

Graduate Biological Science Division Group A

FIRST PLACE

(KENNETH & PAMELA FONG EXCELLENCE AWARD)

Entry Number 13 GL-A

microRNA EXPRESSION PROFILING IN 40 BREAST CANCER CELL LINES

By: Molly Klein-McDowell, Graeme Hodgson (UCSF), Wen-Lin Kuo (LBNL), Andrei Goga (UCSF),
Dr. Chris Benz (Buck Institute), Dr. Joe W. Gray (LBNL), Dr. Paul Yaswen (LBNL)

Cell and Molecular Biology

Faculty Advisor: Dr. Leticia Marquez-Magaña

SECOND PLACE

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

THIRD PLACE

Entry Number 23 GL-A

**THE IMPACT OF BIOFILM FORMATION ON ANTIMICROBIAL RESISTANCE OF
PSEUDOMONAS AERUGINOSA ISOLATED FROM AIRWAYS OF
NEWLY VENTILATED AND CYSTIC FIBROSIS PATIENTS**

By: Juliana Lima

Microbiology

Faculty Advisor: Dr. Susan Lynch (UCSF) and Dr. Frank Bayliss

FOURTH PLACE

Entry Number 5 GL-A

THE HISTONE H2A VARIANT HTAS-1 IS A SPERM-SPECIFIC FACTOR IMPORTANT

By: Colin Fitzpatrick, Aiza Go, and Kristen LaPrade

Cell and Molecular Biology

Faculty Advisor: Dr. Diana Chu

FIFTH PLACE

Entry Number 17 GL-A

THE HUNT FOR RUS SUPPRESSORS

By: Amy M. Shelton

Cell and Molecular Biology

Faculty Advisor: Dr. Zheng-Hui He and Dr. Koei Chin (UCSF)

HONORABLE MENTIONS

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 4 GL-A

A COMPARATIVE ANNOTATION OF DROSOPHILID DICISTRONIC GENES

By: Lala Motlhabi

Cell and Molecular Biology and Computing for Life Sciences

Faculty Advisor: Dr. Christopher D. Smith

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 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

Graduate Biological Science Division Group B

FIRST PLACE

(KENNETH & PAMELA FONG EXCELLENCE AWARD)

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

SECOND PLACE

Entry Number 45 GL-B

THE CONFORMATIONAL CHANGES IN THE ACTIVATION OF SOLUBLE GUANYLATE CYCLASE

By: Jasmin Kristianto, Kensuke Yamamoto, and Thieu Bleu

Biochemistry

Faculty Advisor: Dr. Nancy Gerber

THIRD PLACE

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

FOURTH PLACE

Entry Number 44 GL-B

INVESTIGATING THE BINDING MECHANISM OF OXIDIZED FAD TO SMOA

By: Michelle Beaton

Biochemistry

Faculty Advisor: Dr. George Gassner

FIFTH PLACE

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

HONORABLE MENTIONS

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 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

Graduate Physical Science Division

FIRST PLACES

Entry Number 61 GP

**PREDICTING CANCER PATIENT PROGNOSIS FROM
CGH PROFILES USING ALGEBRAIC HOMOLOGY**

By: Daniel DeWoskin

Mathematics and Computing for Life Sciences

Faculty Advisor: Dr. Javier Arsuaga

Entry Number 72 GP

CS-DOPED NANOPOROUS FILMS: FUNDAMENTAL PHYSICAL

By: Georgi Diankov

Chemistry

Faculty Advisor: Dr. Andrew Ichimura

THIRD PLACE

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. Kazunori Okada and Dr. Reyes Enciso (USC)

FOURTH PLACE

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

FIFTH PLACE

Entry Number 51 GP

AN ISOMORPHISM THEOREM FOR COTRANSVERSAL MATROIDS

By: Amanda Ruiz

Mathematics

Faculty Advisor: Dr. Federico Ardila

HONORABLE MENTIONS

Entry Number 52 GP
COMMUTATOR FORMAL AUTOMORPHISMS IN CHARACTERISTIC 2 AND 3
By: Maree Afaga
Mathematics
Faculty Advisor: Dr. Joseph Gubeladze

Entry Number 57 GP
VISUALIZATION OF SURFACE-BASED MOLECULAR CHARACTERISTICS USING DEFORMABLE MODELS
By: Nicolay Postarnakevich
Mathematics
Faculty Advisor: Dr. Rahul Singh

Entry Number 63 GP
CLASSIFICATION OF LARGE PERIAPICAL LESIONS
By: Arturo Flores and Steve Rysavy
Computing for Life Sciences
Faculty Advisors: Dr. Kazunori Okada and Dr. Reyes Enciso (USC)

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 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 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

Undergraduate Biological Science Division

FIRST PLACE

(KENNETH & PAMELA FONG EXCELLENCE AWARD)

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

SECOND PLACE

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

THIRD PLACE

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

FOURTH PLACE

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

FIFTH PLACE

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

HONORABLE MENTIONS

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 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 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 93 UL

COMPARATIVE qPCR REPRODUCIBILITY

By: Inara Iskenderova, Shui Lam (Yvonne) Mak, and Dan Kelliher

Biochemistry

Faculty Advisor: Dr. Elizabeth Runquist

Entry Number 97 UL

SYNTHESIZING DIARYLUREAS AS POTENTIAL INHIBITORS OF IGF-1R

By: Jason Cook

Biochemistry

Faculty Advisor: Dr. Marc O. Anderson

Undergraduate Physical Science Division

FIRST PLACES

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

SECOND PLACE

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

THIRD PLACE

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

FOURTH PLACE

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

FIFTH PLACE

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

HONORABLE MENTIONS

Entry Number 108 UP
INTERACTIVE MODULAR SYNTHESIZER FOR AUDIO GENERATION
By: Trevor Blackstone
Computer Science
Faculty Advisor: Dr. William Hsu

Entry Number 116 UP
GPS ACTIVATED AUDIO TRANSMITTER
By: Brandon Wong and Jackson Taylor
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 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 128 UP
HUMAN POWERED VEHICLE
By: Matthew Jaeger, Carlo Sola, and David Kang
Mechanical Engineering
Faculty Advisor: Peter Verdone

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 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