Dear Families,

Firstly, a big thank-you to all the families involved in our ongoing research. Over the past 6 months we have been out visiting families at home, and children at school, to carry out our research. So far over 45 families have had their blood samples collected for DNA analysis, and over 90 children and young adults with ASD have been assessed in school. At present, we are nearing completion of testing with the original group of families who joined the research project some years ago. We are moving forward now with testing the new families recruited since autumn 2007. We have started to send out consent forms and questionnaire packs to the new recruits, and those not yet received these will do so in the coming weeks.

Many of you will have met or spoken to one or more of our clinical researchers, and we thought we would take this opportunity to tell you a little bit more about the work we do, and also to introduce some members of the team who are working behind the scenes on the genetic analysis.

The Research Team

**Dr. Richard Anney** works in the genetics lab, where he examines whether fragments of DNA are more likely to be inherited to individuals with autism than by chance alone. Richard's work, as part of the AGP, looks at the DNA from many hundred individuals around the world with autism. By identifying pieces of DNA that are shared between many individuals with autism we can further understand what inherited factors are important in the development of autism.

**Dr. Nadia Bolshakova** is a Research Project Manager of the Autism Simplex Collection (TASC) and the Irish part of AGP. She is dealing with different aspects of the research projects such as tracking performance of the research sites, working with the database, preparing progress reports, arranging conference calls and meetings and monitoring our budgets.

**Sean Brennan** is currently working as a research assistant on the AGP and TASC projects. His work involves conversing with participants and conducting psychological assessments, including IQ and language tests. Each assessment is important as the information obtained links in with the genetic analysis and will help to show which behaviours and traits may have a partly genetic basis.

**Lynne Cochrane** is a final year PhD student working in the lab. She is currently investigating how changes in a gene called Integrin Alpha 4 affect the way the protein is made. She also investigates how small changes in the dopamine system in the brain could contribute to the development of autism.

**Dr. Miriam Law-Smith** is working on the AGP collecting the clinical and psychological information, mostly visiting the children in their schools to carry out the assessments. Miriam is also conducting research looking at how children with autism interpret facial expressions of emotion. Establishing how facial emotion skills relate to social and communicative problems is useful for developing targeted ways to treat these problems. Miriam is also running this experiment with parents and siblings of those with autism, to examine whether facial expression skills are heritable. This knowledge will help to inform future genetic research, and may also help develop screening techniques for at-risk individuals which are necessary for early intervention.

**Dr. Jane Sanders** is currently collecting blood samples from children with an autism spectrum disorder and their parents for the AGP and TASC projects. In addition, she is conducting a study with the siblings of children...
with autism, which may help inform future genetic studies. In July, Jane will moving on from AGP and starting a brain imaging project in Trinity College, in which she will scan a number of children with high functioning autism while they perform specific psychological tests. The purpose of this research is to improve our limited understanding of brain function, and neural connections in autism.

**Dr. Gillian Hughes** has joined the AGP and TASC projects as of the 1st of July 2008. She is a graduate of Trinity College, having completed her medical degree in 2003. She has worked in Psychiatry for the past 4 years. She will be taking over from Dr. Jane Sanders to continue the collection of blood samples from families in both the TASC and AGP projects.

**Dr. Norbert Skokauskas** works on the AGP where he is using questionnaires to examine the mental health difficulties, both in the person with autism and also in family members. All too often mental health difficulties are overlooked in autism. Norbert is interested to try to find better ways to detect and evaluate mental health difficulties with autism.

**Katherine Tansey** is a second year Ph.D. student working in the lab. She is interested in linking behavioural patterns found in autism to underlying genetic and biological components. If everyone with autism were in one room we would see a diverse expression of behaviours and symptoms, a phenomenon called ‘phenotypic heterogeneity’. This heterogeneity is a key hindrance to scientific advancements in understanding the genetic causes of autism. One approach is to separate out core behaviors into traits, e.g. rigid and repetitive behaviours, that may aid in finding genes responsible for those specific behaviors. Ultimately we will aim to identify risk genes and identify if there is a change in the way these genes are expressed in autism.

**Dr. Louise Gallagher** is principal investigator of the AGP and TASC programs. Involvement in these programs has grown out of the autism genetics research that she established with her colleagues in Trinity over the past 10 years. She has overall responsibility for the TASC program and, together with Prof Michael Gill at TCD and Prof Andrew Green and Dr. Sean Ennis at UCD, has responsibility for the AGP program. These programs involve enormous collaboration with the international members of the two programs and with the funding agencies that support the activity. Louise is also a Consultant Child and Adolescent Psychiatrist based in the HSE and the National Children’s Hospital in Tallaght where she is involved in the assessment of pre-school children with suspected autism.

**What is the difference between AGP and TASC?**
Many of you have asked about the difference between the two research programs, AGP and TASC:

- The International Multi-centre Autism Genome Project (AGP) is the biggest autism research project in the world, and aims to identify the genes contributing to autism spectrum disorder. Over 100 researchers at 15 different University sites in Europe, including Ireland, the United States and Canada are collaborating on this project.
- The Autism Simplex Collection (TASC) is a collection of medical information and genetic material, or DNA, from individuals with autism, as well as from their parents. The repository holding the genetic material is in Rutgers University, New Jersey in USA. 12 different University sites in Europe, including Ireland, the United States and Canada are collaborating on this project.

The two projects are related and the majority of families are participating in both studies. We will combine the information that is being gathered as part of the TASC program with genetic data to help us to identify genes that are contributing to the risk of developing autism.

**Important Research Findings**
To date our research findings have shed light on many potential genetic correlates of ASD, for example AGP research has identified submicroscopic rearrangements in the genome that may contribute to autism in subgroups of individuals (Nature Genetics, 2008) and a region on Chromosome 15 has been identified that may harbour genes for autism in individuals with autism and normal IQ (Biological Psychiatry, 2008) and a region on chromosome 11 has been shown to potentially harbour genes for
autism in individuals with delayed phrase speech (Biological Psychiatry, 2008). The above findings are just some brief examples of the important information our research is already yielding.

**Questionnaires**
Finally, we’d like to thank everyone who has completed the questionnaires. We understand that there are a lot to fill in, and that it is hard to fit in this around your busy lives. Each of the questionnaires is important for examining different aspects of autism behaviour, and for linking in this to the genetic analysis. If families are able to fill in these questionnaires in the coming months, this would be fantastic, as the information gained for the project is invaluable.

As this is an ongoing research project we are continuously looking for new recruits, so if you know of any other families that might be interested in taking part in this study, please feel free to pass on our details so that they can contact us for more information about this project.

We look forward to being in touch with you in the coming months.

Kind regards,

The Research Team

**Research Team Contact Information**

Dr. Miriam Law-Smith  
Dr. Jane Sanders  
Dr. Gillian Hughes  
Mr. Sean Brennan  
Tel.: (01) 896 2315  
Fax: (01) 896 3405  
E-mail: autismresearch@tcd.ie  
Web: www.medicine.tcd.ie/psychiatry/research/neuropsychiatry/autism  

For further information contact:  
Dr. Louise Gallagher (01) 896 2144 or lgallagh@tcd.ie  
Dr. Nadia Bolshakova (01) 896 2144 or bolshakn@tcd.ie