



**CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY**

Name(s) Taekyeong Jeong	Project Number J0509
Project Title In What Ratio Are Genes Passed On?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of this study is to determine the ratio of how genes are passed on and how often they physically appear in the offspring.</p> <p>Methods/Materials Wild type male <i>C. elegans</i> (roundworm), <i>unc-3</i> mutated hermaphrodite <i>C. elegans</i>, <i>rol-6</i> mutated hermaphrodite <i>C. elegans</i>, petri dish with NGM culture media, dissecting microscope, picker, incubator. Bred male wild type worms with a mutated hermaphrodite worm, counted phenotypes of offspring, allowed hermaphrodite offspring to self-fertilize, and counted phenotypes of the second generation of offspring. Conducted twice, once with <i>unc-3</i> mutation and once with <i>rol-6</i> mutation.</p> <p>Results The first generation of the <i>unc-3</i> mutated hermaphrodites' offspring all showed wild type phenotypes, and the second generation showed a 1:3 phenotypic ratio of <i>unc-3</i> to wild type. The first generation of the <i>rol-6</i> mutated hermaphrodites' offspring all showed <i>rol-6</i> phenotypes, and the second generation showed a 3:1 phenotypic ratio of <i>rol-6</i> to wild type.</p> <p>Conclusions/Discussion The <i>unc-3</i> mutation is recessive, while the <i>rol-6</i> mutation is dominant, and it is possible to find the characteristics (dominance or recessiveness) of a gene through the phenotypes of heterozygotes with those genes.</p>	
Summary Statement I conducted an experiment to find a pattern of how genes are passed.	
Help Received I used lab equipment in Rothman Lab in University of California, Santa Barbara under the supervision of Dr. Jeong.	