



**CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY**

Name(s) Noa E. Dahan	Project Number 36494
Project Title Identification of MDM2 as a Novel Antiapoptotic Factor in Grade IV Astrocytoma	
Abstract Objectives/Goals The main objective of this research consists in identifying a potential novel antiapoptotic factor in Grade IV Astrocytoma. Methods/Materials TCGA database, Jmol, Genecards database, RCSB Protein Data Bank. Studied the function interaction, amplification/mutation/deletion and molecular structure of several genes and proteins in Grade IV Astrocytoma. Results E3 Ubiquitin-Ligase protein MDM2 was found to be significantly overexpressed in the tumorous cells. The gene was found to negatively regulate the tumor suppressor P53, and multiple Ribosomal units as well as apoptotic enzymes, such as CASP3, and was therefore identified as an antiapoptotic factor in Grade IV Astrocytoma. Conclusions/Discussion The data acquired throughout the course of this research successfully established MDM2 as a novel antiapoptotic factor in Grade IV Astrocytoma. Indeed, MDM2 emerged as a promising target in the treatment of Glioblastomas. Targeting this gene could therefore significantly reduce the proliferation of one of the most lethal intracranial brain tumors in humans, today. As a result, I believe that this study most remarkably contributes to the development of research in this field. Apoptosis as a way of treating cancer could revolutionize the way scientists approach cancer treatment today, for it potentially could become a more powerful, efficient and yet cheaper alternative to actual cancer treatments.	
Summary Statement Using means of bioinformatics and data analysis, I discovered that E3 Ubiquitin-Protein Ligase MDM2 is an Antiapoptotic factor in Grade IV Astrocytoma and therefore accounts for the tumor's uncontrolled, malignant proliferation.	
Help Received I have been consulting with Mrs. Amy Rommel. PhD research associate at the San Diego Salk Institute, laboratory of Genetics. However, due to age restrictions I have not been able to directly access most lab facilities.	