intervention program has been developed based on principles of cognitive behavioural therapy to provide participants with strategies and resources to assist them manage different stresses, reduce levels of anxiety and low mood.

Methods:

Participants aged between 15-25 years of age with a diagnosis of Asperger's Syndrome or High Function Autism are currently being recruited into this study.

This study has two stages. Stage one-the assessment phase: This phase involves participants completing a questionnaire comprised of the following instruments; socio-demographic questions; The Depression Anxiety Stress Scales (DASS ; Lovibond & Lovibond, 1995); The Automatic Thoughts Questionnaire (ATQ-R) (Kendall, Howard & Hays, 1989); The Anxious Self-Statements Questionnaire (Kendall & Hollon, 1989); The Stress Survey Schedule (Grodin, 2001); and the Coping Scale for Adults (short form) (Frydenberg & Lewis, 1996)

Stage two-the group program: is designed to help people with ASD who experience low mood, anxiety and/or unhelpful thoughts to develop a greater understanding of how their thoughts and feelings are related and strategies they can use to manage these thoughts, feelings and behaviours. This involves participating in a nine week program, two hours each week. The topics covered include: Introduction, establishing the rules of the group, getting to know each other; Recognising stress and how to manage stressful situations; How do we recognise emotions in ourselves and others; Relationship between thoughts, feelings and behaviours; Mindfulness – noticing our thoughts, recognising helpful and unhelpful thoughts and their effects on our feelings; The relationship between our beliefs and feelings; and Coping styles – what are our resources and how can we use these in everyday stressful situations.

On completion of the nine week group program participants participate in an evaluation and are followed up at 3 and 12 month intervals.

Results: As this study is ongoing, preliminary results will be presented based on responses from the questionnaires and main themes will be explored as part of the evaluation of group program.

SESSION THREE

Adults

11:50 – 12:30pm

Chair: A. Prof. Mark Stokes

<i>Autism spectrum disorders in the criminal justice system: Identification, offence profile and personnel knowledge</i>

Researcher: Lauren Gook
Supervisors: Jane McGillivray
University/Institution: Deakin University
Contact: legoo@deakin.edu.au

Background: Autism spectrum disorders (ASD) are characterised by a triad of impairments in communication, reciprocal social interaction and restrictive, often repetitive behaviours and interests. Several characteristics may predispose people with an ASD to offending. Their lack of insight and empathy, social naiveté, and preoccupations with interests and routines may result in aggressive outbursts and socially inappropriate behaviour. They may have difficulty understanding social conventions and the effects of their actions on others. Within the criminal justice system (CJS) individuals with an ASD face many challenges, including changes in routine and social dynamics; this may result in increased distress and anxiety. It is likely that ASD may go unrecognized in forensic populations. Determining the rate of offending behaviour in individuals with ASD has clear methodological challenges. Current research findings are both inconsistent and limited; mainly comprising case reports and examinations of narrow populations within secure psychiatric settings, with retrospective matching of offending characteristics to the symptomatology of ASDs. The identification of individuals with suspected ASD who become involved in the CJS has important implications for disposition, treatment and management. Knowledge of ASDs amongst CJS personnel is fundamental in this identification.

This paper describes the methodology and preliminary data from a three stage study: 1) Knowledge and understanding of ASDs amongst forensic personnel will be assessed as this plays a vital role in the identification of this population. 2) A brief ASD screening tool will be administered to all prisoners entering the Victorian prison system for a trial of 4 months. 3) Any individual who indicates possible ASD on the screen will be invited to participate in a clinical interview and complete the Autism Quotient.

SESSION FOUR

Sleep

1:30-2:10pm

Chair: A. Prof. Amanda Richdale

<p><i>An investigation of sleep patterns in adolescents with high-functioning autism spectrum disorder compared with typically developing adolescents</i></p>
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Researcher: Emma Baker
Supervisor: Amanda Richdale
Research Team Michelle Short & Michael Gradisar
University/Institution: La Trobe University / Flinders University
Contact: ek4baker@students.latrobe.edu.au

Background: While sleep problems are common in typically developing (TD) children, the prevalence of sleep problems in high functioning autistic spectrum disorder (HFASD) is at least twice as frequent. Both subjective and objective sleep measures indicate that sleep initiation and maintenance are problematic for these individuals. Significant physiological, psychological, and social changes in sleep patterns occur at puberty onset in TD adolescents; however, little research has focused on the sleep patterns of adolescents with HFASD and the impact sleep problems may have on their daytime functioning.

Aims: To (1) investigate and describe the sleep patterns of adolescents with HFASD; (2) compare the prevalence of insomnia in the HFASD sample as compared with TD adolescents; and (3) determine if both TD adolescents and adolescents with HFASD with poor sleep have impaired daytime functioning.

Method: Thirty adolescents aged 14 to 17 years diagnosed with HFASD have currently been recruited into the study. Participants will be matched on age and sex with a subsample of TD adolescents who participated in a similar, larger study at Flinders University, SA. Participants completed several sleep questionnaires and a 7-day sleep/wake diary. A sub-sample of 16 participants also wore an actigraphy motionlogger for the 7-day diary period to obtain objective sleep pattern data.

Data Analysis: Group differences on sleep variables will be analysed to determine if the sleep patterns of adolescents with HFASD differ from those of TD adolescents and whether these differences are similar to those seen in childhood sleep. We will also examine whether adolescents with HFASD show the same developmental trajectories in sleep patterns as TD adolescents. Finally, we will determine if sleep efficiency (hours asleep/hours in bed x 100) is associated with daily functioning. The outcomes of these analyses will be presented and their implications discussed.

Oral Presentations

SESSION FOUR

Sleep

1:30-2:10pm

Chair: A. Prof. Amanda Richdale

Psychological correlates of sleep problems in children with high-functioning autism spectrum disorder: a comparison with typically developing children

Researcher: Courtney Michaels
Supervisor: Amanda Richdale
University/Institution: RMIT University
Contact: courtney.michaels@rmit.edu.au

Background. Sleep problems are common in the paediatric population, with estimated prevalence rates of approximately 30% for typically developing (TD) children and estimates ranging from 44 to 89% in children with neurodevelopmental disorders such as autism. It is believed that multiple biological, psychological, and environmental factors may be associated with an increased risk for sleep disturbance in children with Autism Spectrum Disorder (ASD). Research indicates that children with ASD have a wide range of co-morbid psychiatric and developmental disorders, including hyperactivity, impulsivity, anxiety, and depression and these may be associated with sleep problems. Relationships between psychopathology and sleep disturbances in ASDs were the focus of this study.

Objectives. Our aim was to evaluate the psychological correlates (hyperactivity, anxiety, and depression) of sleep problems in children with high-functioning ASD (HFASD) as compared to TD children using both children and parent report; current research on sleeping difficulties in HFASD is limited. Furthermore, children with HFASD are not cognitively delayed hence they are able to provide useful information regarding their own sleep and daytime behaviours.

Method. Forty-two children (26 HFASD, 16 TD) aged 8-12 years, and their primary caregivers agreed to participate; 62% of questionnaires have been returned to date. Children with HFASD were recruited from support and service groups (Autism Victoria, Asperger's Syndrome Support Network, Gateways Support Services). TD children were recruited mainly through primary schools. Children's sleep, anxiety, depression, and daytime behaviour were assessed via both child and caregiver report using standardised sleep (CSHQ, SSRQ) and behaviour (CBCL, SCARED, CDI) questionnaires.

Results & Conclusion. Data entry and analysis is currently in progress. We will examine sleep patterns and psychological well-being, comparing both HFASD and TD child and parent reports. If relationships are found between children's sleep, anxiety and depression, this will inform the development of both prevention and intervention strategies.

SESSION FIVE
Social Behaviour
2:10-3:10pm

Chair: A. Prof. Susana Gavidia-Payne

Collaborative pretense in the spontaneous play of children with autism

Researchers: Susan Douglas & Lesley Stirling
University/Institution: University of Melbourne
Contact: sdouglas@unimelb.edu.au
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Collaborative pretense in the spontaneous play of children with autism

Pretend play has been considered a 'zone of proximal development' for children's social understanding (Lillard 1993). Early research documented an absence of pretence in children with autism (Kanner 1943). However, more recent research has found that children with autism do indeed engage in both elicited and spontaneous pretend play (Jarrod, Boucher & Smith 1996). Carpendale and Lewis (2004) indicate that while the overall amount of pretend play has not been found to correlate with social understanding and the ability to reason about beliefs, there is an association between children's false belief recognition and their engagement in joint proposals as well as explicit role assignments (both to themselves and others) in pretend play.

We examined a corpus of 30 hours of videotaped free play interaction involving 5 children with autism aged between 3;6 – 7;2 and an adult. This corpus contains 64 pretend play sequences. We approached the data from a broad conversational interaction perspective by examining the contexts of the play sequences to determine whether the children seek to recruit the engagement of the adult into their play. We were specifically interested to see if the children engaged in joint proposals regarding the direction of the pretend play, and joint designation of roles and characters in the play sequence. On the basis of the social communication impairments documented for autism, we hypothesized that the children would not seek to engage in collaborative pretend play. However, we found that the children with autism did engage in collaborative pretense to varying degrees: some children did not actively seek to collaborate in the pretense, per se, but were still engaged with the adult play partner, while for others the adult play partners were invited to share in the pretense but often actively discouraged from making creative contributions.

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Jarrod, C. 2003. A review of research into pretend play in autism. *Autism* 7: 379-390.

Jarrod, C., Boucher, J. & Smith, P. 1996. Generativity Deficits in Pretend Play in Autism. *British Journal of Developmental Psychology* 14: 275-300.

Kanner, L. 1943. Autistic disturbances of affective contact. *Nervous Child* 2: 217-250.

Lillard, A. 1993. Pretend play skills and the child's theory of mind. *Child Development* 64: 348-371.

SESSION FIVE Social Behaviour 2:10-3:10pm

Chair: A. Prof. Susana Gavidia-Payne

Children with autism use emotional but not referential cues to predict others' actions

Researcher: Giacomo Vivanti
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Background:

Typically developing children understand and predict agents' actions relying on social signals. We investigated to what extent children with autism are sensitive to such signals and use them to predict people's behaviour.

Objectives:

We tested 3 hypotheses:

- 1) Children with autism will not be able to predict the agent's behaviour relying on the agent's gaze direction
- 2) They will not be able to predict the agent's behavior by relying on the agent's emotional expressions
- 3) Children with autism will fail to predict the agent's behaviour as a consequence of diminished attention to changes in the agent's head direction and emotional expressions

Methods: 18 children with autism and typically developing subjects matched for IQ and age observed a series of videos showing an agent performing an action. The videos stopped before the action was done and participants were asked to complete the observed action. In condition 1 the agent's face was. In condition 2 the agent's behavior could be predicted only by considering the agent's gaze direction. In condition 3 the agent's behavior could be predicted only by considering her emotional expressions. During the observation of the videos, participants' eye movements were recorded using an eye-tracking system.

Results:

In condition 1 the two groups did not differ in the ability to predict the agent's behavior relying on the most likely end-state of the action. In condition 2, children with autism showed significant difficulties in predicting the agent's behavior as a consequence of their diminished attention the agent's face. In condition 3 both groups were able to predict the agent's behavior based on her emotional expressions and they were looking at the agent's face as much as controls.

Conclusions:

We found a dissociation between sensitivity to referential and emotional cues in autism. Implications for treatment will be discussed.

SESSION FIVE
Social Behaviour
2:10-3:10pm

Chair: A. Prof. Susana Gavidia-Payne

Evaluating preschoolers with autism using naturalistic observational assessments of interaction: stable rates of social-communication but varied engagement in shared attention.

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Background and objectives. Social-communication skills deficits, including reduced initiations and responses toward others and limited engagement in periods of shared attention with others, are core features of autism spectrum disorders (ASD). Naturalistic observational assessments permit evaluation of the extent to which such skills are used functionally and spontaneously within everyday settings. However, interpreting such outcomes requires an appreciation of the extent to which social-pragmatics might vary across contexts for children with ASD.

Methods. The social-communication and shared attention skills of 41 preschoolers with autism were assessed using two naturalistic observational assessments; a clinic-based free-play interaction between parent and child (the Dyadic Communication Measure for Autism; DCMA, Aldred et al., in preparation) and a school-based interaction with a teacher and small group of peers (the Modified – Classroom Observational Schedule to Measure Intentional Communication; M-COSMIC, Clifford et al., 2010) including free-play and structured activity components. The proposed submission will briefly describe these established measures and outline slight modifications undertaken to permit direct comparison of coded social-communication and shared attention.

Results. Relative stability was seen in the group's mean rates of initiations and responses toward others (including sub-functions of these types of act), albeit with somewhat fewer responses occurring during the free-play setting at school. Stability was also seen within individual children, with strong associations in initiations or responses evident across contexts. By contrast, engagement in sustained shared attention varied significantly across the interaction partners and contexts; greatest during one-to-one interaction with the caregiver (DCMA). While significantly reduced within the classroom setting (M-COSMIC), shared attention here was clearly able to be facilitated by the teacher.

Conclusions. These results speak to generalisability of the social-communication and shared attention skills of children with autism, and the potentially facilitative and hindering factors within naturalistic interaction contexts.

SESSION SIX Intervention 3:30-4:10pm

Chair: Dr. Angelika Anderson

Can using video modelling products enhance learning for young children with autism?

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Background: Video modelling is accepted as an evidence-based educational technique for children with autism (Bellini & Akullian, 2007), however, to date, all research on video modelling has created video models for the purpose of the research. The skills, time and material to create such videos lies beyond the means of many families, and may be a deterrent to the widespread use of video modelling in early intervention curricula (Durand, 2010).

Objectives: The present study was designed to investigate the effectiveness of including commercial video modelling products in educational curricula for children with autism to improve and increase rates of learning. It was hypothesised that skill areas taught using video modeling would improve at a faster rate than those taught without the use of video modeling.

Methods: A within-participant, multiple-baseline design across the two conditions (video modelling and direct-only teaching) was used for each of the two participants. Each child was presented with six tasks relevant to his developmental objectives; three tasks were randomly allocated to the video condition, while the other three were allocated to the non-video modelling condition. Both conditions were matched in procedures for reinforcement and error-correction, however the video modelling condition also had the addition of the child watching a video clip of models engaging in the target skills, whereas the direct-teaching only condition did not. Children were tested for acquisition, generalization and maintenance of the target skills at set mastery criteria.

Results: Results suggest that including video modelling resulted in faster acquisition of skills for both of the participants.

Conclusions: Results have implications for early intervention curricula and home-education practice for children with autism across Australia, as the use of video modelling increases the available education options for families for children with autism at geographical distance to autism service providers. This research contributes to a very small body of research that evaluates the use of video modelling compared to other, more widely-used evidence-based intervention practices (Charlop-Christy, Le& Freeman's, 2000; Gena, Coloura& Kymissis, 2005; Kroeger, Schultz & Newsom, 2007) and is the first to investigate commercially available products.

SESSION SIX
Intervention
3:30-4:10pm

Chair: Dr. Angelika Anderson

Pharmacology and autism spectrum disorders: care-givers' and individuals' perspectives

Researcher Belinda Minett
Supervisor Jane McGillivray
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People with Autism Spectrum Disorders (ASD) are at increased risk of developing behaviours of concern and co-morbid psychiatric illnesses. A common intervention for both behaviours of concern and psychiatric illnesses has been the use of pharmacology. Thus, many people with ASD receive medically-based forms of intervention. This form of intervention is controversial and the efficacy remains unclear. Furthermore, individual and care-givers' perspectives of pharmacological interventions have been neglected in the literature. There is a significant need for the experience of medication use in people with ASDs to be better examined and highlighted to the relevant professionals. The aim of the present paper is to explore the use of medication in individuals with ASD. A further aim is to develop an understanding of care-givers and individuals perspectives of medication. The current paper describes preliminary findings from an anonymous online self-report survey from both individual and care-giver responses. Initial findings focus on the types of medication prescribed in this population; the reasons for the prescription of medication; and the perceived usefulness of pharmacology in the management of behaviours of concern and co-morbid psychiatric conditions within this population. Implications for future research are discussed.

Poster Presentations

An evaluation of the 'Drama for Every Day Life' program for children and adolescents with high-functioning autism spectrum disorder

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The present study was designed to evaluate the effectiveness of the 'Drama for Everyday Life Program' in improving social skills and emotional well being in school aged children with high-functioning autism spectrum disorder (HFASD) or related social skills difficulties. Data were collected from 30 families whose children commenced the program at the beginning of Term 2 or 3, 2010. Parents completed the Australian Scale for Asperger Syndrome (Attwood, 1998), the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997), and a 3-point scale measuring their child's loneliness. The number of friends the child had was also recorded. Students aged 4-10 also completed the 3-point loneliness scale, and recorded how many friends they had. Students aged 11-17 were asked to complete the children's equivalent of the SDQ, as well as the Louvain Loneliness Scale for Children and Adolescents (Marcoen, Goossens, & Caes, 1987). Families completed parent and student questionnaires when they began the program and again at the end of the students' first and second terms in the program. Demographic information including any diagnoses was collected from program enrolment forms. Data from program instructors' handbooks regarding student goals and program adherence, and parent evaluation forms were also collected. Within and between group analyses will look at the questionnaire data pre- and post-program at the end of each term. Relationship between outcomes, demographics and program variables will be explored. How quickly and effectively individual goals are met and qualitative feedback data will also be explored. Findings will inform program development, and provide objective evidence as to the effectiveness of this social skills program.

An RCT investigating the effect of family centred music therapy on the social communication skills of preschool children with severe autism

Researchers: Grace Thompson
Supervisor Katrina McFerran-Skewes & Tony Wigram
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The use of music therapy to assist children with autism to develop social and communication skills stems back to the UK in the 1970's. Music therapists are trained to use music (which is by nature a non-verbal medium) to motivate, evoke and elicit responses and interactions from children with social and communication impairments such as autism. While the use of music therapy with children with autism has been widely described, the evidence has primarily taken the form of case studies.

This study is a mixed methods, wait-listed RCT with the child's routine care acting as the control. The study aims to identify whether the early social and communication skills of children with autism aged between 3 and 5 years are impacted on by participating in music therapy sessions with their parent (primary carer). The parent will be asked to continue the musical communication strategies between sessions. The main research questions to be addressed are:

Do young children with autism show observable and measurable changes in early social and communication skills in response to family centred music therapy?

Does the effectiveness of music therapy vary depending on the amount of between-session music activities provided by the child's parent?

What do parents of children with autism experience during music therapy sessions?

This presentation will outline the design of the study, describe the family centred context of the treatment sessions, describe the participants in the study (n=26) and present the measures used for data collection. Preliminary qualitative results will be informally presented. Quantitative results for this study will be available in 2011.

Poster Presentations

Friendships in adolescents and young adults: The role of personality characteristics, stress, depression and anxiety

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Friendship is important for an individual's development and well-being and has been shown to have both positive and negative impacts on individuals, including an increased risk for psychopathology. There has been very little investigation into friendships and psychopathology in populations who possess traits which resemble an ASD, that is, individuals within the broader autism phenotype (BAP). An examination of this population may provide further insights into the friendship difficulties found in those with ASD.

The aim of this study was to investigate relationships between the BAP, friendships and measures of empathy and psychopathology in young adults aged 18-25 years. Degree of autistic traits (BAP) was determined using the Autism Spectrum Quotient (AQ; Baron-Cohen, 2003). Participants completed anonymous, online questionnaires that included demographics, history of psychological disorders, the Friendship Questionnaire (Baron-Cohen & Wheelwright 2003), the AQ, the Empathy Quotient (EQ; Baron-Cohen, 2003); and the 21-item Depression, Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 1995).

Participants included 40 male and 82 female ($N = 122$) participants who were allocated to one of three AQ scoring groups which were compared on empathy, friendship outcomes and psychopathology. Those higher in Autistic characteristics experienced lower levels of empathy, poorer friendship outcomes and increased levels of psychopathology. The impact of gender was also examined with females found to score higher on empathy, friendship outcomes and lower for Autistic characteristics than males. Significant relationships were found between AQ scores, empathy, and friendship outcomes with psychopathology appearing to be unrelated to sex. Exploratory analyses revealed that those studying within a Science, Technology and Engineering discipline scored higher for Autistic characteristics than other disciplines. Those in a Humanities discipline scored higher for empathy. Examinations of the BAP population provide insight into friendship in those with differing degrees of Autistic characteristics and those with an ASD.

A novel comprehensive theory of mind (ToM) measure sensitive for detecting ToM impairments in children from early childhood to adolescence

Researchers: Carmel Sivaratnam & April Philpott
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Objective: The aim of this study was to develop a novel comprehensive theory of mind (ToM) measure which was sensitive for detecting ToM impairments in children from early childhood to adolescence.

Method: The younger sample comprised 12 children with autism spectrum disorder (ASD; $M=6.74$, $SD=1.50$ years) and 12 typically-developing controls (TDC; $M=7.10$, $SD=1.15$ years) aged 4-8 years and the older sample consisted of 12 children with ASD ($M=11.02$, $SD=1.54$ years) and 12 typically-developing controls ($M=11.89$, $SD=1.40$ years) aged 9-14 years. Participants were administered the novel comic strip task assessing understanding of *emotions*, *beliefs* and *intentions*, while parents completed questionnaires about the child's emotional and behavioural functioning. The older group completed an additional ToM task, namely, the Reading the Mind in the Eyes (Child version; RME).

Results: In the younger sample, the ASD group performed significantly worse than controls on the *intentions* subscale and overall on the novel task. It was found that in the younger ASD group, *emotions* and *intentions* understanding improved with age and that impairments in *intentions* correlated positively with parent-reported levels of social anxiety. It was found that older children with ASD performed worse on *beliefs* understanding, but better on *intentions* understanding, than controls and that poorer performance on *beliefs* scenarios was associated with poorer performance on the RME and higher parent-reported levels of social and behavioural problems. Further, older age was associated with poorer performance on *emotions* and *intentions*.

Conclusions: These findings have tangible implications for the contributions of not only age to improved mental-state understanding, but also for interventions aimed at improving ToM ability in young ASD populations. Findings suggest that in typically-developing older children, differences in cognitive and intuitive social-processing strategies could possibly account for variations in performance between groups. It is suggested that future studies develop the comic strip paradigm further, selecting the most sensitive items that specifically tap into theory of mind reasoning for use with each age group.

Poster Presentations

Stress and coping in parents of autistic children

Researchers: Joshua Whelan
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Parents of autistic children have been shown to have to deal with high levels of stress associated with caring for their child. How these parents choose to cope with this stress has been shown to be influenced by both their level of emotional functioning and the level of changeability of the situation they are facing.

The aim of the current study was to examine whether the changeability of a situation, and differing levels of depression, stress and/or anxiety influences a parent's choice of coping style. It was hypothesised that higher depression scores would predict higher scores in emotion-focused coping. It was also hypothesised that when faced with an unchangeable situation, parents of autistic children would score higher on emotion-focused coping strategies. However, when faced with a changeable situation, parents would score higher on problem-focused coping strategies.

130 parents of autistic children were recruited through autism related websites and asked to complete a battery of questionnaires online. This battery included the Depression, Anxiety and Stress Scale (Lovibond & Lovibond, 1995), and two sets of 16 questions taken from The Cope (Carver, Scheier and Weintraub, 1989), each set preceded by a description of either a changeable or unchangeable situation involving an autistic child.

A regression analysis found that, in a model also containing stress and anxiety, higher scores of depression significantly predicted lower scores of emotion-focused coping in a changeable situation. Depression also predicted lower levels of problem-focused coping in both types of situations. It was concluded that parents higher in depression were less likely to use to both problem-focused and emotion-focused coping strategies to deal with their levels of stress.

A one-way MANOVA was conducted and significant differences were found between coping styles used in changeable and unchangeable situations. Follow up simple effect analyses revealed a significant difference between changeable and unchangeable situations across both coping styles. Parents indicated that they would use more emotion-focused coping strategies in a situation deemed unchangeable, than they would in a changeable situation. Parents also reported they would use fewer problem-focused strategies in an unchangeable situation, than they would in a changeable situation. In conclusion, intervention programs may be improved by teaching parents of autistic children, particularly those high in depression, appropriate coping strategies to use in different types of stressful situations. Further research could highlight how effective these certain coping strategies are at alleviating stress.

Aspects of parenting a child with an autism spectrum disorder

Researcher: Monique Seymour
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Children with ASDs often exhibit more problematic behaviours than typically developing (TD) children and this has been found to be a significant contributor to parental stress and coping strategy use. Parents of children with ASDs have also been found to use coping strategies more often than parents of TD children. Certain types of coping strategies parents use are associated with greater levels of stress. However, little is known as to how fatigue impacts this relationship. Fatigue is known to be associated with stress in parents of TD children. Quantitative studies indicate parenting a child with an ASD is perceived as exhausting and fatiguing, yet little attention has been paid to the role that fatigue plays in parental stress in these parents.

The aim of the current study is to explore the relationship between child behaviour, parenting fatigue, coping strategies and parental stress. An existing model is adapted to include fatigue. A further aim is to investigate how fatigue, coping strategy use and stress differ between mothers and fathers of children with an ASD, and whether these variables are more problematic for parents of children with an ASD compared to TD children. Parents of children aged 2-5 years completed online or paper-and pencil questionnaires. Data for parents of TD children will be accessed through the PRC's 2008 Parent and Well-being survey. So far 60 parents of children with an ASD are included in the study. Analysis of variance and t-tests will be used to determine group difference on key independent and dependent variables, as well as demographic characteristics of the sample. Structural equation modelling will be used to test how fatigue fits into the transactional model of stress and coping. It is anticipated that the findings will have implications for identifying specific areas in which parents require additional support, and how fathers and mothers may differ in these areas.

Autism and the mysterious Golgi-casein kinase

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The molecular identity of the enzyme known as the Golgi-casein kinase or 'G-CK' is one of the biggest mysteries of cell biology. As a kinase, it functions to add phosphate groups to specific cellular proteins, a process known as phosphorylation. The enzymatic action of the G-CK is thought to regulate processing and secretion of many important cellular factors. However, despite massive biochemical- and bioinformatics-based searches by many research groups, its identity continues to remain elusive.

Strikingly, many of the known substrates for the G-CK are factors implicated in autism. Other substrates have roles in digestion and immune function. Therefore reduced G-GK activity may contribute to the co-morbidities associated with autism. Salivary peptides are also a substrate for the G-CK, and the first direct evidence for a role of the G-CK in autism was recently provided by a study which found hypo-phosphorylation of salivary peptides in 70% of patients with autism [Castagnola et al., 2008].

We are also attempting to solve the mystery of the G-CK, identify its substrates, determine how it is regulated, and elucidate its role in cellular secretion. These studies will be pivotal to our understanding of autism at the molecular level. We present data on the substrates of the G-CK and progress made towards identification of the molecular identity of this key enzyme.

Poster Presentations

Splice variation in autism spectrum disorder genes

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While 10% of autism spectrum disorders (ASDs) are due to *de novo* (new) genetic rearrangements, the majority of ASD cases are inherited, with heritability estimates of ~90% derived from twin studies. However, these data conceal some of the difficulties encountered in studies on ASD etiology. For example, variability in phenotype of ASD in monozygotic twins suggests that environmental factors can influence the severity of ASDs. Recent research has found differences in gene expression in monozygotic twins discordant for severity of ASD, processes typically regulated by epigenetic factors e.g. DNA methylation and histone modification. Furthermore, while most ASD studies have focused on mutations in *coding* sequences (i.e. exonic sequence) of genes, there is increasing evidence for a role of genetic changes in *non-coding* sequences in ASD etiology e.g. variations in intronic sequence.

Alternatively-spliced mRNAs can encode protein isoforms with different biological properties and/or regulate the function of isoforms. Alternate splicing and the stability of spliced mRNAs are also highly-regulated processes. Recent evidence indicates epigenetic mechanisms can regulate alternative splicing and that the stability of spliced transcripts is regulated, in turn (e.g. by cellular stress and during development). Indeed, many extra-cellular events regulate pre-mRNA splicing, and splicing of many neuronal genes is regulated in response to neuronal activity. Recent research indicates many neurological diseases are due to, or at least correlate with, defects in alternative splicing. Furthermore, defects in alternative splicing have been suggested to be the most frequent cause of hereditary disease in a number of studies.

We have used bioinformatics-based methods to identify and characterize splice variants of two genes recently implicated in ASD and mental retardation: the *Deleted-In-Autism-1 (DIA1)* gene and the *DIA1-related (DIA1R)* gene. We provide evidence that the shorter *DIA1* splice variant is expressed in brain, while the full-length *DIA1* gene is ubiquitously expressed. Expression in cultured cells further reveals differing sub-cellular localization. Our work provides evidence that splice variation plays an important role in the function of two genes implicated in ASD. These results indicate that mutations in non-coding regions need to be evaluated, not ignored, when examining ASD genetic profiles.

Autism and Turner Syndrome

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Turner syndrome (TS) is a relatively common genetic disorder, caused by X chromosome monosomy (i.e. females with only a single X chromosome) or other X chromosome defects. TS does not typically affect intellectual function or expressive verbal abilities, although it can be associated with reduced visual-spatial and executive skills, and demonstrable impairments in social skills. Overall, TS is associated with a substantially increased risk of ASD [Cresswell CS, Skuse DH, 1999]. Good and colleagues [2003] found that deletion of Xp11.3-11.4 is associated with the development of ASD-like symptoms in TS patients, including poor eye contact, poor recognition of facial expression, and impaired social skills. Deletion of this region was also associated with increased amygdala volumes in TS patients, to levels typically associated with normal males. Of note, many studies have also reported increased amygdala volumes in patients with ASD, but the phenomenon is not universal and the finding may be age-dependent [Ortiz-Mantilla S, 2010].

The current hypothesis for ASD development in TS patients based on genetic studies, is that a critical gene in the Xp11.3-11.4 region is expressed in two copies in normal (46,XX) females. Therefore, full dosage compensation does not occur in normal (46,XY) males, or in Turner syndrome females (45,X), resulting in the increased amygdala volume found in normal males and TS females [Good et al., 2003]. Good and co-workers further suggest that this unknown gene has implications for understanding autism etiology, and may contribute to the increased male susceptibility to ASD. The only known gene in this region *CASK*, cannot be a candidate. This is because *CASK* undergoes X-inactivation and expression would not be affected by X monosomy [Good et al., 2003].

We have identified a human gene, we call *DIA1R*, which fulfils the criteria for an ASD-etiological gene in TS patients: (i) it is located within the crucial Xp11.3-11.4 region; (ii) it escapes X-inactivation; and (iii) deletion has been associated with ASD-like syndromes in independent studies. We will present our data, and that of others, which together demonstrate that *DIA1R* is a candidate gene for ASD-like symptoms in TS patients.

