

Is autism a disease of the cerebellum? An integration of clinical and pre-clinical research.

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Abstract

Autism spectrum disorders are a group of neurodevelopmental disorders characterized by deficits in social skills and communication, stereotyped and repetitive behavior, and a range of deficits in cognitive function. While the etiology of autism is unknown, current research indicates that abnormalities of the cerebellum, now believed to be involved in cognitive function and the prefrontal cortex (PFC), are associated with autism. The current paper proposes that impaired cerebello-cortical circuitry could, at least in part, underlie autistic symptoms. The use of animal models that allow for manipulation of genetic and environmental influences are an effective means of elucidating both distal and proximal etiological factors in autism and their potential impact on cerebello-cortical circuitry. Some existing rodent models of autism, as well as some models not previously applied to the study of the disorder, display cerebellar and behavioral abnormalities that parallel those commonly seen in autistic patients. The novel findings produced from research utilizing rodent models could provide a better understanding of the neurochemical and behavioral impact of changes in cerebello-cortical circuitry in autism.
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