



**CALIFORNIA STATE SCIENCE FAIR  
2016 PROJECT SUMMARY**

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<b>Project Title</b> Pharmacogenetics, Informatics, and Prescription Change	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective of this to determine if phamacogenetics and informatics could help doctors to more accurately prescribe the correct medication and also help them determine the most effective dosage a patient needs.</p> <p><b>Methods/Materials</b> I used data on the drug Carvedilol from the pharmacogenetics website PharmGKB(www.pharmgkb.org) and data results from Drug Metabolizing Enzyme(DME) Genotype Panels collected during a study done by Renaissance RX. I also did a great deal of research after obtaining the results to understand why so few doctors use phamacogenetics in their practice of medicine.</p> <p><b>Results</b> My results from the data showed that 78% pf the patients in my experiment should change their medication or dosage. This dramatic result proves that doctors would greatly improve their prescribing accuracy if they used a simple DME Genotype mouth swab test and performed the analysis I did with each patient.</p> <p><b>Conclusions/Discussion</b> With this data I was able to calculate and analyze which patients should remain on Carvedilol, which should not be on the drug, and which should change to another drug. The results of this study is extremely important for doctors to know as they can do a much better job when they prescribe a new drug to a patient. I also found that most doctors do not know enough about pharmacogenetics or are not using DME Genotype panels because they don't know enough about the subject. I would like to bring more awareness about this subject to doctors, their patients and the world. I am hopeful that one day soon all babies will receive phamacogenetic testing at birth and doctors will use the information obtained from this testing to provide personalized medicine to all of their patients.</p>	
<b>Summary Statement</b> I showed that doctors could dramatically improve the accuracy of prescribing the correct medication and dosage if they take the time to practice personalized medicine by using pharmacogenetics.	
<b>Help Received</b> My father who is a Cardiologist let me use the data from a DME Genotype panel study that was done by Renaissance RX at his Office. He also answered questions regarding variations in drug response.	