

**MARKERS OF IRON STATUS AND METABOLISM IN CHILDREN WITH  
AUTISM SPECTRUM DISORDERS**

**Ancillary Pilot Data Proposal for: Diet and Nutrition in Children with Autism  
Spectrum Disorders: An Autism Treatment Network Collaborative Study**

**Abstract:**

The Autism Intervention Research Network on Physical Health (AIR-P) has funded a study to evaluate the nutritional status of children with autism spectrum disorders (ASD). One of the specific aims for the study is to evaluate iron intake, iron status and associated sleep disorders in children with ASD. There is preliminary data suggesting that children with ASD have a high rate of iron deficiency as measured by ferritin. Low ferritin has been associated with restless sleep, and both ferritin levels and restless sleep responded to iron treatment in one small study in children with ASD. The nutrition study will be collecting serum on participants who are also completing 3-day diet records and the Child Sleep Habits Questionnaire. The serum will be analyzed for ferritin and transferrin saturation. This pilot study would capitalize on this well characterized sample to evaluate novel markers of iron status and iron absorption. Major breakthroughs in understanding iron metabolism have occurred over the last several years. Biomarkers such as hepcidin and transferrin receptor have been found to play an important role in iron absorption and transport into red blood cells. These markers may help guide diagnosis and treatment of iron deficiency in children with ASD. If these markers are found to be helpful, they would be included in a study to evaluate iron therapy for restless leg syndrome in children with ASD. This protocol would also store serum and immortalized lymphoblasts as part of a biorepository in keeping with the Interagency Autism Coordinating Committee recommendations.