Abstract: Transporter-assisted uptake of serotonin (5-HT) and dopamine (DA) has been accounted for activities in human behavior or mental status, because they are the sites of action of widely used antidepressant and psychoactive drugs. Both the human serotonin transporter (5-HTT) and human dopamine transporter (DAT1) genes are good candidates for etiological involvement in various psychiatric conditions. The serotonin transporter gene has two types of functional polymorphisms. One is serotonin transporter linked polymorphic region (5-HTTLPR) consisting of length variation of the repetitive sequence containing 20–23-bp-long repeat elements in the 5'-upstream region of the gene. Another polymorphism is that serotonin transporter variable number of tandem repeats (5-HTTVNTR) in its second intron. Both polymorphisms affect the transcription ratio of 5-HTT gene and may modify neuronal transmission by changing its protein expression. On the other hand, DAT1 gene has a variable number of tandem repeats type polymorphism (DAT1VNTR) in the 3'-untranslated region of the mRNA, which was also reported to change its gene expression. So polymorphic variations of transporters would change the behavioral and neuropathological tendency. Here, the feature of those two transporters and their relations to psychiatric disorders are described.

Keywords: human serotonin transporter (5-HTT), human dopamine transporter (DAT1), functional polymorphism, association study, psychiatric disorders
The monoamine transporters and mental disorders

presynaptic

postsynaptic
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