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# rs3827440, a nonsynonymous single nucleotide polymorphism within GPR174 gene in X chromosome, is associated with Graves' disease in Polish Caucasian population.

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## Abstract

Recently Chu et al. conducted a two-stage genome wide association study in Chinese that identified a novel X-linked Graves' disease (GD) susceptibility marker at rs3827440 - a nonsynonymous (P162S) nucleotide transition (519C<T) within G protein-coupled receptor 174 (GPR174) gene. We aimed to replicate this finding in Caucasians. Using the TaqMan approach we typed rs3827440 in 560 GD patients from Warsaw and 196 patients from Gliwice as well as ethically matched controls (N = 748, N = 198, respectively). We found an association of the rs3827440 T allele with GD using both an allelic and genotype comparison [odds ratio (OR) = 1.19, 95% confidence interval (CI): 1.03-1.38, P = 0.021; OR=1.32, 95% CI: 1.03-1.69, P = 0.03, respectively]. There was no difference in distribution of rs3827440 alleles/genotypes vs gender, tobacco smoking, ophthalmopathy or age at disease onset. Also, no statistically significant differences were observed after stratifying patients for DRB1*03- or GD-associated variants in CTLA4 or TSHR genes. Our study provides the first replication in a Caucasian population of the association between GD and rs3827440 originally reported among Chinese. Our results also validate statistical methodology used by Chu et al. to detect associations with X-linked markers.