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The role of TAO2 in brain connectivity and autism spectrum disorders (TAO2).

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Autism spectrum disorders (ASDs) are neurodevelopmental disorders characterized by the disruption of an individual's capacity for social communication. Approximately 1% of individuals in Asia, North America and in Europe are afflicted with an ASD. Recent research has found that genetics play a very important role in ASD risk. The TAO2 project studies the TAO2 gene, which is either missing or duplicated in individuals afflicted with ASD. Collaborating with the Autism Sequencing Consortium, the project seeks to discover new mutations in the TAO2 gene which may cause ASD, in the hope of aiding the development of more accurate genetic ASD diagnoses. In addition, we will conduct cellular and molecular studies to better understand the normal functioning of TAO2 in the development of brain connections and will determine how the TAO2 mutations detected in ASD patients potentially contribute to abnormal brain connectivity. Specifically, the project examines the possibility that FMRI, another ASD-linked gene, controls TAO2 function. This could lead to the identification of a new genetic pathway in the brain and ultimately facilitate the discovery of pharmaceuticals that could ameliorate deficits observed in ASD patients.