



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

Name(s) Bridget R. Vause	Project Number J0516
Project Title Detection of Lactose in Natural and Processed Dairy	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of this project was to test different foods to see which ones had lactose in them to aid lactose-intolerant people in their food choices.</p> <p>Methods/Materials 100 ml graduated cylinder (or pipettes with ml), glucose powder, urinalysis test strips, small plastic cups, measuring cup, lactose drops, water, various food items. First tested the glucose level using urinalysis test strips. Then, added lactase enzyme and tested again. If glucose level changed, food item contains lactose.</p> <p>Results The Takis and Doritos maintained the same glucose level after I added the lactase enzyme. The mac-and-cheese and regular milk had higher glucose, indicating a presence of lactose. The nacho cheese sauce had the highest level of glucose, yet it caused the ink in the glucose test strip to run. The lactose-free milk had a higher glucose concentration; most of the pure dairy products had no glucose concentration.</p> <p>Conclusions/Discussion Processed dairy foods don't necessarily contain a higher concentration of lactose than natural dairy. Lactose-free milk has a higher glucose level than other natural dairy. I think that the nacho cheese sauce caused the ink to run because it has certain chemicals. This experiment is repeatable and I tested each sample three times and put the averages on the graphs. Also, when I added the lactase drop, the glucose concentration usually increased because the enzyme lactase breaks the lactose into glucose, producing more glucose.</p>	
Summary Statement I measured glucose levels to determine that boxed mac-and-cheese and milk have higher lactose levels than Doritos, yogurt and other dairy.	
Help Received My mother helped to gather supplies, otherwise, I designed, built and performed the experiments myself.	