



**CALIFORNIA SCIENCE & ENGINEERING FAIR
2019 PROJECT SUMMARY**

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| Name(s) Omer Randhawa | Project Number S1219 |
| Project Title Impact of APOE Gene on Alzheimer's Gender Discrepancy | |
| Abstract Objectives The objective of this project is to find the genetic reason for the higher incidence of Alzheimer's in women using bioinformatics. Methods Access to computer and bioinformatics(OMIM) database Throughout the project, the various SNPs and proteins were found through the use bioinformatics. Results Through rigorous research, it was discovered that the A117T SNP had the greatest impact on the SNP gene. Other SNPs such as R50C and P102R have a greater impact on the APOE gene(-3.34 and -2.65) however, they do not cause a missense mutation in the protein. To find the correct SNP, I had to search through over 1,500 SNPs related APOE mutation, 500 of which were missense mutations. In addition to this, the SNP has more effect on the female mitochondria than males. The less mitochondrial activity of the woman causes more senile plaques to accumulate. Senile plaques are the cause of AD. Conclusions This project successfully determined the primary SNP which causes a higher incidence of AD in women than men. Despite the useful information discovered in this project, access to a lab would be make the project s conclusion stronger. | |
| Summary Statement This project aimed to identify the main factors which caused a higher diagnosis rate of AD in women than men. | |
| Help Received None | |