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Researchers identify gene variant associated with both autism and gastrointestinal dysfunction

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A study led by researchers at the University of Southern California (USC) and Vanderbilt University have identified a specific gene variant that links increased genetic risk for autism with gastrointestinal (GI) conditions.

The findings suggest that disrupted signaling of the MET gene may contribute to a syndrome that includes autism and co-occurring gastrointestinal dysfunction, says principal investigator Pat Levitt, Ph.D., director of the Zilkha Neurogenetic Institute at the Keck School of Medicine of USC and chair-designate of the Department of cell and neurobiology.

The study will appear in the March Issue of the journal *Pediatrics* and is now available online.

Autism is a developmental disorder characterized by deficits in communication abilities, social behavior disruption and inflexible behavior. While gastrointestinal conditions are common among individuals with autism, researchers have long debated whether co-occurring GI dysfunction represents a unique autism subgroup, Levitt and lead author Daniel Campbell, Ph.D., say.

"Gastrointestinal disorders don't cause autism. Autism is a disorder of brain development," Levitt says. "However, our study is the first to bring

together genetic risk for autism and co-occurring GI disorders in a way that provides a biologically plausible explanation for why they are seen together so often."

In the brain, the MET gene is expressed in developing circuits that are involved in social behavior and communication. Disturbances in MET expression result in alterations in how these critical circuits develop and mature, Levitt explains. Research indicates that MET also plays an important role in development and repair of the GI system.

Researchers analyzed medical history records from 214 families in the Autism Genetic Resource Exchange (AGRE). They found that a variant in the MET gene was associated with autism specifically in those families where an individual had co-occurring autism and a GI condition.

The study brings researchers closer to understanding the complex genetic risks for autism. However, further research is needed, as different combinations of genes are likely to result in different types of autism features, Levitt says.

"We believe that there are other genes that will help identify different subgroups of individuals who have autism spectrum disorder," he says. "We also believe that there needs to be research looking at whether the children with co-occurring GI dysfunction and autism have unique features that will help us predict what treatments will be best for them."

More information: Daniel B. Campbell, Timothy M. Buie, Harland Winter, Margaret Bauman, James S. Sutcliffe, James M. Perrin, Pat Levitt. "Distinct Genetic Risk Based on Association of MET in Families With Co-occurring Autism and Gastrointestinal Conditions." *Pediatrics*. Doi: 10.1542/peds.2008-0819.

Source: University of Southern California