AIMS: The toll-like receptor 4 (TLR4) is predominantly known for its role as an important mediator of immune reactions and has been implicated in the initiation, progression, and plaque destabilization stages of atherosclerosis. We investigated whether genotypes and haplotypes of the 896A/G (Asp299Gly; rs4986790) and 1196C/T (Thr399Ile; rs4986791) single nucleotide polymorphisms of the gene encoding the TLR4 were associated with myocardial infarction (MI) in a large Caucasian sample.

METHODS AND RESULTS: The case group included 3657 patients with MI and the control group comprised 1211 individuals with angiographically normal coronary arteries and without signs or symptoms of MI. Genotypes were determined with the use of TaqMan assays. Genotype distributions of the 896A/G and 1196C/T polymorphisms were not significantly different between the control and patient groups (P> or =0.30). The frequencies of haplotypes defined by the 896A/G and 1196C/T polymorphisms were similar between the control group and the patient group (P> or =0.16). In addition, the distributions of haplotype-defined genotypes (diplotypes) were not significantly different between the control group and the patient group (P> or =0.12). Separate analyses in women and men did not reveal sex-related associations of specific genotypes or haplotypes of the polymorphisms with MI (P> or =0.11).
CONCLUSION: The results indicate that the 896A/G and 1196C/T polymorphisms of the TLR4 gene or haplotypes based on these polymorphisms are not associated with MI.