



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Tara K. Tran	Project Number S0427
Project Title The Living Liquid: A Study in Integrating d-Glucose in Thrombocyte Preservation	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The biochemical complexes of thrombocyte currently require FDA regulations that shorten the number of days thrombocytes can be stored. The objective is to determine if a solution of the simple sugar monosaccharide aldohexose d-glucose will significantly affect thrombocyte preservation in mammalian blood.</p> <p>Methods/Materials 5 different samples of blood were collected from mammal <i>Canis familiaris</i>. Half of each sample was separated into another test tube. Samples in EDTA test tubes were labeled "A" and samples in non-EDTA test tubes were labeled "B". Slides were made for all 10 test tubes, where a microscope was used to observe for thrombocyte count and condition. A d-glucose solution was added to "B" samples and all samples were left in a controlled environment for 3 days. After 3 days, slides were made for all 10 test tubes, where a microscope was used to observe for thrombocyte count and condition.</p> <p>Results In 4 out of the 5 samples, the percent decrease of thrombocyte count levels of samples that contained d-glucose was slightly higher than samples that did not contain d-glucose. The average thrombocyte count of samples that contained d-glucose decreased by 6.42 % on day 3, while the average thrombocyte count of samples that did not contain d-glucose decreased by 10.90 %.</p> <p>Conclusions/Discussion Data analysis establishes that d-glucose does not significantly affect thrombocyte count levels in mammalian blood. Although 4 of the 5 samples demonstrated signs of lengthened thrombocyte preservation in d-glucose samples, statistical data did not demonstrate a significant difference between non-d-glucose and d-glucose samples, but did demonstrate a positive change. To expand on results, d-glucose had a minor effect on thrombocyte receptor beta-N-acetylglucosamine, screening it from macrophage alpha-M-beta-2 integrin receptors which would have consumed the thrombocytes sooner had d-glucose not been added. Additional experimentation may lead to further understanding of these thrombocyte complexes, and contribute to the greatly needed effort towards thrombocyte preservation.</p>	
Summary Statement To determine if simple sugar monosaccharide aldohexose d-glucose screens thrombocyte receptors from macrophage integrin receptors and significantly affects thrombocyte preservation in mammalian blood.	
Help Received Used lab equipment and facility at AAA Animal Hospital. Dr. Richard Yamaguchi and medical staff provided instruction in specific procedures.	