



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) Jeffrey K. Lio	Project Number S0411
Project Title The Effect of Alpha3 Integrin on Neuroblastoma Cell Survival	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective is to determine whether the A isoform of the alpha3 integrin (alpha3 A) has an effect on short-term survival of neuroblastoma.</p> <p>Methods/Materials Alpha3 A was shuttled from the bacterial expression vector bluescript to the mammalian expression vector pcDNA3.1 (alpha3 A pcDNA3.1). NB5 was transfected with alpha3 A pcDNA3.1 and immunostained with anti-alpha3 antibody. NB& ov23 was transfected with alpha3 A pcNA3.1 and GFP (NB7 alpha3 A). Using a fluorescent microscope, the number of surviving NB7 alpha3 A in each window were recorded and images were taken daily.</p> <p>Results The NB5 alpha3 A pcDNA3.1 fluoresced after they were immunostained, whereas the immunostained NB5 transfected with empty vector pcDNA3.1 did not, indicating that neuroblastoma transfected with alpha3 A pcDNA3.1 did not express alpha3 integrin. NB7 ov23 cells transfected with alpha3 A pcDNA3.1 showed a decreased survival compared to that of NB7 ov23 transfected with empty vector pcDNA3.1 and the entire plate died after about one week.</p> <p>Conclusions/Discussion NB7 alpha3 A pcDNA3.1, which was confirmed to express alpha3 integrin, showed decreased survival compared to that of NB7 ov23 transfected with empty vector pcDNA3.1. Thus, the reinsertion of alpha3 A integrin into NB7 ov23, which is a cell line of NB7 that had lost its expression of alpha3 integrin, has a negative impact on the short-term survival. This suggests that the reinsertion of alpha3 integrin may inhibit tumorigenesis and metastasis in neuroblastoma.</p>	
Summary Statement Reinsertion of alpha3 integrin isoform A into neuroblastoma cells had a negative impact on short-term cell survival.	
Help Received Lab equipment and materials at the UCSD Moores Cancer Center were provided by Dr. Dwayne Stupack, Associate Professor of Pathology. I worked in the lab under the supervision of Dr. Stupack and Dave Mikolon, the lab manager.	