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Interaction between MAOA and FOXP2 in association with autism and verbal communication in a Korean population.

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Abstract

Expression levels of monoamine oxidase A (MAOA), the enzyme that related to monoamine neurotransmitters metabolism such as serotonin, are related to schizophrenia and autism spectrum disorder. Forkhead box protein P2 (FOXP2), a transcription factor, is associated with abnormal language development and is expressed in several areas of the central nervous system in response to serotonin. For this reason, we undertook interaction analysis between MAOA and FOXP2 in autism spectrum disorder, including testing the verbal communication score of the childhood autism rating scale. In interaction analysis, the FOXP2-TCGC (rs12531289-rs1350135-rs10230087-rs2061183) diplotype and MAOA-TCG (rs6323-rs1801291-rs3027407) haplotype were significantly associated with autism spectrum disorder in males. However, when the interaction term was omitted, neither MAOA nor FOXP2 was associated with autism spectrum disorder or verbal communication. These results indicate that language and speech ability is affected by an interaction between FOXP2 and MAOA, but not by either gene separately.

KEYWORDS: FOXP2; MAOA; autism spectrum disorder

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