



**CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY**

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| Name(s) Andres Avina Barajas; Hawi Z Desta; Cesar A. Peralta | Project Number J1502 |
| Project Title Can Bacteria Predict the Effects of Music on the Human Brain? | |
| <p style="text-align: center;">Abstract</p> <p>Objectives/Goals Our objective was to determine whether selected genres of music's effect on bacterial growth correlated with the extensive research of music's effect on human concentration in order to create a bacterial assay for the effect of different types of music on humans.</p> <p>Methods/Materials We created a bacterial stock in one plate and used that stock to seed all the other plates. We collected the bacteria from door knobs, water fountains, and table tops and mixed it together in one agar plate. The temperature was controlled using a table top incubator. The bacteria grew for four days. The samples were grown in triplicate to make sure of reproducibility. We quantified the bacteria by using a grid and counting the squares with no growth.</p> <p>Results The bacteria that grew to classical music had the most growth, while the bacteria that grew to hip-hop was in the middle, and the bacteria that grew with rock music had the least growth. This confirmed our hypothesis that certain music does affect bacterial growth in a similar way to how it affects concentration.</p> <p>Conclusions/Discussion We drew the conclusion that classical music is the genre to which the bacteria grows the best. This correlates with previous known studies that classical music helps concentration while rock music is a distraction. Once we found that the data was consistent with previous work, we thought this could be an assay to test the effects of other types of music on concentration rather than using human beings. An additional theory is that if all cell growth and development is the same (that is, bacterial cells and brain cells grow in the same way, then is it possible our assay could be used to predict brain growth and development.</p> | |
| Summary Statement The purpose of our experiment is to determine if different types of music have the same effect on bacterial growth as they do on human concentration. | |
| Help Received Ms.Gross | |