

Student Project Showcase 2005 Winners

CONGRATULATIONS!!!

1st place Graduate *Life Science Division*
(Kenneth & Pamela Fong Excellence Award)

Entry Number 4GL
**COMPARISON OF mRNA AND PROVIRAL SEQUENCES OF
HIV-1 TAT IN THE VIRAL LATENT RESERVOIR**

By: Alvaro Galvis
Cell and Molecular Biology
Faculty Advisor: Dr. Joseph Romeo

2nd place Graduate *Life Science Division*

Entry Number 13GL
**DETERMINANTS OF SEASONAL ABUNDANCE IN
KEY ZOOPLANKTON OF THE SAN FRANCISCO ESTUARY**

By: John Durand
Ecology and Systematics Biology
Faculty Advisor: Dr. Wim Kimmerer

3rd place Graduate *Life Science Division*

Entry Number 32GL
**CONSTRUCTION, ISOLATION AND CHARACTERIZATION OF
CYTOCHROME P450*FAS* AND P420*FAS***

By: Yu Wang, Mayra Pastore, and Ayako Suzuki
Biochemistry
Faculty Advisors: Dr. Nancy Gerber and Dr. Raymond M. Esquerra

4th place Graduate *Life Science* Division

Entry Number 1GL

**INVESTIGATING THE ROLE OF HEDGEHOG PROTEIN DURING
DROSOPHILA MELANOGASTER EMBRYONIC DEVELOPMENT**

By: Jamie Lemus and Dr. Felipe-Andres Ramirez-Weber
Cell and Molecular Biology

Faculty Advisor: Dr. Felipe-Andres Ramirez-Weber

5th place Graduate *Life Science* Division

Entry Number 35GL

**MOLECULAR PRUNING STUDIES ON A PHOSPHORAMIDATE GAMMA-
DIGLUTAMATE ANALOG INHIBITOR OF
PROSTATE-SPECIFIC MEMBRANE ANTIGEN**

By: Jack Maung, Lisa Y. Wu, Bo Tan, Tammy Y. Campbell,
Jennifer A. Rowley, and Dr. Clifford E. Berkman
Chemistry

Faculty Advisor: Dr. Clifford Berkman

1st place Graduate *Physical Science* Division

Entry Number 41GP

**AUTOMATED BEHAVIORAL PHENOTYPE DETECTION AND
ANALYSIS USING COLOR-BASED MOTION TRACKING**

By: Alan Shimoide
Computer Science

Faculty Advisor: Dr. Ilmi Yoon

Two 2nd places Graduate *Physical Science* Division

Entry Number 59GP

**GRADED RETRACTIONS IN THE STANLEY-REISNER
RING OF A SIMPLICIAL COMPLEX**

By: John Fisher
Mathematics

Faculty Advisor: Dr. Joseph Gubeladze

Entry Number 65GP
COLORING INVARIANT AND DETERMINANTS IN KNOT THEORY
By: Candice Price
Mathematics
Faculty Advisor: Dr. Thomas Mattman (CSU Chico)

Two 4th places Graduate *Physical Science Division*

Entry Number 42GP
**WEBS ON THE WEB: A 3D VISUALIZATION OF
ECOLOGICAL FOOD WEBS**
By: Tracie Hong and Jun Murakawa
Computer Science
Faculty Advisor: Dr. Ilmi Yoon

Entry Number 54GP
**A TEST OF THE EQUIVARIANTLY GAUGE-FIXED
YANG-MILLS THEORY ON THE LATTICE**
By: Leah Zimmerman
Physics
Faculty Advisor: Dr. Maarten Golterman

**1st place Undergraduate *Life Science Division*
(*Kenneth & Pamela Fong Excellence Award*)**

Entry Number 76UL
**CHOLESTEROL RICH LIPID RAFTS REGULATE MYOBLAST
FUSION AND EXPRESSION OF MUSCLE SPECIFIC MARKERS IN
CHICKEN EMBRYO SKELETAL MUSCLE CULTURES**
By: Andrei Odobescu, Anthony Luna,
Jared Greenberg, and Dr. Wilfred Denetclaw
Cell and Molecular Biology
Faculty Advisor: Dr. Wilfred Denetclaw

2nd place Undergraduate *Life Science* Division

Entry Number 93UL
CONFORMATIONAL CHANGES OF sGC
By: Bess-Carolina Dolmo
Chemistry
Faculty Advisor: Dr. Nancy Gerber

3rd place Undergraduate *Life Science* Division

Entry Number 73UL
**TRANSCRIPTIONAL ARCHITECTURE OF
THE *FLA/CHE* OPERON OF *BACILLUS SUBTILIS***
By: Joyce Cueto
Cell and Molecular Biology
Faculty Advisor: Dr. Leticia Marquéz-Magaña

4th place Undergraduate *Life Science* Division

Entry Number 89UL
**A NEW HPLC METHOD FOR REVERSED-PHASE SEPARATIONS WITH
MULTI-SOLVENT, MULTI-COLUMN SELECTIVITY, AND MULTI-
WAVELENGTH SPECTROPHOTOMETRIC UV DETECTION**
By: Michel Lau
Chemistry
Faculty Advisor: Dr. Eugene Fujinari

Two 5th places Undergraduate *Life Science* Division

Entry Number 66UL
**CHARACTERIZATION OF EXPRESSION LEVELS OF
TWO ACETYL-CoA CARBOXYLASE ISOFORMS
USING QUANTITATIVE REAL-TIME PCR**
By: Cynthia Holsclaw
Cell and Molecular Biology
Faculty Advisor: Dr. Elizabeth Runquist

Entry Number 77UL
**NUCLEAR AND MITOCHONDRIAL DNA VARIATION
BETWEEN ONSHORE AND OFFSHORE POPULATIONS
OF AMERICAN LOBSTERS, (*HOMARUS AMERICANUS*)
BETWEEN LONG ISLAND AND THE GULF OF MAINE**

By: Ellen Kosman
Marine Biology
Faculty Advisor: Dr. Sarah Cohen

1st place Undergraduate *Physical Science* Division

Entry Number 99UP
**WOOD BRIDGE I DESIGN FOR
2005 NATIONAL TIMBER BRIDGE DESIGN COMPETITION**

By: Rana Bayadi, Jim Chilton, Thomas Richardson,
Faris Salfiti, Bopha Sok, and Catherine Stout
Civil Engineering
Faculty Advisor: Dr. Wenshen Pong

2nd place Undergraduate *Physical Science* Division

Entry Number 106UP
NATCAR: THE AUTONOMOUS RACECAR
By: Oscar Buenaventura, Jose Escobar, Zach Nosker, and Sami Sirhan
Electrical Engineering
Faculty Advisor: Dr. Hamid Shahnasser

3rd place Undergraduate *Physical Science* Division

Entry Number 118UP
WALKOMATIC THERAPY (KNEE-ASSIST DEVICE)
By: Tina Leong, Susan O' Grady, and Wutichai Chanhong
Mechanical Engineering
Faculty Advisors: Dr. Michael Holden and
Dr. Mamdouh Abo-El-Ata

4th place Undergraduate *Physical* Science Division

Entry Number 124UP

**ADVENTURES IN OPTIMAL SAMPLING DESIGN:
THE QUADARAT DILEMMA - IS IT STILL HIP TO BE SQUARE?**

By: Anastasia Chavez and Lucas Bohnett

Mathematics & Statistics with Biology emphasis

Faculty Advisor: Dr. Edward F. Connor

5th place Undergraduate *Physical* Science Division

Number 97UP

FOUNDATION AND RETAINING WALL DESIGN

By: Kenneth Murphy, Marc Coats, Bashar Sudah,
and Richard Stockand

Civil Engineering

Faculty Advisor: Dr. Timothy D'Orazio