

## **PRESS RELEASE**

### **Genetic screening could identify children at risk of low IQ development**

Children with both a common gene variant and lower thyroid hormone levels, which occurs in approximately 4% of the population, are four times more likely to have a low IQ, according to research presented today at the Society for Endocrinology annual BES conference.

It is well established that thyroid hormones are essential for brain development in childhood. More recently, scientists have looked at a certain enzyme, called deiodonase-2, involved in processing thyroid hormones inside cells. A variant in the gene coding this enzyme has already been associated with key health outcomes including diabetes and high blood pressure, although the precise mechanism remains unclear.

In this study, researchers from Cardiff University and the University of Bristol examined the genetic data and thyroid function of 3,123 children aged 7 who also had their IQ tested, as part of the Avon Longitudinal Study of Parents and Children (ALSPAC). The researchers found that children with thyroid hormone levels in the lower part of the normal population range who also possessed this genetic variant were four times more likely to have an IQ under 85. This result stood true after taking into account various differences in environmental and socio-economic factors such as social class. Children with lower thyroid hormone levels alone did not have an increased risk of lower IQ, highlighting that without genetic analysis the population at risk could not be identified.

The study's results will need to be confirmed in other groups of children. "If other studies confirm our finding then there may be benefit in carrying out a genetic test for this gene variant in addition to the standard neonatal thyroid screening, which would identify children most at risk of developing low IQ," said lead researcher Dr Peter Taylor, from Cardiff University's School of Medicine. "Children with satisfactory thyroid hormone levels together with the genetic variant have normal IQ levels, which raises the possibility that children at risk could be treated with standard thyroid hormone tablets to compensate for impaired thyroid hormone processing," he said.

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## Notes for editors

1. For further information about the study please contact:

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2. The study *The Thr92Ala substitution in deiodonase-2 is associated with increased odds of a sub-optimal IQ score in children with low-normal thyroid function* will be presented by Dr Peter Taylor at the Society for Endocrinology's annual BES conference at 13:45 GMT on Monday 24 March 2014. The study has won The Clinical Endocrinology Trust Prize for top-scoring clinical abstract at BES 2014.
3. For other press enquiries, or copies of the abstract, please contact the Society for Endocrinology press office:  
  
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4. The Society for Endocrinology's annual BES conference is held at the ACC Liverpool from 24 - 27 March 2014. BES features some of the world's leading basic and clinical endocrinologists who present their work. Journalists wishing to attend should contact Omar Jamshed at the Society for Endocrinology press office.
5. The Society for Endocrinology is a UK-based membership organisation representing a global community of scientists, clinicians and nurses who work with hormones. Together we aim to improve public health by advancing endocrine education and research, and engaging wider audiences with the science of hormones. [www.endocrinology.org](http://www.endocrinology.org)