

**Program**  
**5th College of Science Student Research Day**  
**May 1, 2009**  
**Duncan Hall**

**Department of Biological Sciences**

**1. Biogeography and Evolutionary Divergence of *Eriogonum nortonii*.**

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**2. A New Role for UNC-40/DCC and UNC-6/Netrin in Synaptic Partner Choice.**

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**3. Morphological plasticity of *Collinsia heterophylla* (Chinese houses; Scrophulariaceae) in**

Faculty: Ruthann Kibler and J. Brandon White

### **Department of Biological Sciences (continued)**

**11. Effects of *Bordetella pertussis* Antigens on the Maturation State of Bone Marrow Cultured Dendritic Cells.**

Sana Waheed, Vaishali Agarwal

Faculty: Ruthann Kibler and

**12. Functional Analysis and Molecular Modeling of r-Mojastin and two Binding-loop Mutants.**

Victoria L. Tran, Elda E. Sanchez, Brandon Gaytán, Jason L. Choi, Sara E. Lucena, Maria Sugarek, Stephanie A. Mandal, Shervin Ghorab

Faculty: Julio Soto

**13. Determining the Role of ARE2 Sites in the Localization of Hro-Twist mRNA in *Helobdella robusta* Embryos.**

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**14. Diversity of the Microbial Population Associated With the Wall of Estuarine Mud Shrimp Burrows.**

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**15. Special Leukocyte Subsets Present During Homeostatic Conditions in Balb/c Mice.**

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**16. Production of a monoclonal antibody against the human alpha 4 beta 7 gut-homing integrin**

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### **Department of Chemistry**

**17. The Continued Development of Circularly Polarized Luminescence Into a Biomolecular Structural Probe.**

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**18. Luminescence Dependence on Speciation and pH of MEBDPA Ligand**

Alex Dunlap

**19. Si-H Bond Enthalpy in Substituted Silanes: A Computational Investigation.**

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**Department of Chemistry (continued)**

**21. A Calorimetry Approach for Quantifying the Role of Water in Protein Folding.**

Elisa Aguilar, Lana E. Whitmer, Deauna D. Mansfield

Daryl K. Eggers

**22. Effects of Surface Chemistry on the Structure of Apomyoglobin in a Confined Environment.**

Phillip J. Calabretta, Carlos Torres

Daryl K. Eggers

**23. Unusual Patterns of Protein Packing Corresponding to Specific Clusters of Surface Accessible Residues.**

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**24. Modification of HPLC Method for PAH analysis for Chem 55 Lab.**

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**25. Exploring Nucleation and Growth of Water Ice at Martian Conditions**

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**26. Cloning the cDNA of the Nuclear Receptor for Vitamin D into a pTWIN1 Expression**

**32. Sol-Gel Encapsulated Bromoperoxidase: The Effect of Gel shape and Size on Enzyme Activity.**

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**33. Iron Terpyridine-Pyrene Electrochemistry Study on Glassy Carbon and Carbon Nanotubes**

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**Department of Meteorology**

**43. Water Vapor Enhancement in Prescribed Fire Plumes.**

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**44. Analysis and Characterization of Monsoonal Surges into Southern California's Deserts.**

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**45. Extratropical Initiation of Northward Surges of the North American Monsoon.**

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**46. PM<sub>2.5</sub> and Carbon Emissions from Prescribed Fires in a Long-**

## **50. Verification of NAM and GFS Model Pressure Gradient Forecasts for California**

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***Thanks and congratulations** to all the hard working undergraduate and graduate students, and their faculty advisors for their hard work and for sharing it with us today!*