Presentation Title: Neurodevelopmental risk factors for Autism

Autism spectrum disorders (ASD) represent complex developmental syndromes of the central nervous system and most likely result from multiple etiologies with genetic and environmental contributions. Emerging evidence from epidemiologic, clinical, and preclinical studies indicates that environmental exposures, particularly those arising during the prenatal period and early childhood, may play important etiologic roles. We have evaluated relationships between prenatal environmental and early childhood factors and ASD in the Finnish Prenatal Study of Autism (FiPS-A), a large seroepidemiologic investigation based on a national birth cohort. This study is characterized by availability of over 1 million archived maternal serum specimens that have been drawn and stored in virtually all pregnancies in Finland since 1983, comprehensive national psychiatric registries, and other population databases. The total sample of ASD cases in this birth cohort is over 4,000. Using these unique resources, we have demonstrated novel associations between autism and several early gestational maternal biomarkers, including an indicator of inflammation, thyroid autoantibody, and DDE, a metabolite of the insecticide DDT. New findings on relationships between accelerated growth velocity of head circumference in the first year of life as an autism risk factor will be discussed. Moreover, novel data on other ASD risk factors to emerge from this cohort including interpregnancy interval and familial aggregation of neurodevelopmental disorders will be described. Finally, I will discuss new strategies aimed at improving our understanding of the specificity of risk factors for autism.