**Association of Catalase gene polymorphisms with catalase activity and susceptibility to Systemic Lupus Erythematosus-Suez Canal Area-Egypt.**

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**Source**

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**Abstract**

The present study evaluated the relationship of genetic variants in both promoter (-262 C/T) and in exonic (389 C/T) regions of the catalase (CAT) gene to CAT activity and risk of systemic lupus erythematosus (SLE) in Suez Canal-area patients. CAT gene polymorphisms were assessed by using polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP). CAT activity was measured by using a spectrophotometer. We compared the frequencies of CAT 389 C/T and -262 C/T polymorphic variants between SLE patients (n = 103) and healthy controls (n = 103). CAT 389 C/T is associated with SLE susceptibility, with the T allele being significantly more frequent among SLE patients than healthy controls. There was no association, however, between CAT activity and genotypes of 389 C/T. We did not observe significant differences in the prevalence of CAT -262 C/T polymorphic variants in SLE patients and controls, however, we found that patients with the CAT -262 CT and TT genotypes had low CAT activity, and these genotypes showed a significant association with thrombocytopaenia, leukopaenia and the presence of anti-snRNP in SLE patients. In conclusion, the present study supports the notion of in vivo oxidative stress in SLE as indicated by the decrease in CAT activity. The allelic variations in the CAT gene -262 are more likely to affect the expression or the function of the enzyme. Since CAT may be pathogenetically linked to SLE, and owing to its free-radical origin, it appears reasonable to target lipid peroxidation by dietary and/or pharmacological antioxidants.