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## PCSK9: A new hope for patients with coronary artery diseases

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**Introduction:** PCSK9 is a serine protease acts by reducing the amount of Low-density lipoprotein (LDL) receptor protein. Mutations of PCSK9 are associated either with hypercholesterolemia or with hypocholesterolemia. In the latter case, the incidence of coronary heart disease is reduced, thereby demonstrating that low LDL cholesterol levels from birth are highly beneficial. PCSK9 promotes the degradation of the LDL receptor in hepatocytes apparently both intracellularly and by being a secreted protein that can bind the LDL receptor and be internalized. By the virtue of its role as a major inhibitor of the LDL receptor, PCSK9 is a promising therapeutic target. There are no reports available on the differential expression of PCSK9 in circulating levels in patients with Coronary artery diseases. We here report the differential expressions at circulating levels of the candidate genes, PCSK9 gene at protein and mRNA levels in coronary artery disease patients and healthy controls. The objective is further extended to study the genetic polymorphisms of the PCSK9 gene in patients with coronary artery disease in Asian Indian context.

**Methodology:** Study Population: Study population is comprised of two groups –CAD (N=300) and age and sex-matched controls (N=300). CAD patients (N=300) recruited from the Department of Cardiology, AIIMS. Significant CAD can be defined as at least one major epicardial vessels with >70% stenosis, assessed by coronary angiography. Genotyping was carried out using the PCR-RFLP method. Real-time PCR analysis and western blot were carried out for PCSK9 gene and protein expression.

**Result and Conclusion:** The expression of mRNA for the PCSK9 gene in the patient group was 85% less than that of controls. The integrated densitometric value (IDV) for PCSK9 protein was found to be 40.5% lower in patients as compared to the controls. This could be attributed to loss-of-function mutation of a PCSK9 gene which leads to higher levels of the LDL receptor, lowering LDL cholesterol levels, and providing a protective role in coronary artery disease.

### Biography

Kamna Srivastava did her B.Pharm, M.Pharm and PhD from Department of Pharmaceutics, Institute of Technology, Banaras Hindu University, India. She held her Post-Doctoral positions in National Institute of Immunology; All India Institute of Medical Sciences, New Delhi. Presently, she is an Assistant Professor working in the Molecular Cardiology Lab in Dr B R Ambedkar Centre for Biomedical Research, Delhi University. Her on-going project is focused on the identifying the potential biomarkers for cardiovascular diseases. She has more than 30 research publications to her credit and recipient of grants from DST, CSIR and ICMR India.

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