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Association of C/T polymorphism in intron 14 of the dopamine transporter gene (rs40184) with major depression in a northeastern Thai population

N. Pattarachotanant[1], T. Sritharathikhun[2], S. Suttirat[3] and T. Tencomnao[4]

[1]Graduate Program in Clinical Biochemistry and Molecular Medicine, Department of Clinical Chemistry, Faculty of Allied Health Sciences, Chulalongkorn University, Bangkok, Thailand
[2]Loei Rajanagarindra Psychiatric Hospital, Loei, Thailand
[3]Faculty of Medical Technology, Huachiew Chalermprakiet University, Samut Prakan, Thailand
[4]Center for Excellence in Omics-Nano Medical Technology Development Project, Department of Clinical Chemistry, Faculty of Allied Health Sciences, Chulalongkorn University, Bangkok, Thailand

Corresponding author: T. Tencomnao
Email: tewin.t@chula.ac.th

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ABSTRACT. Several lines of evidence suggest that the dopaminergic system is involved in the pathophysiology of major depressive disorder (MDD). Since the dopamine transporter (DAT1, also known as SLC6A3), mediates the active reuptake of dopamine from the synapses and thereby plays a vital role in the regulation of dopaminergic neurotransmission, we looked for a possible association between the C/T single nucleotide polymorphism in intron 14 of the *DAT1* gene (also referred to as rs40184) and MDD in a northeastern Thai population. One hundred and seventy-eight patients with MDD and 205 unrelated healthy controls were included in our study. Genotyping was performed using our newly established

polymerase chain reaction-restriction fragment length polymorphism technique. We found no significant differences in genotype distributions, allele frequencies and allele carrier frequencies when comparing the two groups. Although not significant, we observed more carriers of the C allele (CC+CT genotypes) in healthy controls than in patients with MDD (χ^2 = 3.20, degrees of freedom = 1, P = 0.073, odds ratio = 0.53 [95% confidence interval = 0.28-1.01]). We also detected significant differences in the allele frequencies of rs40184 between healthy subjects of Asian ancestry and those of both Caucasian and African ancestry. We concluded that there is a tendency towards an association between the homozygous TT genotype of the rs40184 single nucleotide polymorphism and an increased risk for MDD in this northeastern Thai population. Possibly, with more samples, this tendency will be confirmed.

Key words: Major depressive disorder; Association study; *DAT1*; rs40184; Single nucleotide polymorphism; Thai population

