

Projects #1– 78 are from Graduate Students

Entry Number 1 GL-A
**THE ROLE OF ANTERIOR-POSTERIOR SIGNALING IN
SOMITOGENESIS IN *XENOPUS LAEVIS***

By: Vanja Krneta
Cell and Molecular Biology
Faculty Advisor: Dr. Carmen Domingo

Entry Number 2 GL-A
**REGULATION OF SOMITOGENESIS BY
Rho GTPase DURING *X. LAEVIS* DEVELOPMENT**

By: Mary Greene
Cell and Molecular Biology
Faculty Advisor: Dr. Carmen Domingo

Entry Number 3 GL-A
**OBSERVING ARGENTINE ANT BEHAVIORS AT
THE MOLECULAR LEVEL**

By: Jennifer Placek, Mike Wong, Jennifer M. Lee, Philip Burkhardt,
Dr. Ilmi Yoon, and Dr. Christopher Smith
Cell and Molecular Biology
Faculty Advisor: Dr. Christopher D. Smith

Entry Number 4 GL-A
**A COMPARATIVE ANNOTATION OF DROSOPHILID
DICISTRONIC GENES**

By: Lala Motlhabi
Cell and Molecular Biology/CCLS
Faculty Advisor: Dr. Christopher D. Smith

Entry Number 5 GL-A
**THE HISTONE H2A VARIANT HTAS-1 IS A SPERM-SPECIFIC
FACTOR IMPORTANT**

By: Colin Fitzpatrick
Cell and Molecular Biology
Faculty Advisor: Dr. Diana Chu

Entry Number 6 GL-A
**SIMULATING DNA REPAIR MECHANISMS USING
REACTION-DIFFUSION METHODS**

By: Ari Akerstein, Ben Borgo, and Dr. Javier Arsuaga
Cell and Molecular Biology
Faculty Advisor: Dr. Javier Arsuaga

Entry Number 7 GL-A
**DETERMINING THE PHYSICAL INTERACTIONS BETWEEN FISSION
YEAST Cdc24 AND FLAP ENDONUCLEASE Rad2**

By: Garima Porwal
Cell and Molecular Biology
Faculty Advisor: Dr. Sally G. Pasion

Entry Number 8 GL-A
**CONSTRUCTION OF Cdc24-GFP FUSION PROTEIN AND
DETECTION OF ITS BIOLOGICAL ACTIVITY IN
SCHIZOSACCHAROMYCES POMBE**

By: Noel Cruz
Cell and Molecular Biology
Faculty Advisor: Dr. Sally G. Pasion

Entry Number 9 GL-A
**HOW DO HIGH SCHOOL STUDENTS AND
BIOLOGY TEACHERS THINK WE LEARN?
UNDERSTANDING NOVICES' VS. EXPERTS' CONCEPTIONS ABOUT
THE BIOLOGICAL BASIS OF LEARNING**

By: Rebecca Fulop and Dr. Kimberly D. Tanner
Cell and Molecular Biology
Faculty Advisor: Dr. Kimberly D. Tanner

Entry Number 10 GL-A
LOSS OF SP β IN A *sigY* MUTANT OF *BACILLUS SUBTILIS*

By: Alba A. Gutierrez
Cell and Molecular Biology
Faculty Advisor: Dr. Leticia Marquez-Magaña

Entry Number 11 GL-A
**A BAYESIAN STATISTICAL APPROACH TO MODELING GENE
REGULATORY PATHWAYS IN MICROARRAY DATA**

By: Elinor Velasquez
Cell and Molecular Biology
Faculty Advisor: Dr. Leticia Marquez-Magaña

Entry Number 12 GL-A
**IDENTIFYING POSITIVE AND NEGATIVE REGULATORS OF THE
sigY OPERON IN *BACILLUS SUBTILIS* BY
QUANTIFYING *sigY* EXPRESSION DURING NUTRIENT RICH AND
NUTRIENT POOR CONDITIONS**

By: Jasmin-Ann Reyes
Cell and Molecular Biology
Faculty Advisor: Dr. Leticia Marquez-Magaña

Entry Number 13 GL-A
**microRNA EXPRESSION PROFILING IN
40 BREAST CANCER CELL LINES**

By: Molly Klein-McDowell, Graeme Hodgson (UCSF),
Wen-Lin Kuo (Lawrence Berkeley National Laboratory),
Andrei Goga (UCSF), Dr. Chris Benz (Buck Institute),
Dr. Joe W. Gray (Lawrence Berkeley National Laboratory),
Dr. Paul Yaswen (Lawrence Berkeley National Lab
Cell and Molecular Biology
Faculty Advisor: Dr. Leticia Marquez-Magaña

Entry Number 14 GL-A
**TRANSCRIPTIONAL REPRESSOR ATF3 BINDS TO
THE IFN- β PROMOTER IN MACROPHAGES**

By: Roberto M. Barrozo
Cell and Molecular Biology
Faculty Advisor: Dr. Steve Weinstein

Entry Number 15 GL-A
**ANTIMICROBIAL RESISTANCE AND PULSED-FIELD
GEL ELECTROPHORESIS OF OUTBREAK-ASSOCIATED
SALMONELLA BRANDENBURG AND SAINTPAUL ISOLATES**

By: Ashley Ungermann, Kit-Man Yeung, Dr. Woutrina Miller (UCD), Dr.
Sally Pasion, and Dr. Lily Chen
Biomedical Laboratory Science
Faculty Advisor: Dr. Lily Chen

Entry Number 16 GL-A
**IDENTIFICATION AND FUNCTIONAL ANALYSIS OF
PROTEINS THAT INTERACT WITH
RUS1-MEDIATED SIGNALING PATHWAY**

By: Benjamin Onyeagucha
Cell and Molecular Biology
Faculty Advisor: Dr. Zheng Hui-He

Entry Number 17 GL-A
THE HUNT FOR RUS SUPPRESSORS

By: Amy M. Shelton
Cell and Molecular Biology
Faculty Advisor: Dr. Zheng-Hui He

Entry Number 18 GL-A
**EXAMINING THE REGULATION OF PLANT MINERAL
RESPONSES USING COMPUTATIONAL AND
MOLECULAR METHODS**

By: Tobias Sayre
Cell and Molecular Biology
Faculty Advisor: Dr. Zheng-Hui He

Entry Number 19 GL-A
**SPHINGOMYELIN LIPID ABUNDANT IN ECTODERM,
ENDODERM AND ENDOTHELIAL CELL LAYERS RESULT IN
A LOSS OF MYOTOMAL FIBERS IN SOMITE WITH ECTODERM
SPHINGOMYELINASE TREATMENT IN THE 2.5 DAY-OLD CHICKEN
EMBRYO**

By: Christina Staubus
Cell and Molecular Biology
Faculty Advisor: Dr. Wilfred Denetclaw

Entry Number 20 GL-A
**FORCED DIFFERENTIATION OF SKELETAL MUSCLE CELL
CULTURES WITH DISRUPTED MEMBRANE RAFTS SHOW
MYOSIN HEAVY CHAIN EXPRESSION AND
MYOTUBE FORMATION**

By: Jung Lim and Philipp Walczak
Pre-Med and Chemistry
Faculty Advisor: Dr. Wilfred Denetclaw

Entry Number 21 GL-A
**THE EFFECTS OF DISRUPTION OF ECTODERM LIPID RAFT
SIGNALING ON MYOGENIC STEM CELL BEHAVIOR**

By: Matthew Smith
Cell and Molecular Biology
Faculty Advisor: Dr. Wilfred Denetclaw

Entry Number 22 GL-A
PHENOTYPE MICROARRAY OF SINORHIZOBIUM MELILOTI

By: Maisha Haywood-Smith, Janett Ortiz,
and Dr. Joseph C. Chen
Microbiology
Faculty Advisor: Dr. Joseph C. Chen

Entry Number 23 GL-A
DNA SHUFFLING OF ALGINATE LYASE

By: Juliana Lima
Microbiology
Faculty Advisor: Dr. Susan Lynch

Entry Number 24 GL-B
**USING SPIDERS AS BIOINDICATORS TO ASSESS SUCCESS OF
RESTORATION PROJECTS**

By: Pedro Morgado, Theresa Shelton, and Misha Leong
Conservation Biology
Faculty Advisor: Dr. John Hafernik

Entry Number 25 GL-B
**AN ASSESSMENT OF WATERSHED HEALTH IN
THE PRESIDIO OF SAN FRANCISCO USING AQUATIC
MACROINVERTEBRATE COMMUNITIES**

By: Theresa Shelton
Conservation Biology
Faculty Advisor: Dr. John Hafernik

Entry Number 26 GL-B
**URBAN IMPACT ON SPIDER COMMUNITIES IN
THE SAN FRANCISCO PRESIDIO**

By: Misha Leong, Pedro Morgado, and Theresa Shelton
Ecology and Systematic Biology
Faculty Advisor: Dr. John Hafernik

Entry Number 27 GL-B
**EXPLORING UNDERGRADUATE STUDENT CONCEPTIONS OF
ENVIRONMENTAL PROCESSES**

By: Briana McCarthy and Dr. Kimberly D. Tanner
Ecology and Systematic Biology
Faculty Advisor: Dr. Kimberly D. Tanner

Entry Number 28 GL-B
**MATING SYSTEM CHARACTERIZATION OF
TWO POPULATIONS (ANNUAL AND PERENNIAL) OF
ZOSTERA MARINA IN SAN FRANCISCO BAY**

By: Esa Crumb
Ecology and Systematic Biology
Faculty Advisor: Dr. Sarah Cohen

Entry Number 29 GL-B
**INVESTIGATING BAY AREA FILIPINO'S KNOWLEDGE OF AND
ATTITUDE TOWARD ENVIRONMENTAL
CONSERVATION IN A MUSEUM SETTING AT
THE CALIFORNIA ACADEMY OF SCIENCES**

By: Courtney L. Scott and Dr. Kimberly D. Tanner
Marine Biology
Faculty Advisors: Dr. Meg Burke (California Academy of Sciences) and Dr.
Kimberly D. Tanner

Entry Number 30 GL-B
**AN INTRODUCED COPEPOD IN SF ESTUARY:
GENETIC DIVERSITY IN A RECENT INVASION**

By: Allegra Briggs, Dr. Sarah Cohen, and Dr. Wim Kimmerer
Marine Biology
Faculty Advisor: Dr. Wim Kimmerer

Entry Number 31 GL-B
**FOODWEB SUPPORT FOR THE THREATENED
DELTA SMELT: PHYTOPLANKTON PRODUCTION IN
THE LOW SALINITY ZONE OF
THE NORTHERN SAN FRANCISCO ESTUARY**

By: Ulrika Lidstrom
Marine Biology
Faculty Advisor: Dr. Edward Carpenter

Entry Number 32 Display Only
**STRUCTURE AND DYNAMICS OF PHYTOPLANKTON BLOOMS IN A
EUTROPHIC COASTAL LAGOON**

By: Jeana Drake
Biology
Faculty Advisor: Dr. Edward J. Carpenter

Entry Number 33 Display Only
**USING LOW NITROGEN FERTILIZERS TO STIMULATE
NITROGEN FIXATION IN NATIVE SPARTINA MARSHES**

By: Jennifer Murphy
Marine Biology
Faculty Advisor: Dr. Edward J. Carpenter

Entry Number 34 GL-B
**TEMPERATURE DETERMINES PLASTICITY IN GROWTH OF
THE REEF-BUILDING CORAL, *PORITES LOBATA***

By: Tyler P. Waterson, Dr. Jonathon Stillman,
and Daniel Barshis (University of Hawai'i/HIMB)
Cell and Molecular Biology
Faculty Advisor: Dr. Jonathon Stillman

Entry Number 35 GL-B
**HOW DOES CORBULA INFLUENCE THE NITROGEN
REGIME OF SUISUN BAY?**

By: Amy Kleckner and Dr. Frances Wilkerson
Marine Biology
Faculty Advisor: Dr. Frances Wilkerson

Entry Number 36 GL-B
**ANOMALOUSLY LOW pCO₂ MEASURED IN
THE SAN FRANCISCO ESTUARY**

By: Jim Fuller, Dr. Frances Wilkerson, Dr. Alex Parker,
Dr. Richard Dugdale, and Al Marchi
Marine Biology
Faculty Advisor: Dr. Frances Wilkerson

Entry Number 37 GL-B
**AMMONIUM SURGE UPTAKE AND INHIBITION OF
NITRATE UPTAKE BY SMALL AND
LARGE CELL-SIZED PSEUDO-NITZSCHIA SPECIES FROM
THE PACIFIC NORTHWEST**

By: Regina L. Radan, Maureen E. Auro,
and Dr. William P. Cochlan

Marine Biology

Faculty Advisor: Dr. William P. Cochlan

Entry Number 38 GL-B
BEHAVIOR OF THE SAN NICOLAS ISLAND FOX

By: Robyn Powers

Physiology and Behavior Biology

Faculty Advisors: Dr. Jan Randall and Dr. Chris Moffatt

Entry Number 39 GL-B
**INHIBITION OF THE INFLAMMATORY CASCADE IN
MICROGLIA PROTECTS NEURONS FROM CELL DEATH
FOLLOWING IN VITRO STROKE MODEL TREATMENT**

By: Carla M. Webster, Hualong Ma (UCSF-SFVAMC),
Rona G. Giffard (Stanford University),
and Midori A. Yenari (UCSF-SFVAMC)

Physiology and Behavior Biology

Faculty Advisor: Dr. Megumi Fuse

Entry Number 40 GL-B
**MODELING OF INSECT ECDYSIS MOTOR PATTERNS: ANALYSIS OF
A COMPLEX BEHAVIOR VIA VIDEO-TRACKING AND
ELECTROPHYSIOLOGICAL RECORDING**

By: Ian Kimball

Physiology and Behavior Biology

Faculty Advisor: Dr. Megumi Fuse

Entry Number 41 GL-B
**DEVELOPMENT OF FLUORESCENT PEPTIDOMIMETIC I
NHIBITORS AS POTENTIAL IMAGING AGENTS FOR
PROSTATE-SPECIFIC MEMBRANE ANTIGEN**

By: Steven Ho and Marat Kazak

Biochemistry

Faculty Advisors: Dr. Clifford Berkman and Dr. Marc O. Anderson

Entry Number 42 GL-B
**SYNTHESIS OF NDGA ANALOGUES FOR
INHIBITION STUDIES AGAINST TUMOR GROWTH**

By: Johnny Pham and Yumi Watanabe

Chemistry

Faculty Advisor: Dr. Marc O. Anderson

Entry Number 43 GL-B
**IDENTIFYING CELL SURFACE GLYCOPROTEINS
USING HYDRAZIDE CHEMISTRY
IN COMBINATION WITH 2D-LC/ESI-MS/MS**

By: Claudia Alejandra McDonald and Jane Yang

Biochemistry

Faculty Advisors: Dr. Bruce A. Macher and Dr. Ten-Yang Robert Yen

Entry Number 44 GL-B
**INVESTIGATING THE BINDING MECHANISM OF
OXIDIZED FAD TO SMOA**

By: Michelle Beaton

Biochemistry

Faculty Advisor: Dr. George Gassner

Entry Number 45 GL-B
**THE CONFORMATIONAL CHANGES IN THE ACTIVATION OF
SOLUBLE GUANYLATE CYCLASE**

By: Jasmin Kristianto

Biochemistry

Faculty Advisor: Dr. Nancy Gerber

Entry Number 46 GL-B
S-NITROSYLATION OF SOLUBLE GUANYLYL CYCLASE

By: Kensuke Yamamoto

Biochemistry

Faculty Advisor: Dr. Nancy Gerber

Entry Number 47 GL-B
**CHARACTERIZATION OF A PHYTOPATHOGENIC BACTERIAL P450
SYSTEM CONTAINING AN IRON-SULFUR AND
TRANSKETOLASE-LIKE PROTEIN**

By: Mayra Pastore

Biochemistry

Faculty Advisor: Dr. Nancy Gerber

Entry Number 48 GL-B
**CHANGES INDUCED BY COFACTOR BINDING
MODULATES ACTIVE SITE REACTIVITY IN nNOS**

By: Russ Jensen and Mike Minton

Biochemistry

Faculty Advisor: Dr. Raymond Esquerra

Entry Number 49 GL-B
**EXPLORING HOW S1' SUB-SITE MUTATIONS
AFFECT TRYPSIN'S ENZYMATIC ACTIVITY**

By: Candace Wong

Biochemistry

Faculty Advisor: Dr. Teaster Baird, Jr.

Entry Number 50 GL-B
**SELENATE AND SELENITE REDUCTION BY
NANOMETER-SCALE ZEROVALENT IRON PARTICLES**

By: Jovilynn Olegario
Chemistry
Faculty Advisor: Dr. Bruce A. Manning

Entry Number 51 GP
**AN ISOMORPHISM THEOREM FOR
COTRANSVERSAL MATROIDS**

By: Amanda Ruiz
Mathematics
Faculty Advisor: Dr. Federico Ardila

Entry Number 52 GP
**COMMUTATOR FORMAL AUTOMORPHISMS IN
CHARACTERISTIC 2 AND 3**

By: Maree Afaga
Mathematics
Faculty Advisor: Dr. Joseph Gubeladze

Entry Number 53 GP
HIGH-RESOLUTION FROM LOW-RESOLUTION

By: Reuben Brasher
Mathematics
Faculty Advisor: Dr. Shidong Li

Entry Number 54 GP
ENUMERATING TENSIONS IN GRAPHS

By: Aaron Dall
Mathematics
Faculty Advisor: Dr. Matthias Beck

Entry Number 55 GP
A GEOMETRIC APPROACH TO BERNOULLI-DEDEKIND SUMS

By: Anastasia Chavez
Mathematics
Faculty Advisor: Dr. Matthias Beck

Entry Number 56 GP
**LONG MEMORY PARAMETER ESTIMATIONS WITH
AN APPLICATION TO EEG DATA**

By: Stacey Hubbard
Mathematics
Faculty Advisor: Dr. Alexandra Piryatinska

Entry Number 57 GP
**VISUALIZATION OF SURFACE-BASED MOLECULAR
CHARACTERISTICS USING DEFORMABLE MODELS**

By: Nicolay Postarnakevich
Mathematics
Faculty Advisor: Dr. Rahul Singh

Entry Number 58 GP
**EXPLORING DNA UNKNOTTING BY
TYPE II TOPOISOMERASES: A STUDY OF WRITHE**

By: Juliet Portillo, Trevor Blackstone, Reuben Brasher,
and Dr. Mariel Vazquez
Mathematics and Computing for Life Sciences
Faculty Advisor: Dr. Mariel Vazquez

Entry Number 59 GP
**MODELING DNA AND
ITS THERMAL FLUCTUATION IN SOLUTION**

By: Zoe Talbot, Xia Hua, Juliet Portillo, and Rob Scharein
Mathematics
Faculty Advisor: Dr. Mariel Vazquez

Entry Number 60 GP
TANGLESOLVE AND XER SITE-SPECIFIC RECOMBINATION

By: Jennifer S. Lopez, Yuki Saka, Wenjing Zheng,
and Dr. Mariel Vazquez
Mathematics
Faculty Advisor: Dr. Mariel Vazquez

Entry Number 61 GP
**PREDICTING CANCER PATIENT PROGNOSIS FROM
CGH PROFILES USING ALGEBRAIC HOMOLOGY**

By: Daniel DeWoskin
Mathematics and CCLS
Faculty Advisor: Dr. Javier Arsuaga

Entry Number 62 GP
**AN AUTOMATED APPROACH FOR CHROMOSOME LABEL
DETECTION AND CHROMOSOME SIMULATION**

By: Rocco Varela
Computing for Life Sciences
Faculty Advisor: Dr. Javier Arsuaga

Entry Number 63 GP
CLASSIFICATION OF LARGE PERIAPICAL LESIONS

By: Arturo Flores and Steve Rysavy
Computing for Life Sciences
Faculty Advisors: Dr. Kazumori Okada and Dr. Reyes Enciso (USC)

Entry Number 64 GP
**SEGMENTATION OF LARGE PERIAPICAL LESIONS TOWARD
DENTAL COMPUTER-AIDED DIAGNOSIS IN
CONE-BEAM CT SCANS**
By: Steve Rysavy and Arturo Flores
Computing for Life Sciences
Faculty Advisors: Dr. Kazumori Okada and Dr. Reyes Enciso (USC)

Entry Number 65 GP
COMPUTATIONAL CANCER BIOMARKER DISCOVERY
By: Emmanuel R. Yera
Computing for Life Sciences
Faculty Advisors: Dr. Kazumori Okada, Dr. Colin Collins (UCSF Cancer
Center) and Dr. Pamela Paris (UCSF Cancer Center)

Entry Number 66 GP
**A LEAKY BUCKET POLICING AGENT FOR
SITEWIDE CONGESTION CONTROL**
By: Teresa L. Johnson
Computer Science
Faculty Advisor: Dr. Marguerite Murphy

Entry Number 67 GP
**TANGIBLE MELODY: USING THE METAPHOR OF
GRAPHICS MANIPULATION TO COMPOSE MELODY**
By: Marc Sosnick, Xinhang Shao, Joshua Melcon,
Rushan Cheng, and Sadia Anwar
Computer Science
Faculty Advisor: Dr. William Hsu

Entry Number 68 GP
**COMPARISON OF IBC 2006 AND
PERFORMANCE BASED DESIGN OF REINFORCED
CONCRETE SPECIAL MOMENT RESISTING FRAME**
By: Rob Mau
Civil Engineering
Faculty Advisor: Dr. Wenshen Pong

Entry Number 69 GP
**EFFECT OF MOBILITY PATTERNS ON SAFETY MESSAGES IN
VEHICULAR NETWORKS**
By: Anna Pereira
Computer Engineering
Faculty Advisor: Dr. Hamid Shahnasser

Entry Number 70 GP
**THE DESIGN AND IMPACT OF PLANETARIUM
INSTRUCTION BASED ON A 5E CONCEPTUAL CHANGE
APPROACH TO ASTRONOMY EDUCATION**
By: Michelle Krok
Physics
Faculty Advisors: Dr. Adrienne Cool and Dr. Kimberly D. Tanner

Entry Number 71 GP
NONLINEAR DYNAMICS IN PERIODIC OPTICAL LATTICES

By: Laura Daniel
Physics
Faculty Advisor: Dr. Zhigang Chen

Entry Number 72 GP
CS-DOPED NANOPOROUS FILMS: FUNDAMENTAL PHYSICAL

By: Georgi Diankov
Chemistry
Faculty Advisor: Dr. Andrew Ichimura

Entry Number 73 GP
**MINING SOIL SURVEY DATABASES TO EXPLORE LITHOLOGIC
AND CLIMATIC CONTROLS ON HILLSLOPE PRODUCTION OF
BEDLOAD-SIZE ROCK FRAGMENTS**

By: Jill Marshall
Applied Geosciences
Faculty Advisor: Dr. Leonard Sklar

Entry Number 74 GP
**PREDICTING ROAD-FILL FAILURE USING
VIRTUAL FIELDWORK AND DIGITAL TOPOGRAPHY**

By: Bob Sas
Geology
Faculty Advisor: Dr. Leonard Sklar

Entry Number 75 GP
**RIVER EROSION ON TITAN:
HOW ICE STRENGTH VARIES WITH TEMPERATURE**

By: Beth Zygielbaum
Geosciences
Faculty Advisor: Dr. Leonard Sklar

Entry Number 76 GP
**TESTING A NEW METHOD FOR MEASURING
MICRO-MORPHOLOGICAL CHANGE USING EMBEDDED MAGNETS
IN A TRAVERTINE DEPOSITIONAL
ENVIRONMENT, FOSSIL CREEK, ARIZONA.**

By: Brian Fuller
Geosciences
Faculty Advisor: Dr. Leonard Sklar

Entry Number 77 GP
**HARNESSING NATURAL C ISOTOPES TO UNDERSTAND ORGANIC
MATTER TRANSFORMATIONS IN MARINE SEDIMENTS**

By: Jonathon Polly
Geosciences
Faculty Advisor: Dr. Toby Garfield

Entry Number 78 GP
**AN ANALYSIS OF SURFACE CURRENTS IN THE GULF OF THE
FARALLONES USING HF-RADAR**

By: Matt Gough
Oceanography
Faculty Advisor: Dr. Toby Garfield

**Projects #79– 139 are from
Undergraduate Students**

Entry Number 79 UL
**THE ROLE OF STROMAL DERIVED FACTOR -1 α
IN VERTEBRATE SOMITOGENESIS**

By: Marisa Leal
Cell and Molecular Biology
Faculty Advisor: Dr. Carmen Domingo

Entry Number 80 UL
SIBO: SOCIAL INSECT BEHAVIOR ONTOLOGY

By: Ilma Abbas
Cell and Molecular Biology
Faculty Advisor: Dr. Christopher D. Smith

Entry Number 81 UL
**THE SENSITIZATION OF DEFENSIVE BEHAVIOR OF
THE LARVAL TOBACCO HORNWORM, *MANDUCA SEXTA***

By: Kenichi Iwasaki
Cell and Molecular Biology
Faculty Advisor: Dr. Megumi Fuse

Entry Number 82 UL
**WAKL4 *Cis*-ACTING ELEMENTS IN RESPONSE TO
ENVIRONMENTAL MINERALS**

By: Janelle Johnson
Cell and Molecular Biology
Faculty Advisor: Dr. Zheng-Hui He

Entry Number 83 UL
**MBC SKELETAL MUSCLE CULTURES TREATED WITH
ACETYLCHOLINE SHOW INHIBITION OF
INTRACELLULAR Ca²⁺ RESPONSE**

By: Dianna Baldwin
Zoology
Faculty Advisor: Dr. Wilfred Denetclaw

Entry Number 84 UL
**INVESTIGATING SALINE SENSITIVITY OF THE
SINORHIZOBIUM MELILOTI SMc02230 DELETION MUTANT**
By: Charlene Navarrete, Darlene Franklin, and Dr. Joseph C. Chen
Microbiology
Faculty Advisor: Dr. Joseph C. Chen

Entry Number 85 UL
EXPRESSION OF LAC GENE IN CAULOBACTER CRESCENTUS
By: Janet Manzano and Benjamin Arellano
Microbiology
Faculty Advisor: Dr. Joseph C. Chen

Entry Number 86 UL
**GROWTH RATES OF
INVASIVE COLONIAL ASCIDIANS BOTRYLLOIDES AND
BOTRYLLUS SPP. IN THE SAN FRANCISCO BAY**
By: Jessica Donald
Marine Biology
Faculty Advisor: Dr. Sarah Cohen

Entry Number 87 UL
**GENETIC DIVERSITY IN A RECOVERING POPULATION OF
EELGRASS (*ZOSTERA MARINA*) IN THE SAN FRANCISCO BAY**
By: Summer Morrisson and Dr. Brian Ort
Botany
Faculty Advisor: Dr. Sarah Cohen

Entry Number 88 UL
**IDENTIFYING NOVEL PROTEIN STABILIZERS BY
CO-IMMUNOPRECIPITATION IN
PORCELAIN CRABS, GENUS *Petrolisthes***
By: Andrea Cayenne
Physiology and Behavior Biology
Faculty Advisor: Dr. Jonathon Stillman

Entry Number 89 UL
**MICROARRAY ANALYSIS OF HEPATOPANCREAS HEAT STRESS
RESPONSES IN THERMALLY ACCLIMATED
PORCELAIN CRABS, *PETROLISTHES CINCTIPES***
By: Claudia Tomas Miranda and Eric Galassi
Physiology and Behavior Biology
Faculty Advisor: Dr. Jonathon Stillman

Entry Number 90 UL
**THE INFLUENCE OF ION TRANSPORT PEPTIDE ON
GLUCOSE REGULATION IN THE DIFFERENT
DEVELOPMENTAL STAGES OF *MANDUCA SEXTA***
By: Allison Dias
Physiology and Behavior Biology
Faculty Advisor: Dr. Megumi Fuse

Entry Number 91 UL
**VARIATIONS BETWEEN VISUAL AND MULTIMODAL
LEARNERS IN VIEWING AUTOSTEREOGRAMS AS
MEASURED BY PROCESSING TIME, PROCESSING ABILITY AND
ELECTROOCULOGRAPHY (EOG)**

By: Lindsay Kuntz , Amy Ngo, and George Miranda
Physiology and Behavior Biology
Faculty Advisor: Anne Thilges

Entry Number 92 UL
**ZOSTERA MARINA (EELGRASS) POPULATION
CONNECTIVITY IN THE SAN FRANCISCO BAY
IMPLICATIONS FOR RECOVERY AFTER
THE COSCO-BUSAN OIL SPILL**

By: Gwen Santos Conahan
Ecology and Systematic Biology
Faculty Advisor: Dr. Katharyn E. Boyers

Entry Number 93 UL
COMPARATIVE qPCR REPRODUCIBILITY
By: Inara Iskenderova, Shui Lam (Yvonne) Mak, and Dan Kelliher
Biochemistry

Faculty Advisor: Dr. Elizabeth Runquist

Entry Number 94 UL
**TO EXAMINE THE INFLUENCE OF THE DYNAMIC RANGE
IN COMPARATIVE q-PCR**

By: Shui Lam (Yvonne) Mak
Biochemistry
Faculty Advisor: Dr. Elizabeth Runquist

Entry Number 95 UL
**STEADY STATE KINETIC MECHANISM OF
PHENYLACETYLALDEHYDE**

By: Baljit Singh
Biochemistry
Faculty Advisor: Dr. George Gassner

Entry Number 96 UL
**STUDIES OF NADH BINDING EQUILIBRIUM OF
PHENYLACETALDEHYDE DEHYDROGENASE**

By: Levenlou Vender
Biochemistry
Faculty Advisor: Dr. George Gassner

Entry Number 97 UL
**SYNTHESIZING DIARYLUREAS AS
POTENTIAL INHIBITORS OF IGF-1R**

By: Jason Cook
Biochemistry
Faculty Advisor: Dr. Marc O. Anderson

Entry Number 98 UL
**RADICOL INSPIRED INHIBITORS OF Hsp90 AS
ANTI-MALARIA AGENTS**

By: Judy Szeto and Chris R. Cornell
Biochemistry
Faculty Advisor: Dr. Marc O. Anderson

Entry Number 99 UL
**CLONING THE P450 3A4 ISOTYPE (CYP 3A4) GENE
FROM HUMANS**

By: Dayani Nualles
Biochemistry
Faculty Advisor: Dr. Nancy Gerber

Entry Number 100 UL
**HEME-BASED NITRITE REDUCTASE ACTIVITY OF
HEMOGLOBIN: LINKAGE BETWEEN GLYCATION
AND INCREASED CARDIOVASCULAR
DYSFUNCTIONS IN DIABETICS**

By: Kay Saw and Damon Robles
Biochemistry
Faculty Advisor: Dr. Raymond Esquerra

Entry Number 101 UL
**EFFECT OF NONENZYMATIC GLYCATION ON THE
AUTO-OXIDATION KINETICS OF
ADULT HUMAN HEMOGLOBIN**

By: Richelle Raagas, Damon Robles, and Arthur de los Reyes
Biochemistry
Faculty Advisor: Dr. Raymond Esquerra

Entry Number 102 UL
**INTRODUCING NOVEL SUBSTRATE SELECTIVITY INTO
TRYPSIN THROUGH REDESIGN**

By: Sayeeda Najibi
Biochemistry
Faculty Advisor: Dr. Teaster Baird, Jr.

Entry Number 103 UL
**CHROMIUM(VI) REDUCTION AND ADSORPTION BY
IRON(II)-TREATED ZEOLITES**

By: Diem Huynh
Chemistry
Faculty Advisor: Dr. Bruce A. Manning

Entry Number 104 UL
**THE USE OF HANDHELD XRF FOR DETERMINATION OF
ARSENIC AND MERCURY IN A MUSEUM COLLECTION**

By: Kara Cross
Chemistry
Faculty Advisor: Dr. Peter Palmer

Entry Number 105 UL
**CONVENIENT OXIDATION OF BENZYLIC AND
ALLYLIC HALIDES TO ALDEHYDES AND KETONES**

By: David X. chen
Chemistry
Faculty Advisor: Dr. Weiming Wu

Entry Number 106 UP
**IMPLEMENTING A BASIC TRACKER ON
MAC OS X WITH COCOA AND CoreAudio**

By: Chris O'Neill
Computer Science
Faculty Advisor: Dr. William Hsu

Entry Number 107 UP
REAL-TIME PITCH DETECTOR FOR MUSIC APPLICATIONS

By: Peter Gulezian
Computer Science
Faculty Advisor: Dr. William Hsu

Entry Number 108 UP
**INTERACTIVE MODULAR SYNTHESIZER FOR
AUDIO GENERATION**

By: Trevor Blackstone
Computer Science
Faculty Advisor: Dr. William Hsu

Entry Number 109 UP
GUITAR TUNER WITH AUDIO AMPLIFIER (GTAM)

By: Adurape Owolabi, Rommel Matundan, and Adrian Magana
Electrical Engineering
Faculty Advisor: Dr. Tom Holton

Entry Number 110 UP
MICROCONTROLLER AT LARGE
By: Ja Song Koo and William Yu
Computer Engineering
Faculty Advisor: Dr. Hamid Shahnasser

Entry Number 111 UP
WIRELESS DATA ACQUISITION SYSTEM
By: Matt Willman
Computer Engineering
Faculty Advisor: Dr. Hamid Shahnasser

Entry Number 112 UP
**BEAU GESTE: A WEARABLE HUMAN-COMPUTER
INTERFACE DEVICE**
By: Michael Carychao
Computer Engineering
Faculty Advisor: Dr. Hamid Shahnasser

Entry Number 113 UP
DIGITAL DOOR LOCK
By: Issac Siavashani
Electrical Engineering
Faculty Advisor: Dr. Tom Holton

Entry Number 114 UP
WEB BASED POWER MONITORING UNIT
By: Nash Weber and Roberto Ramirez
Electrical Engineering
Faculty Advisor: Dr. Tom Holton

Entry Number 115 UP
LINEAR-ACTUATED INVERTED PENDULUM
By: Nick Langhoff and Jackie (Thuya) Maw
Electrical Engineering
Faculty Advisor: Dr. V.V. Krishnan

Entry Number 116 UP
GPS ACTIVATED AUDIO TRANSMITTER
By: Brandon Wong and Jackson Taylor
Electrical Engineering
Faculty Advisor: Dr. Tom Holton

Entry Number 117 UP
ULTRASONIC WIND SENSOR
By: Eugene Tom, Wai Yu Lam, and Nay Min Soe
Electrical Engineering
Faculty Advisor: Dr. Tom Holton

Entry Number 118 UP
CANE PROJECT
By: Gai (Brian) Chan Lu and Christopher John Osian
Electrical Engineering
Faculty Advisor: Dr. Tom Holton

Entry Number 119 UP
LINE FOLLOWER
By: John-Charles Bautista and Tim Wang
Electrical Engineering
Faculty Advisor: Dr. Tom Holton

Entry Number 120 UP
LINE FOLLOWER CAR
By: Me Me Thin
Electrical Engineering
Faculty Advisor: Dr. Tom Holton

Entry Number 121 UP
ROTARY INVERTED PENDULUM
By: Kirk Fitzpatrick and Hezekiel Randolph
Electrical Engineering
Faculty Advisors: Dr. George Anwar and Dr. Tom Holton

Entry Number 122 UP
CNC MILLING MACHINE
By: Issac Siavashani and Sean Mccommens
Electrical Engineering
Faculty Advisor: Dr. George Anwar

Entry Number 123 UP
WATER CONSERVATION IN HOT WATER PIPING SYSTEMS
By: Dustin Holley, Jeremy Romano,
Shadow Moyer, and Steven Gong
Mechanical Engineering
Faculty Advisors: Dr. A. S. Ed Cheng and Michael Strange

Entry Number 124 UP
SOLAR WATER HEATER
By: Kristine Low, Mark Ritchie, Matt Suidan, and Nathan Alloro
Mechanical Engineering
Faculty Advisors: Dr. A. S. Ed Cheng and Michael Strange

Entry Number 125 UP
WONDERBASS!
By: Ansgar Lorenz
Mechanical Engineering
Faculty Advisor: Dr. Dipendra Sinha

Entry Number 126 UP
CROSSBOW
By: William Haugse and Jon Rubick
Mechanical Engineering
Faculty Advisor: Dr. Dipendra Sinha

Entry Number 127 UP
ASME ELECTRIC MOTORCYCLE CONVERSION PROJECT
By: Oliver Burke, George Bainbridge, Nick Certo, David Shirling, Laura
Cioffi, John McMaster, and Andrew Cole
Mechanical Engineering
Faculty Advisor: Dr. Dipendra Sinha and Dr. Kwok Teh

Entry Number 128 UP
HUMAN POWERED VEHICLE
By: Matthew Jaeger, Carlo Sola, and David Kang
Mechanical Engineering
Faculty Advisor: Peter Verdone

Entry Number 129 UP
SFMTA CABLE CAR GRIP EVALUATION SYSTEM
By: John Becker, Ansgar Lorenz, and Sean McCommons
Mechanical Engineering
Faculty Advisor: Michael Strange

Entry Number 130 UP
DESKTOP 3-AXIS CNC MILL
By: Quang Pham
Mechanical Engineering
Faculty Advisor: Dr. Dipendra Sinha

Entry Number 131 UP
FIXED DOCK TOTTER LIFTER
By: Quang Pham, Curtis Hartdegen, Nikko Kusuma, and Cyrus Lam
Mechanical Engineering
Faculty Advisor: Michael Strange

Entry Number 132 UP
TL1 (TOTTER LIFTER 1)
By: Patrick Ng, Dan Luo, and Jose A. Guardado
Mechanical Engineering
Faculty Advisor: Michael Strange

Entry Number 133 UP
TOTTER TIPPER
By: William Haugse, Jon Rubick, Laura Freiburg,
and Jackie (Thuya) Maw
Mechanical Engineering
Faculty Advisor: Michael Strange

Entry Number 134 UP
TRIPLE I-BRIDGE
By: Dong Wen Liang, Man Wai Chan, Wan R. Chen,
Sokari Frank, and Quynh Cao
Civil Engineering
Faculty Advisor: Dr. Norman Owen

Entry Number 135 UP

AERONAUTICAL MUSEUM

By: Henry Diep, Michael Dubrovsky, Raman Fiaskou,
Lauren E. Kirk, Nancy Lee, and Ezekiel Robles
Civil Engineering
Faculty Advisor: Dr. Norman Owen

Entry Number 136 UP

**GEOTECHNICAL FOUNDATION AND WALL DESIGN OF AN
AIRPORT TERMINAL BUILDING AND HOTEL**

By: Andrew Tangsombatvisit, Mary Bokova,
Terence Huey, and Norma Silva
Civil Engineering
Faculty Advisor: Dr. Timothy D'Orazio

Entry Number 137 UP

STEEL BRIDGE

By: Helen Yu-Lee, Robert Gomez, Queena Liang,
Richard Chircop, Gerard Joseph,
Katie Himmelberger, and Marta Minkwitz
Civil Engineering
Faculty Advisor: Dr. Wenshen Pong

Entry Number 138 UP

CABLE STAYED TIMBER BRIDGE

By: Veronica Crothers, Robert Curcio, Candace Cable,
Hai Pham, and LeiLei Hsieh
Civil Engineering
Faculty Advisor: Dr. Norman Owen

Entry Number 139 UP

**EFFECT OF GRAIN-SIZE MIXTURE ON THE FORMATION OF
COARSE FRONTS IN DEBRIS FLOWS**

By: Jo Ann Huerto
Geosciences
Faculty Advisor: Dr. Leonard Sklar

Entry Number 140 Display only

**ROLLAND, THE WHIRLWIND WHEELCHAIR INTERNATIONAL
DOUBLE DRUM WHEELCHAIR TESTER**

By: Chris Howard, Bob Incerti, Aaron Wieler, Craig Lenz,
Ralf Hotchkiss, Alida Lindsley,
and Jon Pearlman (University of Pittsburgh)
Institute for Civic and Community and Engagement with
support from School of Engineering
Faculty Advisors: Michael Strange, Larry Klingenberg,
and Bridget Reymond