



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Gavin Y. Tse	Project Number J1436
Project Title Wry E. Coli	
Abstract Objectives/Goals The objective is to determine whether E. Coli is magnetic like other magnetotactic bacteria. The hypothesis is that E. Coli is magnetic and that the bacteria concentration will increase as the distance toward the magnet decreases. Methods/Materials E. Coli was placed in a clear plastic container filled with normal saline solution. A magnet was placed adjacent to the container. Using a dropper, samples of the bacteria in normal saline solution were taken at distances of 0 mm, 3 mm, 6 mm, 9 mm, and 12 mm and placed on slides. The slides were then dried and stained before being examined under a microscope. This process was repeated five times. The slides were analyzed with a semi-quantitative system of ratings from one to ten (one being the least concentration of bacteria and ten being the most). Results As the bacteria were analyzed, the ratings were as follows: 0 mm was 6.67, 3 mm was 5.50, 6 mm was 4.83, 9 mm was 4.33, and 12 mm was 4.00. The bacteria concentration increased as the distance from the magnet decreased. Conclusions/Discussion The hypothesis supported the results. In the future, since E. Coli is magnetic, doctors could possibly localize E. Coli to a certain part of the body then apply treatment to only that part. If other harmful bacteria are also magnetic, doctors could do this to prevent other harmful diseases too.	
Summary Statement This project tests the effect of Magnetism on E. Coli.	
Help Received Dr. W. Chick lent me a powerful microscope and reviewed my report; Uncle Jack answered questions on magnets; Dr. E.Tse gave me an overall idea for the project.	