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**Potential Role of the PPAR- γ -2 Pro12Ala Polymorphism in
Coronary Artery Disease**

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Nikhil Shukla and Shuka Moshiri
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Dear Founding Editors,

You will find attached an original manuscript entitled, "Potential Role of the PPAR- γ -2 Pro12Ala Polymorphism in Coronary Artery Disease," that I would like you to consider for publication as a **Research Article** in *Science Link*. This work was completed at the University of Tennessee Health Science Center, Memphis, TN while I was a student at White Station High School. No portion of this research has ever been published in another undergraduate science journal.

The work in this manuscript was done under the guidance of Dr. Charles R. Yates, and gives light to a possible link between a single nucleotide polymorphism (SNP) in the PPAR- γ -2 gene and risk for Coronary Artery disease. Therefore, this manuscript would be of interest to the Washington University scientific community with its applications in a rapidly area of medical research.

Sincerely,

Nikhil Shukla

Abstract

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2 Many factors, both genetic and external, contribute to the development of coronary
3 artery disease (CAD). Recent evidence shows that in certain foam cells of
4 atherosclerotic lesions in coronary arteries, the peroxisome proliferator-activated
5 receptor- γ -2 (PPAR- γ -2) is highly expressed. PPAR- γ -2 is a transcription factor
6 involved in glucose and lipid metabolism as well as inflammatory response. A common
7 Pro12Ala polymorphism in the PPAR- γ -2 gene has been extensively studied for its
8 relationship with type 2 diabetes. However, this particular polymorphism has not been
9 studied for its relationship with CAD. The purpose of this study, therefore, was to
10 determine if there is a relationship between the Pro12Ala polymorphism in PPAR- γ -2
11 and susceptibility to CAD. The PPAR- γ -2 gene was genotyped in an array of patients
12 using the relatively new technique, real-time polymerase chain reaction (PCR).
13 Genomic DNA samples were obtained from Caucasian patients (n = 259) and African-
14 American patients (n = 130) who had undergone a coronary artery bypass grafting
15 (CABG). The genotyping results obtained from the CABG patients were compared to
16 Caucasian healthy controls (n = 94) and African-American healthy controls (n = 124).
17 Analysis of the genotypes of the Caucasian CABG patients showed that the frequency
18 of the Ala/Ala mutant allele was unusually high, thus creating Hardy-Weinberg
19 disequilibrium. The genotypes of the Caucasian healthy controls, African American
20 CABG patients, and African-American healthy controls were all within the Hardy-
21 Weinberg equilibrium. Thus, this study shows that the mutant form of the PPAR- γ -2
22 Pro12Ala polymorphism plays a potential role in the susceptibility to coronary artery
23 disease.

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Abstract

Introduction

Materials and Methods

Results

Discussion

Conclusions

Acknowledgements

References

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