CSABA BARTA

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RESEARCH AREA

The main research field of our laboratory is psychogenetics. Within these we study the genetic and epigenetic background of a number of child psychiatric disorders, so called neurodevelopmental conditions (such as Tourette syndrome, attention deficit, hyperactivity disorder /ADHD/, obsessive-compulsive disorder /OCD/) using molecular biological techniques and bioinformatic analyses. The other main research area of our group is the genetic study of different addictions. We study genetic variation associated with both substance use and dependence, as well as behavioral addictions, such as internet use, gambling, gaming, etc.) The functional role of the studied genetic variants is investigated in cell cultures derived from neural tissue, and also in some animal models (C. elegans and rodents). Apart from the above we currently have genetic and epigenetic studies on infant behavior (regulational disorder), as well as the link between type 2 diabetes and certain insulin signaling related mental disorders.

TECHNIQUES AVAILABLE IN THE LAB

nucleic acid extraction (DNA, RNA)
conventional PCR and real-time PCR techniques, Open Array
epigenetic methods (DNA methylation microRNA)
tissue culture, reporter assays
bioinformatic analyses
occasionally C. elegans studies

SELECTED PUBLICATIONS

Cross-Disorder Group of the Psychiatric Genomics Consortium (a total of 606 authors, incl. **Barta C**). (2019) Genomic Relationships, Novel Loci, and Pleiotropic Mechanisms across Eight Psychiatric Disorders. **Cell 179:** 1469-1482. e11.

Pagliaroli, L., Vereczkei, A., Padmanabhuni, S.S., Tárnok Zs., Farkas, L., Nagy, P., Rizzo, R., Wolanczyk, T., Szymanska, U., Kapisyzi, M., Basha, E., Koumoula, A., Androutsos, C., Tsironi, V., Karagiannidis, I., Paschou P., and **Barta, C.** (2020) Association of genetic variation in the 3'UTR of LHX6, IMMP2L and AADAC with Tourette Syndrome. **Front Neurol 11:** 803.

Pagliaroli, L., Fothi, A., Nespoli, E., Liko, I., Veto, B., Devay, P., Szeri, F., Hengerer, B., **Barta, C.,** Aranyi, T. (2021) Riluzole Administration to Rats with Levodopa-Induced Dyskinesia Leads to Loss of DNA Methylation in Neuronal Genes. **Cells 10:** 1442.

Yang, Z., Wu, H., Lee, P.H., Tsetsos, F., Davis, L.K., Yu, D., Lee, S.H., Dalsgaard, S., Haavik, J., **Barta, C.,** Zayats, T., Eapen, V., Wray, N.R., Devlin, B., Daly, M., Neale, B., Børglum, A.D., Crowley, J.J., Scharf, J., Mathews, C.A., Faraone, S.V., Franke, B., Mattheisen, M., Smoller, J.W., Paschou, P. (2021) Investigating Shared Genetic Basis Across Tourette Syndrome and Comorbid Neurodevelopmental Disorders Along the Impulsivity-Compulsivity Spectrum. **Biol Psychiatry 90:** 317-327.

Vereczkei, A., **Barta, C.,** Magi, A., Farkas, J., Eisinger, A., Király, O., Belik, A., Griffiths, M.D., Szekely, A., Sasvári-Székely, M., Urbán, R., Potenza, M.N., Badgaiyan, R.D., Blum, K., Demetrovics, Z., Kotyuk, E. (2022) FOXN3 and GDNF Polymorphisms as Common Genetic Factors of Substance Use and Addictive Behaviors. **J Pers Med 12:** 690.