



UNIVERSITY OF MANITOBA'S  
THE VICTOR  
HAVLICEK MEMORIAL  
LECTURESHIP

The Ups and Downs of Autism  
Spectrum Disorder: Tracking  
the trajectories of autism in the  
Autism Phenome Project

SEMINAR & VISITING  
SPEAKER SERIES

DATE

Tuesday, May 7, 2019  
12:00 PM (noon)

LOCATION

Theatre B, BMSB, Bannatyne  
Campus

SPEAKER

David Amaral, Ph.D.

Distinguished Professor  
Department of Psychiatry & Behavioural Sciences  
and Center for Neuroscience, University of California,  
Davis  
CNPRC Core Scientist

OBJECTIVES

1. Gain an understanding of the biological and behavioral heterogeneity of autism spectrum disorder.
2. Become knowledgeable about the various developmental trajectories that can be followed by different children with autism spectrum disorder.
3. Understand how it is possible to carry out high quality neuroimaging in young children with neurodevelopmental disorders.

ABSTRACT

We are attempting to subdivide autism spectrum disorder into more homogeneous subtypes by recruiting a very large cohort of young children (2 - 3 1/2 years of age) into a comprehensive, multidisciplinary and longitudinal analysis of the features of autism. We have also enrolled age-matched typically developing children for comparison. To date, we have enrolled over 450 families into the Autism Phenome Project. In this talk, I will highlight some of the differences in brain development that we have discovered

and the behavioral consequences of the different developmental trajectories. I will also provide an overview of data that demonstrates difference in cognitive development in subsets of children with autism. I will also summarize initial findings on the trajectories of autism severity from recent, unpublished analyses. Finally, I will briefly summarize data demonstrating brain changes in children at risk for autism as early as 6 months of age. The goal of these studies is to understand the biological etiologies of different forms of autism which will hopefully lead to more targeted and effective treatments of their debilitating features.

BIO

Dr. Amaral was trained as a psychologist and neuroscientist. His research initially involved studies of the structure and function of the hippocampal formation and amygdaloid complex in the nonhuman primate and human. His expertise and research was initially in neuroanatomy, although for the last 20 years he has also carried out behavioral and neuroimaging studies in the rhesus monkey. Most of these studies have focused on analyses of memory, social behavior and emotion. As Research Director of the UC Davis MIND (Medical Investigation of Neurodevelopmental Disorders) Institute from 1998 to 2018, he has gained expertise in leading multidisciplinary scientific studies such as the Autism Phenome Project that has evaluated over 400 young children with autism and typical development. He is currently Director of the UC Davis Autism Center of Excellence.

Over the last 20 years, Dr. Amaral has also directed substantial effort to developing nonhuman primate models of neurodevelopmental disorders. His lab was the first to demonstrate that passive immunization of pregnant rhesus monkeys by human maternal antibodies of mothers who have given birth to children with autism leads to altered behavior in the rhesus monkey offspring. He also collaborated with Paul Patterson to demonstrate that maternal immune activation in monkeys, as in mice, also leads to altered behavior and brain development in offspring. His lab has extensive expertise in conducting neuroimaging of rhesus monkeys and have created the largest existing database of normative brain development data using longitudinal MRI analysis.

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