PURPOSE: To identify if an association exists between the leucine 7 (Leu7) to proline 7 (Pro7) polymorphism located in the signal peptide of the preproneuropeptide Y (preproNPY) gene and restenosis after coronary stenting. The Pro7 allele of the preproNPY gene affects the plasma levels of human neuropeptide Y, a potent mitogen of vascular smooth muscle cells.

METHODS: A population of 1850 consecutive patients with symptomatic coronary artery disease undergoing coronary stent implantation was enrolled in a study that featured angiography at 6 months and genotype determination. The primary endpoint was angiographically documented restenosis (> or =50% diameter stenosis) at 6 months. The secondary endpoint was the clinical outcome at 1 year (death, myocardial infarction, target vessel revascularization). Genotyping was based on the polymerase chain reaction with fluorescent allele-specific oligonucleotide probes (TaqMan method).

RESULTS: The carrier frequency of the rare Pro7 allele was 6.2%. Baseline, lesion-related, angiographic, and procedural parameters were similar in the patients with the Leu7/Leu7 genotype and carriers of the Pro7 allele (i.e., subjects with genotype Leu7/Pro7 or Pro7/Pro7). Restenosis rates at 6 months did not differ significantly between the groups (33% versus 30%, p=0.54). In addition, no
relationship of the polymorphism with the clinical outcomes at 1 year was observed. CONCLUSION: Our results suggest that the Leu7 to Pro7 polymorphism of the preproNPY gene is not associated with angiographic restenosis or adverse clinical events after stent placement in coronary arteries.