



**CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY**

Name(s) Michelle H. Park	Project Number 34687
Project Title Phytohormone Indoleacetic Acid: A Natural Cure for Fungal Infections of the Human Scalp?	
Abstract Objectives/Goals Recent research reveals that select phytohormones seem to have significant antibacterial properties and cause plant resistance to fungal disease, but little light is shown on the details of this phenomenon. Meanwhile, fungal infections of the scalp continue to afflict humans worldwide, causing conditions such as Tinea capitis, folliculitis (and subsequently hair loss), and even dandruff. Thus, the objective of this experiment was to determine if the phytohormone indoleacetic acid (IAA) has any inhibitory effects on fungal cultures grown from dandruff samples. My hypothesis was that the petri dishes treated with the highest concentration of indoleacetic acid would show the least amount of fungal growth. Methods/Materials In this experiment, petri dishes with samples of fungi procured from dandruff samples were cultured with filter discs soaked in differing concentrations of IAA. After three days of incubation, percent area of fungal growth was calculated. Results My hypothesis was annulled by the results of the experiment, which showed that indoleacetic acid (IAA) promoted rather than inhibited fungal growth as concentration increased. As its concentration increased, IAA drastically promoted rather than inhibited fungal growth. Fungal plates treated with the highest concentration of IAA (500 micromolar IAA) showed an average of 295% more growth than fungal plates treated with distilled water (0 micromolar IAA). Conclusions/Discussion These findings are significant in contributing to the argument against the antifungal properties of phytohormones and instead attributing fungal resistance of plants to the plant health-promoting aspects of indoleacetic acid rather than direct fungal inhibition. Data from this research also reveals a deeper role of chemical communication between plant-fungal interactions.	
Summary Statement This project's focus was to investigate the potential of indoleacetic acid as an inhibitor of dandruff-derived fungal growth.	
Help Received Mother helped glue together display board; Mrs. Ramirez-De La Cruz answered questions about science fair.	