CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY

Name(s)
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Project Number
S0420

Project Title
Transgene Expression of Wild Type and Mutant Myosin Binding Protein C (MyBP-C) in the Hearts of MyBP-C Knock Out Mice

Abstract

Methods/Materials
Familial Hypertrophic Myopathy (FHM) is a disease in which the heart is enlarged to compensate for mutations in muscle proteins. Twenty to thirty percent of cases of FHM were found to have mutations in MyBP-C. To determine the significance of MyBP-C, the MyBP-C gene was "knocked out" through gene targeting and deficits in phenotype were determined. To test specific hypotheses regarding MyBP-C, transgenes encoding for normal and mutant MyBP-C are inserted into the genome of knockout mice. To test the effectiveness of the transgene to restore or modify function, homozygous (knockout gene) mice testing positive for the transgene are tested for the presence of transgene MyBP-C.

Results
From CTW mice lines 90, 984, and 982, only line 90 has showed strong expression for transgene MyBP-C and none of the CTP mice showed expression.

Conclusions/Discussion
This low expression rate may be due to low copy numbers of the transgene in the other lines.

Summary Statement
To determine whether the phosphorylation site plays a role in the function of MyBP-C in the heart

Help Received
Used lab equipment at the University of Wisconsin, Madison under the supervision of Dr. Samantha Harris and Dr. Richard Moss; Participant in the NASA SHARP Plus