The 6th Annual College of Science Student Research Day, Friday, May 7, 2010 Duncan Hall, First floor breezeway 10:00am to 1:00pm

Department of Biological Sciences

1. The Response of *Zigadenus fremontii* (Liliaceae) to Variation in Fire Regime.
Shannon Dinis
Faculty: Susan Lambrecht, M. Beth Dawson, David Bruck

3. Expression of CAM Photosynthetic Activity in a Coastal Dune *Dudleya* (Crassulaceae) in Association With Flowering.
Maria Bangal
Faculty: Susan Lambrecht

4. Characterization of Notch and Mastermind in Breast Cancer Cell Lines
Iris Delgado
Faculty: J. Brandon White

5. $FADH_2$-Dependent Halogenases in Marine Bacteria.
June Shinseki, Milena Lilles
Faculty: Sabine Rech

6. Analysis of Archeal Sequences from Microbial Communities in the Mojave Desert.
Katya Polovina, Carlo Testa
Faculty: Sabine Rech

7. A Novel Role for UNC-40/DCC and UNC-6/Netrin in Synaptic Partner Choice.
Joori Park, Philip Knezevich, William Wung, Shanté O'Hanlon, Akshi Goyal, Mekala Rahman, Kang Shen,
Faculty: Miri VanHoven

8. Investigation of the UNC-6/Netrin and UNC-40/DCC-Mediated Synaptic Partner Choice Pathway in *C. elegans.*
Kelli Benedetti, Akshi Goyal, Dianicha Santana, Pooja Prasad, Joori Park
Faculty: Miri VanHoven

9. A Forward Genetic Screen to Identify New Genes that Mediate Synaptic Partner Choice in *C. elegans.*
Shanté O'Hanlon, Mekala Raman
Faculty: Miri VanHoven

10. The Effects of *Bordetella pertussis* and *Bordetella parapertussis* on T Cell Trafficking

Molecules.
Brian Kwong, Sana Waheed, Nicole Tarlton, Dipti Ravindra
Faculty: Tzvia Abramson

11. Multicolor Flow Cytometry Analysis of Circulating IgA Plasmablasts Homing to Gut Mucosa in Inflammatory Bowel Disease Pediatric Patients Treated with Immunosuppressive Medications .
Nicole Tarlton, Caroline Green, Sandy Voong
Faculty: Tzvia Abramson

12. The Fine Line Between Human and Sludge Microbiomes.
Jamsheed Ghadiri, Jorge Dinis
Faculty: Cleber Ouverney

13. Apoptosis Induction by HUVEC and HeLa Cells by Acocostatin.
Agustin Seoane, Carla Ramos, Takele Taklemariam
Faculty: Julio G. Soto

14. Functional Characterization of Three RGD Mutants of the Recombinant Mojastin disintegrin.
Jason Choi, Agustin Seoane, Brandon Gaytan
Faculty: Julio G. Soto
Collaborators: Elda Sanchez, Sara Lucena, Maria Sugarek NTRC (Texas A&M University-Kingsville)

15. Genetic characterization of Dungeness crab *(Cancer magister)* populations along the Pacific Northwest coast using mitochondrial and nuclear DNA.
Bryan Barney, Humberto Rocha, Joshua Mackie, and Leslee Parr
Faculty: Dr. Leslee Parr, Dr Joshua Mackie

16. Sexing Greater Roadrunners (*Geococcyx californianus*) using External Morphology and Discriminant Function Analysis.
Humberto Rocha, Michael MacDonald, Joshua Mackie, and Leslee Parr
Faculty: Dr. Leslee Parr, Dr Joshua Mackie

17. Examination of Tbx5 Expression During Chick Embryonic Heart Development.
Viashali Agarwal, Adriena Martinez
Faculty: Steven White.

Department of Chemistry

18. A new hybrid enzyme for the selective hydroxylation of substrate unactivated C-H bond using light and water.
Phuong Ngoc, Mary E. Cooper, Ngoc Huynh, Misa Au
Faculty: Lionel E. Cheruzel

19. Novel Molecular Imprinted Polymer as P450 metalloenzyme active site mimic.
Ruby Lo, Matthew T. Berry, Amandeep Nijjar
Faculty: Lionel E. Cheruzel

20. Development of a Novel, LC/MS Compatible Method for the Quantitation of Folic Acid in Fortified Juices and Cereals using Aqueous Normal Phase Chromatography.
Josh E. Young
Faculty: Joseph J. Pesek, Maria M. Matyska
Collaborators: Sergio Yoc

21. Synthesis and Characterization of Circularly Polarized Luminescence Ln(III)-Containing Probes.
Andrew J. Ingram, Eliseo E. Quiroz, Alex Dunlap, Truman Jefferson
Faculty: Gilles Muller

22. Importance of Using Circularly Polarized Luminescence Spectroscopy for Chiroptical Characterization of Lanthanide(III) Complexes.
KimNgan T. Hua, Jamie L. Lunkley
Faculty: Gilles Muller

23. Towards the Synthesis of Fluorinated Sialic Acids.
Leon Castaneda, Laila Dafik
Faculty: Marc d'Alarcao*

24. A Traceless Staudinger Ligation Approach to Hybrid Inositol Glycan Analogues.
Smita Fulzele
Faculty: Marc d'Alarcao

25. The Effects of Organics on Atmospheric Sulfuric Acid Particles and the Implications for Climate.
Kieu Ha,
Faculty: Annalise Van Wyngarden
Collaborators: Carolyn Belle, The Colorado College, Colorado Springs, CO; Cecilia Dalle Ore, Dartmouth College, Hanover, NH; Matthew Morrissey, University of California, Berkeley, CA; Jeffrey Rodgers, Dickinson College, Carlisle, PA; Deborah Gross, Carleton College, Northfield, MN; Laura Iraci, NASA Ames Research Center, Moffett Field, CA

26. Organic Chemistry in Atmospheric Particles: Implications for Climate.
Faculty: Annalise Van Wyngarden
Collaborators: Carolyn Belle, The Colorado College, Colorado Springs, CO; Landon Brown & Cecilia Dalle Ore, Dartmouth College, Hanover, NH; Rebecca Hooper, California Polytechnic State University, San Luis Obispo, CA; Matthew Morrissey, University of California, Berkeley, CA; Jeffrey Rodgers, Dickinson College, Carlisle, PA;

27. Use of CD Spectroscopy to Assess the Biocompatibility of Silica-based Materials.

Gary R. Abel, Jr, Phillip J. Calabretta, Mitchell C. Chancellor, Carlos Torres
Faculty: Daryl K. Eggers

28. Do Changes in Lysozyme Stability Correlate with Changes in the Free Energy of Bulk Water?
Lana E. Whitmer
Faculty: Daryl K. Eggers

29. Sequence Homology Calculations for Proteins and Relevant DNA Indicate Specific Limitations for a Gap-Based Parameter.
Trung Nguyen, Sylvia Do, Radhika Mishra
Faculty: Brooke Lustig

30. Synthesis and Purification of TAR RNA and Tat Peptides from Bovine Immunodeficiency Virus.
Jonathan Grist, Heather Wright
Faculty: Elaine D. Collins

31. Cloning the Human Vitamin D Receptor into the pE-SUMOstar Expression Vector.
Lily Le, Aileen Espinoza, Amanda Rodriguez, Charae Gilbert, Mallory Kato
Faculty: Elaine D. Collins

32. Exploring Sticking Behavior of Water Vapor on Ice at Martian Conditions.
Brendan D. Mar
Faculty Advisor: Bradley M. Stone
Bruce D. Phebus, Laura T. Iraci, Anthony Colaprete (NASA Ames Research Center)

33. Gel Encapsulation of Bromperoxidase.
John Kim. William Wung
Faculty: Roy Okuda

34. Effects of Gel Encapsulation on *Corallina vancouverensis* Acetone Powder (CVAP) Bromoperoxidase Activity.
William Wung, John Kim, Nophodol Angunsri, Christine Hoang
Faculty: Roy Okuda

35. Synthesis and Chemistry of Verdazyl Free Radicals.
Faculty: David Brook

36. 'Using MATLAB to Model Complex Reactions.
Faculty: David Brook

37. The First C-H Bond Enthalpy in Methane: A Molecular Modeling Exercise.
Nahal Nassabeh, Mark Tran
Faculty: Patrick E. Fleming

38. Hydroxyl Radical Attack on Chloroform: Searching for a Transition State for a Chlorine Removal Initial Step.
Daniel Haber
Faculty: Patrick E. Fleming

39. On the Effects of Carboxylate Rotation on the Molecular Orbitals of 2, 6 Pyradine Dicarboxylic Acid.
Jeffrey Berry
Faculty: Patrick E. Fleming

Department of Computer Sciences

40.. Online Monitoring Using Wireshark.
Sathya Anandan
Faculty: Mark Stamp

41. Buffer Overflow for Virus Entry Point Obfuscation.
Ronak Shah:
Faculty: Mark Stamp

42. Evading Active Botnet Detection.
Kenny Zhang
Faculty: Mark Stamp

43. Improving Spam Classification Times Using Multiple Instance Classifiers.
Nicolas Lee
Faculty: Teng Moh

44. Routing in Mobile Ad-hoc Networks .
Katherine Isaacs, Julie Hsieh
Faculty: Melody Moh

45. Enhanced Cross-Layer Handoff for Mobile Wimax .
Pat Jangyodsuk, Phuong Huynh.
Faculty: Melody Moh

Department of Geology

46. A Petrographic Link Between the Late Cretaceous Pigeon Point Conglomerate and Felsitic Volcanic Rocks Near Pescadero, California.
Anne Sanquini
Faculty: Ellen P. Metzger
Collaborator: Robert J. McLaughlin, U. S. Geological Survey, Menlo Park, CA

Moss Landing Marine Laboratories

47. Don't Be Scared, Just Swim Away: the C-start Escape Response in Four Species of Surfperches (Embiotocidae) From Central California.
Benjamin M. Perlman
Faculty: Lara Ferry-Graham

Department of Meteorology and Atmospheric Sciences

48. A Case Study of Wind Resource Assessment on a High-Rise Building.
Shawn Padrick, Daisuke Seto
Faculty: Craig B. Clements

Department of Physics and Astronomy

49. An Interactive Exoplanet Transit Simulator.
Mark Templeton
Faculty: Monika Kress