

ENIGMA-TS: A worldwide platform for collaboration on the study of Tourette Syndrome genetics and neuroimaging

Peristera Paschou¹, on behalf of the ENIGMA-TS Working Group

¹ Department of Biological Sciences, Purdue University, West Lafayette IN, USA

Background:

To date, studies on Tourette Syndrome (TS) brain structure and function have been limited in size with efforts mostly fragmented across multiple sites. Efforts to integrate genetics and neuroimaging are only now beginning. At the same time, multiple international collaborative studies on the genetics and neuroimaging of TS are providing an opportunity for worldwide collaboration and large-scale studies that can lead to robust and reproducible results, providing insights into the neurobiology of TS.

Methods:

ENIGMA-TS brings together all major worldwide collaborative efforts on neuroimaging and genetics for TS and aims to integrate with equivalently large and already existing studies of highly comorbid OCD, ADHD, ASD, as well MDD, and Anxiety Disorders. We take advantage of access to data, resources and standardized pipelines from the ENIGMA (Enhancing Neuroimaging Genetics through Meta-Analysis) consortium and the Psychiatric Genomics Consortium (PGC). Already multiple sites have begun to work on merging together neuroimaging datasets and our first goal for joint analysis will include a study of cortical and subcortical neuroanatomical signatures for more than 1,000 patients with TS and equal number of controls.

Results and Conclusions:

Our work will help close major gaps in understanding brain structure and function in TS and elucidate the etiological correlations between TS and its frequently comorbid disorders. Our efforts will lead closer to novel and improved management approaches and help identify biomarkers to tailor individualized therapies.