



California Science Center
CALIFORNIA STATE SCIENCE FAIR
 2001 PROJECT SUMMARY

Your Name (List all student names if multiple authors.) Mona Daneshi	Science Fair Use Only <h1 style="margin: 0;">S1309</h1>
Project Title (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 9) Antagonism of Ethanol's Effects on Glycine Receptors Expressed in Xenopus oocytes by Increased Atmospheric Pressure	Division _ Junior (6-8) <u>X</u> Senior (9-12)
Preferred Category (See page 5 for descriptions.) 13 - Pharmacology / Toxicology	
Abstract (Include Objective, Methods, Results, Conclusion. See samples on page 14.) Use no attachments. Only text inside these boxes will be used for category assignment or given to your judges.	
<p>Ethanol's site(s) of action in the central nervous system of mammals is unknown. One group of proteins that ethanol is believed to act on are ligand gated ion channels (LGICs). To test this hypothesis our laboratory uses a mixture of helium and oxygen gas (heliox) at 12 times normal atmospheric pressure (ATA) as an ethanol antagonist. In the current study I used Xenopus oocytes to test the influence of ethanol on glycine receptors (a LGIC), exposed to 12 ATA heliox and control atmospheric conditions. Oocytes were injected with a1 glycine cDNA to express glycine receptors on the oocyte membrane. The oocytes were tested with an EC2 concentration of glycine along with 100mM and 200mM ethanol. Exposure to 12 ATA heliox reversed ethanol's effect of glycine response without altering glycine or baseline responses of the receptor. These findings support the hypothesis that ethanol acts on LGICs.</p>	
Summary Statement (In one sentence, state what your project is about.) My project uses pressure to investigate ethanol's sites of action	
Help Received in Doing Project (e.g. Mother helped type report; Neighbor helped wire board; Used lab equipment at university X under the supervision of Dr. Y; Participant in NSF Young Scholars Program) See Display Regulation #8 on page 4. Used laboratory equipment at the University of Southern California under the supervision of Dr. Daryl L. Davies ; My aunt let me use her computer to print my report	