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   Abstracts of Posters Presented

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   Posters and Presentations Made at Professional Meetings
   Recipients of UBRP Travel Awards
   UBRP Visiting Student Researchers
   BRAVO! Datablitzes
   UBRP Seminars
   UBRP Field Trips and Social Activities

III. Alumni of the Undergraduate Biology Research Program

IV. Outreach Programs in Biology
   The Manduca Project
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Acknowledgements

UBRP and the UBRP Conference are funded in part by grants from the Howard Hughes Medical Institute (52003749), the National Institutes of Health (TW00036), the National Science Foundation (DBI-0242842), the Beckman Foundation, the American Society for Pharmacology and Experimental Therapeutics, faculty sponsor’s research grants, and The University of Arizona. We gratefully acknowledge our funding sources.
I.

THE SIXTEENTH ANNUAL
UNDERGRADUATE BIOLOGY
RESEARCH
CONFERENCE

January 29, 2005
### 16th Annual Undergraduate Biology Research Conference

*Life Sciences South Building*

*Saturday, January 29, 2005*

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<tr>
<td>8:00 am - 9:00 am</td>
<td>Students set up posters</td>
<td>Refreshments Room 240</td>
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<tr>
<td>9:00 am - 9:10 am</td>
<td>Welcome</td>
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| 9:10 am - 10:10 am | Poster Session I – Life Sciences  
2nd and 3rd Floor  
(Includes posters by participants in outreach programs) |                           |
| 10:10 am – 10:20 am | Mini-awards Ceremony for Outreach Programs' Participants          | Dr. Michael Wells  
Professor of Biochemistry   |
| 10:20 am – 11:20 am | Poster Session II – Life Sciences  
2nd and 3rd Floor                                                                                 |
| 11:20 am – 11:50 am | Introduction of Keynote Speaker  
2nd Floor Atrium  
Keynote Address – “The Shattered Self: The End of Natural Evolution”  
Dr. Pierre Baldi,  
Director, Institute for Genomics and Bioinformatics at UC Irvine  
and Professor of Information and Computer Science and Biological Chemistry | Daniel Wood,  
UBRP student                                                 |
| 11:50 am - 12:50 pm | Poster Session III – Life Sciences  
2nd and 3rd Floor                                                                                 |
| 12:50 pm – 1:00 pm | Presentation of Awards                                                   | Dr. Michael Wells  
Professor of Biochemistry   |
UBRP and the UBRP Conference are funded in part by grants from the Howard Hughes Medical Institute (52003749), the National Institutes of Health (TW00036), the National Science Foundation (DBI-0242842), the Beckman Foundation, the American Society for Pharmacology and Experimental Therapeutics, faculty sponsor’s research grants, and The University of Arizona. We gratefully acknowledge our funding sources.
LIST OF UNDERGRADUATE PRESENTERS AND THEIR ABSTRACTS

SIXTEENTH ANNUAL UNDERGRADUATE BIOLOGY RESEARCH CONFERENCE

1. ANALYSIS OF A DOMINANT INTRAGENIC SUPPRESSOR OF BRI1 IN ARABIDOPSIS. Andrea Aguirre, Rene Michel, Frans Tax
2. IDENTIFICATION OF THE MLT1 GENE REQUIRED EYESPOT ASSEMBLY IN CHLAMYDOMONAS REINHYARDTII. Sommer Aldulaimi, TelsaMittelmeier, Carol Dieckmann
3. DISCOVERY OF ANTINOCICEPTIVE COMPOUNDS FOR TREATMENT OF PAIN. Adrienne Begaye, Josephine Lai, Shouwu Ma, Hamid Badghisi
4. AN EXPLORATION OF INTERCELLULAR COMMUNICATION IN THE DEVELOPING OLFACTORY SYSTEM OF DROSOPHILA MELANOGASTER. John Biebelhausen, Nicholas J. Gibson, Leslie P. Tolbert
5. METABOLITE CHANGES IN HT-29 XENOGRAFT TUMORS FOLLOWING HIF-1α INHIBITION WITH PX-478 AS STUDIED BY MR SPECTROSCOPY IN VIVO AND EX VIVO. Kvar Black, Benedicte Jordan, Ian F. Robey, Matthew Runquist, Garth Powis, Robert J. Gillies
6. MECHANISM OF HER-2/NEU TRANSCRIPTION INITIATION IN BREAST CANCER. Meghan Boros, Amy Ziemia, Scot W. Ebbinghaus
7. UVA-INDUCED MODULATION OF Bcl-XL BY C-Jun -TERMINAL KINASE (JNK) IN HUMAN KERATINOCYTES. Olivia Brown, Amy L. Silvers, Michael A Bachelor, G. Timothy Bowden
8. STUDIES OF 17-O LABELED SULFITE OXIDASE USING MULTI-DIMENSIONAL PULSED EPR SPECTROSCOPY. Eric Bultman, Andrei Astachkine, Changjian Feng, John Enemark
9. ENTERAL ADMINISTRATION OF EGF + HB-EGF COMBINATION DECREASES THE INCIDENCE OF NECROTIZING ENTEROCOLITIS. Lori Burger, Melissa D. Halpern, Tara A. Saunders, Jessica A. Clark, Sarah M. Doelle, Catherine S. Williams, Bohuslav Dvorak
10. USA CORE LOCI ONLINE: Y-CHROMOSOMAL SHORT TANDEM REPEAT (USAYSTR) HAPLOTYPE REFERENCE DATABASE. Karl Calde ron, Alan J. Redd, Nirav Merchant, Michael R. Hammer
11. REAL TIME PCR VERIFICATION OF GENE EXPRESSION OF HUMAN UMBILICAL CORD BLOOD STEM CELLS. Daniel Camacho, Xianghui He, Tom Tsang, David T. Harris
12. EFFECTS OF PEA APHID (Acyrthosiphon pisum) T-TYPE SECONDARY SYMBIONTS ON THE BEHAVIOR OF A NATURAL ENEMY, Aphidius ervi, IN Y-TUBE. Jaime Campos, Kerry M. Oliver, Martha S. Hunter
13. A GENETIC APPROACH TO IDENTIFY GENES INVOLVED IN ACQUIRED THERMOTOLERANCE IN ARABIDOPSIS THALIANA. Joseph Carroll, Dawool Seok, Ung Lee, Elizabeth Vierling
14. PARTIAL PURIFICATION AND CHARACTERIZATION OF A HALOTOLERANT AMIDASE IN HALORUBRUM SP. E4. Susheela Carroll, Derek Fairley, Mike Larkin, Christopher Rensing
15. INVESTIGATION DE EL POBLADO DE CIBUTA SOBRE CONTAMINATES (INVESTIGATION OF THE POPULATION OF CIBUTA ABOUT ENVIRONMENTAL CONTAMINANTS). Carmina Cervantes
16. SELECTIVE MELANOTROPIN DRUGS FOR OBESITY AND RELATED DISORDERS. Kevin Chandler, Minying Cai, Dev Trivedi, Victor J. Hruby

17. MUC1 AND β-CATENIN INTERACTIONS PROMOTE BREAST CANCER METASTASIS. Andrew Chang, Dr. Joyce A. Schroeder

18. TRANSLATIONAL CONTROL OF EARLY TRYPSIN mRNA VIA PHOSPHORYLATION IN THE MOSQUITO Aedes aegypti. Matthew Clark, Linda Mobula, Michelle Brandon, James E. Pennington, Michael A. Wells

19. DEVELOPMENT OF A NEW METHOD TO QUANTITATIVELY MEASURE ADP-RIbose POLYMERS. Omar Contreras, Donna L. Coyle, Myron K. Jacobson

20. THE ROLE OF SMALL HSPs IN ARABIDOPSIS THALIANA THERMOTOLERANCE. Jennifer Corrigan, Julie Bordowitz, Surekha Katiyar Agarwal, Eman Basha, Elizabeth Vierling

21. SENSITIVE DETECTION OF A MOLECULAR MONOLAYER BY AN ULTRA THIN FILM OPTICAL PLANAR WAVEGUIDE. Jill Craven


23. HUMAN GLIOMA CELL LINES TESTED FOR GENE EXPRESSION OF TUMOR ANTIGENS. Rachel Diaz, Margaret H. Smith

24. CYTOCHROME C OXIDASE: EFFECTS OF ANTIOXIDANTS. Barbora Dvorakova, Claire Payne

25. ROLE OF NF-κB IN UVB-IRRADIATED IMMORTALIZED KERATINOCECTYES POST-TREATED WITH EPIGALLOCATECHIN-3-GALLATE. Aluvia Escalante, Terry H. Landowski, Betty G. Gibson, Robert T. Dorr, Steven P. Stratton

26. EFFICIENCY OF DIFFERENT SILENCING-CONSTRUCTS IN INDUCING RNAi SUCCESSFULLY IN ARABIDOPSIS THALIANA. Alice Ferng, Chonglie Ma, Richard Jorgensen

27. CHARACTERIZATION OF MICROBIAL OPULATIONS IN SULFATE REDUCING BIOFILM USING MOLECULAR ECOLOGY TECHNIQUES AT WAGENINGEN UNIVERSITY, THE NETHERLANDS. Stephanie Freeman, Mahmut Altinbas, Dr. Hauke Smidt, Prof. Dr. Alfons Stams, Dr. Reyes Sierra


29. COMMUNITY NETWORKING FOR SUSTAINABLE SCHOOLYARD HABITATS. Justin Gaines, Stephanie Pagac

30. VITAMIN E ANALOUGE AS A NOVEL TREATMENT FOR CANCER. Mikhal Gold, Tobias Hahn, Emmanuel T. Akporiaye

31. ELUCIDATION OF THE MECHANISMS OF RESPONSE TO HEAT AND LIGHT STRESS IN TOMATO. Emily Hattrup, Paul Haynes

32. INVESTIGATING THE INTERACTION OF THE GIANT PROTEIN NEBULIN WITH THE INTERMEDIATE FILAMENT PROTEIN DESMIN. Syerra Henderson, Gloria Conover, Carol Gregorio
33. PROTEIN MODIFICATION OF SYNTHETIC VASCULAR GRAFTS. Heidi Hofer, Kristen O'Halloran, Alice Stone, Stuart Williams

34. TONOTOPICALLY ORGANIZED AXONAL PROJECTIONS TO THE AUDITORY THALAMUS. Michael Holmes, David S. Velenovsky, Nathaniel T. McMullen

35. LIMITATIONS ON DENATURING GRADIENT GEL ELECTROPHORESIS ANYLSIS OF BACTERIAL DIVERSITY IN MINE TAILINGS. Sadie Iversen, Karyna Rosario, Raina M. Maier

36. IDENTIFYING NOVEL PROTEIN INTERACTIONS WITH THE ARABIDOPSIS THALIANA GENE FIS2 THROUGH A YEAST TWO-HYBRID SCREEN. Shawn Jackson, Dongfang Wang, Mark Tyson, Ramin Yadegari

37. INCREASED EXPRESSION OF GLUCOSE-6-PHOSPHATE DEHYDROGENASE SENSITIZES MURINE THYMOCYTES TO GLUCOCORTICOID-INDUCED APOPTOSIS. David Johnson, Margaret E. Tome, Margaret M. Briehl

38. EFFECTS OF FIRE ON MIDDEN MOVEMENT OF ENDANGERED MT. GRAHAM RED SQUIRRELS. Julia Lin Jolley, Claire Zugmeyer, Dr. John Koprowski

39. SCREEN FOR GENES INVOLVED IN INTEGRIN SIGNALING. S. Kent Kemmish Jr, Danny Brower, Alison Jannuzi.

40. STUDY OF CHARGED LIPIDS ON ACTIVATION OF RHODOPSIN USING PLASMON WAVEGUIDE RESONANCE (PWR) SPECTROSCOPY. Pick Wei Lau, Michael F. Brown

41. CREATING BACTERIAL LUCIFERASE FUSION ENZYME BY LINKING LUXA AND LUXB GENES. Junglim Lee, John Osterhout, and Thomas O. Baldwin

42. VOLUNTARY EXERCISE TRAINING INCREASES INSULIN ACTION ON GLUCOSE TRANSPORT BUT NOT ON UPSTREAM INSULIN SIGNALING IN SKELETAL MUSCLE OF HYPERTENSIVE TG(m RE`2)27 RATS. Andrew Lemieux, Cody J. Diehl, Julie A. Sloniger, Erik J. Henriksen

43. DETERMINATION OF ESTROGENIC ACTIVITY IN ENVIRONMENTAL SOLIDS. Cary Leung, Jianmin Zhang

44. CHANGES IN CELL AND NUCLEI SIZE THROUGH OVEREXPRESSION OF CELL CYCLE REGULATORY PROTEINS SUGGEST SEPARATE PATHWAYS FOR THE REGULATION OF CELL GROWTH AND CELL PLOIDY. Vivian Lien, Airlia Thompson, Paula Campbell, Jodi Mosley, Giovanni Bosco

45. EVOLUTION OF EXTRA-PAIR MATING STRATEGIES IN A SOCIALLY MONOGAMOUS BIRD: CAUSES AND CONSEQUENCES. Erin Lindstedt, Alexander V. Badyaev

46. REGULATION OF MIDGUT PROTEASE EXPRESSION AND OOGENESIS IN AEDES AEGYPTI. Stephen Lu, Tracey Paetow, James Pennington, Michael Wells

47. TITERES EN ECOLOGIA (PUPPETS IN ECOLOGY). Crisel Lugo, Damaris Suarez, Arlahé Beltrán, Dylen Velasquez

48. ALLOCATION STRATEGIES OF DATURA WRIGHTII IN WET AND DRY ENVIRONMENTS. Kelly Mackay, Judith Bronstein, Goggy Davidowitz, Travis Huxman

49. INDUCTION OF APOPTOSIS IN G-361 HUMAN MELANOMA CELLS. Brittany Martin, Georg Wondrak, Elaine Jacobson
50. LOOKING FOR CHANGE? CHECK YOUR GENES? ANTIGENIC VARIATION OF GXARDIA LAMBIA. Charles Martinez, Rodney Adam

51. VIVEROS Y INVERNADEROS ESCOLARES (SCHOOL-BASED NURSERIES AND GREEN HOUSES). Alfonso Mendoza, Laura Sandoval, Eleana Saenz, Berenice Almada, Guillermo Rafael Quintero

52. SEXUAL ORNAMENTATION AS AN INDICATOR OF FUTURE PARENTAL CARE: AN EXAMPLE WITH THE HOUSE FINCH. Jerod Merkle, Kevin Oh, Alex Badyaev

53. REVERSE GENETIC ANALYSIS OF THE EXTRACELLULAR DOMAIN OF THE RECEPTOR KINASE BRASSINOSTEROID INSENSITIVE 1 (Brl 1) IN ARABIDOPSIS THALIANA. Rene Michel, Michael Wierzba, Frans Tax

54. REACTIVATION OF ARC PROTEIN FOLLOWING BEHAVIORAL EXPLORATION. Dalia Mikhael, V. Ramirez-Amaya, A. Vazdarjanova, P.F. Worley, C.A. Barnes


56. IDENTIFICATION AND MAPPING OF MUTATIONS AFFECTING FRUIT DEVELOPMENT IN ARABIDOPSIS THALIANA. Andrea Mitchell, Frans Tax

57. CHARACTERIZATION AND GENERATION OF A MELANOMA PHENOTPE EXHIBITING ROBUST METASTASIS VIA MICROENVIRONMENTAL ACIDITY. Raymond Moellering, Robert J. Gillies

58. PURIFICATION AND INVESTIGATION OF GTP CYCLOHYDROLASE II HOMOLOGS FROM HELICOBACTER PYLORI. Shane Morrison, Vahe Bandarian

59. SUBSTANCE-P ANALOG IN TREATMENT OF ACUTE RADIATION SICKNESS. Celine Nardi, Dr. Mark Witten, Dr. Wong, Dr. Hoehn

60. SYNTHESIS OF OCTASUBSTITUTED BENZYLARYL ETHER DENDRITIC PHTHALOCYANINES. Michael Neish, Casey Kernag, Dominic V. McGrath

61. EFFECT OF RESISTANCE ALLELES TO BACILLUS THURINGIENSIS (BT) TOxin IN PINK BOLLWORM, PECTINOPHORA GOSSYPIELLA ON ABILITY TO DETECT PHEROMONE TRAPS IN THE FIELD. Megan Nyboer, C. Ellers-Kirk, James Sollome, Robert W. Biggs, R. Staten, T.J. Dennehy, B. D. Tabashnik

62. DETERMINATION OF THE CELLULAR SOURCE OF IFN-γ and IL-4 IN HUMAN DECIDUAL TISSUE. Diana Olivas, Ehteshami,, S., Brown, M.A.

63. THE EFFECT OF X-LL3 OVER EXPRESSION ON OLFATORY EPITHELIUM DEVELOPMENT IN XENOPUS LAEVIS. Douglas Ota, Andres Clark, Gail Burd

64. WHOLE BLOOD PLATELET AGGREGATION IN AN ANIMAL MODEL OF TYPE 2 DIABETES. Garrett Pacheco, Grace Davis-Gorman, Lisa Davidson, Loren Miller, Katie Finnerty, Raysenia James, Danielle Skrobach, Leslie Ritter, Paul Nolan, Paul McDonagh

65. SURVEY OF MITOCHONDRIAL RNA IN SACCHAROMYCES CERVISIAE AFTER NUCLEAR GENE DELETIONS. Alok Patel

66. ROLE OF VIRULENCE AND GLOBAL REGULATORS IN EXPRESSION OF TYPE 1 PILI OF ENTEROPATHOGENIC ESCHERICHIA COLI. Christine Poach, Jorge A. Giron
67. AN ITERATIVE ROOT-FINDING APPROACH FOR DETERMINATION OF ANISOTROPIC OPTICAL CONSTANTS AND SURFACE COVERAGE OF CYTOCHROME c FILMS. Nicole Rasmussen, Anne F. Runge, S. Scott Saavedra, Sergio Mendes

68. CONVERCION DE GRASAS NATURALES/ANIMALES A BIODISEL (CONVERSION OF VEGETABLE AND ANIMAL OILS TO BIODIESEL). Carmina Reyes

69. THE ROLE OF METAL DOSING IN SULFATE REDUCTION AT LOW pH. Pieter Rowlette, Piet Lens, Sonia Lopes

70. EFFECTS OF ANANDAMIDE APPLIED TOPICALLY TO CB2 KNOCKOUT MICE. Megan Rude, T. Philip Malan

71. SEASONAL CHANGES IN HERBIVORY: DOES THE MONSOON CAUSE PLANTS TO GO MISSING?. Rebecca Ruppel, Judie Bronstein, Travis Huxman, Goggy Davidowitz

72. COMPARISON OF ORGANIC CATION TRANSPORTER MRNA LEVELS IN MOUSE PROXIMAL TUBULES USING REAL-TIME PCR. Emily Schaaf, Kristen K. Evans, Stephen H. Wright, William H. Dantztler


74. MULTIPLE MATING AND SEGREGATION DISTORTION IN NATURAL POPULATIONS OF THE HOUSE MOUSE, MUS MUSCULUS. Kimberly Smith, Matthew D. Dean, Michael W. Nachman

75. ESTIMATION AND EXPLANATION OF Y CHROMOSOME MICROSATELLITES FROM PEDIGREE ANALYSIS. Jennifer Spangle, Matthew Kaplan, Michael Hammer

76. NEUROINFLAMMATION ALTERS THE HIPPOCAMPAL PATTERN OF BEHAVIORALLY-INDUCED ARC EXPRESSION. Aldrich Sy, S. Rosi, V. Ramirez-Amaya, A. Vazdarjanova, P.F. Worley, C.A. Barnes, G. L. Wenk

77. BEYOND SILICON COMPUTING-EXPLORING HOW NATURE COMPUTES. Kate Taralova, Tim Spriggs

78. IN VITRO STUDIES OF AMMONIA METABOLISM IN AEDES AEGYPTI FAT BODY USING STABLE ISOTOPE LABELING. Kelsey Thorson, Patricia Y. Scaraffia, Qingfen Zhang, Vicki H. Wysocki, Michael A. Wells.

79. PRO-DRUGS FOR EFFECTIVE TOPICAL DELIVERY OF NICOTINIC ACID. Maria Trissal, Elaine Jacobson, PhD, Moonsun Kim PhD

80. STUDYING THE FUNCTIONAL PROPERTIES OF THE NEBULOUS MUSCLE PROTEIN, NEBULIN. Melinda Valichnac, Abigail McElhinny, Carol Gregorio

81. X-CHROMOSOME ELIMINATION AT MALE PRODUCTION IN ASEXUAL APHID LINEAGES. Monica Villar, Christoph Vorbürgler, Alex C.C. Wilson

82. EFFECTS OF XDL3 AND XDL4 MORPHOLINOS ON THE DEVELOPING XENOPUS LAEVIS EMBRYO. Sarah Whitley, Andrew Clark, Melissa Drake, Christina Kwong, Gail Burd
83. BACTERIA, APOTOSIS, AND COLON CANCER. Megan Wilson, Renata Stepankova, Hana Holubec, Claire Payne, Harris Bernstein, Luca Vannucci, Katerina Dvorakova, Harinder Garewal

84. ANALYSIS OF STRUCTURE/FUNCTION RELATIONSHIP BETWEEN COILED-COIL REGION AND AXIAL CHANNEL OF HSP104. Justin Wong, Ung Lee, Elizabeth Vierling

85. ANALYSIS OF POLYCOMB GROUP PROTEINS CLF, EMF2, VRN2, MEA, FIE, EZA1 AND FIS2 INTERACTIONS IN ARABIDOPSIS USING A YEAST TWO HYBRID APPROACH. Mark Tyson, Dongfang Wang, Shawn Jackson, Ramin Yadegari

86. CRITICAL EVALUATION OF THE VARYING INCUBATION ENVIRONMENTS ON THE VIABILITY OF PRECISION-CUT LIVER CHIPS POST-VITRIFICATION. Erin Blomquist, Aaron Pershing, Jeff Catania, A.Jay Gandolfi

87. THE ROLE OF COP9 SIGNALOSOME SUBUNITS 5a AND 5b (CSN5a/b) DURING EARLY PLANT DEVELOPMENT. Salmon Carlos Leija, Dongfang Wang, Megan Skaggs, Ramin Yadegari

88. THE TUMAMOC HILL BUFFELGRASS PROJECT. Kathryn Giroux, Travis Bean, Julio Betancourt

89. CREATING A SCHOOL YARD GARDEN AT AJ MITCHELL ELEMENTARY. Priscilla Crespo, Mayra Atreaga, Jorge Garcia, Charles Hannessan and Raquel Rodrigues
II.

UNDERGRADUATE BIOLOGY RESEARCH PROGRAM

2004-2005
## UNDERGRADUATE BIOLOGY RESEARCH PROGRAM
### PARTICIPANTS AND FACULTY SPONSORS
#### 2004-2005

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<td>Dawn Barnes</td>
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<td>Steven Carey</td>
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<td>Susheela Carroll</td>
<td>Dr. Chris Rensing, Dr. Mark Larkin</td>
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<td>Amanda Casale</td>
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<td>Anindita Das</td>
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<tr>
<td>James Deer</td>
<td>Ms. Valerie Bontrager, Dr. Raphael Gruener</td>
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2004-2005

UNDERGRADUATE

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Maey Gharbiah

Kathryn Giroux

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Aaron Goldberg

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<td>Sarah Knuth</td>
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<td>Brooke LaFlamme</td>
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<td>Michelle LaGioia</td>
<td>Dr. Pinku Mukherjee</td>
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<td>Pick-Wei Lau</td>
<td>Dr. Victor Hruby, Dr. Michael Brown</td>
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**PARTICIPANTS AND FACULTY SPONSORS, Continued**  
**2004-2005**

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<td>Dr. Emmanuel Meuillet-May</td>
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# UBRP/MINORITY ACCESS TO RESEARCH CAREERS (MARCS) STUDENTS 2004-2005

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<td>Kristin Robinson</td>
<td>Dr. Theodore Glattke</td>
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**UBRP VISITING STUDENT RESEARCHERS**  
**2004**

**BRAVO!**

**SUSHEEALA CARROLL**  
The Queen’s University Environmental Science and Technology Research (QUESTOR)  
Northern Ireland  
Worked with Dr. Michael Larkin in the Department of Microbiology

**AMANDA CASALE**  
The Netherlands Institute for Brain Research  
The Netherlands  
Worked with Dr. Cyriel Pennartz in the Department of Cognitive Neuroscience

**SAM DAY**  
Cambridge University  
England  
Worked with Dr. Kevin Brindle in the Department of Biochemistry

**STEPHANIE FREEMAN**  
Wageningen University  
The Netherlands  
Worked with Dr. Alfons Stams in the Laboratory of Microbiology

**MELBA JARAMILLO**  
CSIRO Livestock Industries  
Australia  
Worked with Dr. John Lowenthal in the CSIRO Australian Animal Health Laboratory

**KATHRYN MILLER**  
Universidad Peruana Cayetano-Heredia and PRISMA  
Lima, Peru  
Worked with Dr. Robert Gilman in the Department of International Health

**DANIELLE NEVAREZ**  
Instituto de Biologia Molecular y Celular de Plantas  
Valencia, Spain  
Worked with Dr. Cristina Ferrandiz in the Department of Developmental Biology
PIETER ROWLETTE
Wageningen University
The Netherlands
Worked with Dr. Piet Lens in the Laboratory of Microbiology

MICHAEL SCHANER
University of Cambridge
England
Worked with Dr. Barry Everitt in the Department of Experimental Psychology

REINA WATANABE
CHU Dupuytren
France
Worked with Dr. Marc Laskar in the Department of Thoracic and Cardiovascular Surgery

MEGAN WILSON
Institute of Microbiology, Academy of Science of the Czech Republic
Czech Republic
Worked with Dr. Renata Stepankova in the Department of Immunology and Gnotobiology
DANIELLE NEVAREZ
BRAVO! Participant

“Analyzing Fruit Development in Arabidopsis Around Siestas in Spain”

and

LEAH TATUM
BRAVO! Participant

“Alzheimer’s, Art, and Coffee: A BRAVO! Experience in Florence Italy”
February 13, 2004

KELLY MILLER
Visiting UBRPer from Dartmouth College, Hanover, New Hampshire

“Protein and mRNA c-myc and NM23-H2 Levels of Oncogenes in Several Human Tumor Cell Lines”

and

BARBORA SEBESTOVA
Foreign Visiting Scholar from the University of South Bohemia, Ceske Budejovice, Czech Republic

“Giardia D uodenalis in Dogs in Arizona and Czech Republic”
March 12, 2004

SUSHEE LA CARROLL
BRAVO! Participant

“No Troubles with “Troubles:” Purifying Halotolerant Amidases in Northern Ireland”

and

AMANDA CASALE
BRAVO! Participant
“Characterizing the Interactions of Connected Brain Structures During Learning and Memory Consolidation”  
September 17, 2004

MELBA JARAMILLO  
BRAVO! Participant

“Chicken Anemia Virus: Finding the Mechanism of Infection”

and

MICHAEL SCHANER  
BRAVO! Participant

“From the Lab to the Pub: Pavlovian Conditioning and Culture at Cambridge University”  
October 11, 2004

REINA WATANBE  
BRAVO! Participant

“Neurological Complications of Cardiac Valve Surgery”

and

KATHRYN MILLER  
BRAVO! Participant

“Pisco, Papas, and Parasites: My Summer in Peru”  
October 21, 2004

SAM DAY  
BRAVO! Participant

“Imaging Gene Expression in vivo: Development of an MRI Applicable Gene Reporter”

and

MEGAN WILSON  
BRAVO! Participant

“Your Diet, Your Guts, and Your Health” A Summer Study in the Czech Republic”  
November 10, 2004
EXPLORING TRANSLATIONAL RESEARCH AND MEDICINE (ExTrReMe) SEMINARS 2004

DR. LINDA RESTIFO
Associate Professor, Neurobiology and UBRP Faculty Sponsor

“Bridge Over Troubled Waters, The Cultural Divide Between Science and Medicine: Barriers to Translational Research?”
January 22, 2003

DR. RICH JORGENSEN
Professor, Plant Sciences and UBRP Faculty Sponsor

“Of Plants and Men: Gene Silencing”
February 26, 2003

DR. JOHN C. RACY
Professor, Psychiatry

“Humanism and Medicine in the Real World”
March 26, 2003

UBRP SEMINARS 2004

DR. ROBERT PLOMIN
Professor, Institute of Psychiatry at King’s College, London, England

“Beyond the Nature Nurture Debate”
March 4, 2004

and

“Generalist Genes for Learning Disabilities”
March 5, 2004
DR. ELIZABETH MACNEILL  
Medical Director, Pima County Health Department

“Smallpox Immunization: The Pros and Cons”  
June 17, 2004

DR. MICHAEL WELLS  
Regents Professor Biochemistry and Molecular Biophysics

“Elements of a Scientific Poster”  
June 24, 2004

DR. MICHAEL WELLS  
Regents Professor Biochemistry and Molecular Biophysics

“Making a Scientific Presentation”  
July 1, 2004

DR. LINDA RESTIFO  
Associate Professor, Neurobiology and UBRP Faculty Sponsor

“Bridge Over Troubled Waters, The Cultural Divide Between Science and Medicine”  
July 15, 2004

DR. STUART RAVNIK  
Assistant Dean of the Graduate School of Biomedical Sciences,  
University of Texas Southwest Medical School, Dallas, Texas

“Why Do Science? Getting to that Eureka Moment”  
July 28, 2004

BRIAN HAWKINS AND JULIE BORDOWITZ  
PhD Students

and

DR. CAROL GREGORIO  
Associate Professor, Cell Biology & Anatomy and UBRP Faculty Sponsor,
and

DR. STUART RAVNIK
Assistant Dean of the Graduate School of Biomedical Sciences,
University of Texas Southwest Medical School, Dallas

“Unraveling the Mysteries of Graduate School”
July 29, 2004

DR. MARK WITTEN
Research Professor, Pediatrics/Pharmacology & Toxicology
and UBRP Faculty Sponsor

“Tungsten and Childhood Leukemia:
A Study of Five Cities in the Western United States”
August 5, 2004

DR. RENATO CORRADETTI
Professor, Department of Preclinical and Clinical Pharmacology,
University of Florence, Florence, Italy

“Role of the Serotonin System in the Actions of Antidepressant Drugs and 3,4-
methylenedioxymethamphetamine (MDMA; ‘Ecstasy’)”
October 6, 2004

S. KENT KEMMISH
UBRPer in Dr. Danny Brower’s Laboratory, Molecular & Cellular Biology

and

DANIEL WOOD
UBRPer in Dr. Jesse Martinez’s Laboratory, Pediatrics

“Research Presentations with a Critique by
Dr. Bruce Patterson, Molecular & Cellular Biology”
October 25, 2004

UBRP SEMINARS 2004, continued
DR. GIANCARLO PEPEU
Professor, Department of Preclinical and Clinical Pharmacology,
University of Florence, Florence, Italy and BRAVO! Faculty Sponsor

“From Caffeine Consumption to the Therapy of Parkinson’s Disease”
November 2, 2004
UBRP FIELD TRIPS AND SOCIAL ACTIVITIES
2004

May
BioEthics Retreat
Arizona-Sonora Desert Museum Tour

June
Annual Saguaro Harvest with Stella Tucker, our Tohono O'odham guide
Tumacacori National Historical Park Mission/River Ecology/Tubac
Hike: Mt Lemmon and Summerhaven

July
Movie Night: Adrenoleukodystrophy and Lorenzo’s Oil
Discussion Leader: Dr. Robert Erickson, Pediatrics

August
Tour: Southwest Environmental Health Sciences Center (SWEHS) Cellular Imaging Core
Tour: Steward Observatory Mirror Lab Tour
Tour: SWEHS Proteomics Core Facility
Tour: SWEHS Genomics Core Facility
Poster Session and Closing Ceremony for NSF REU Students

October
Workshop: The Impact of the Environment on Health in Ambros Nogales, Mexico
Movie Night: Eternal Sunshine of the Spotless Mind
Discussion Leader: Dr. Renato Corradetti, Department of Preclinical and Clinical Pharmacology, University of Florence, Florence, Italy
Contributions to the Undergraduate Biology Research Program came from three sources this year: contributions from program alumni in response to our appeal to build an endowment; contributions through the University’s annual fundraising campaign; and contributions in memory of Dr. David C. Rowe, longtime UBRP faculty sponsor and world-renowned behavior geneticist, who died February 2, 2003. List is updated through December 16, 2003.

Contributions from Alumni
Mr. Jayesh Ramsinghani

UA Cares Campaign
Carol Bender

Contributions in Memory of Dr. David C. Rowe
Dr. and Mrs. David Allison
Mr. And Mrs. Phillip Austin
Dr. David Bellows
Mr. And Mrs. Robert Bender
Ms. Susan Bennett
Blair Corporation
Dr. Richard Bootzin
Mrs. Lorene Calder
Dr. Rochelle Canter
Mr. And Mrs. John Carlson
Mr. Brian Catts and Mrs. Roxie Catts
Dr. Donna Christensen and Mr. Brian Christensen
Dr. James Clarke
Dr. and Mrs. Christopher Cunniff
Dr. Lee Ellis
Dr. and Mrs. Robert Erickson
Ms. Susan Felsenfeld
Genentech, Inc.
Mr. James George Jr.
Ms. Anne Gowin
Ms. Patricia Gross
Ms. Judy Harris
Drs. Jennifer Hall and David Mount
Drs. Martha Hawes and Hans Van Etten
Ms. Colleen Horne
Mr. Edvard Jorgensen
Dr. and Mrs. Keisuke Kamimura
Dr. Charles and Mrs. Pam Katzenberg
Dr. Christina Kennedy
Mr. and Mrs. Edward Kenney
Dr. Denise Krawitz
Dr. John and Mrs. Jannette Law
Drs. Yeong-Hau and Li-Wen Lai
Dr. Mary Beth Marks
Dr. Brint Milward and Mrs. Jill Bemis
Ms. Kerri Modry
Dr. Hiroshi Nakato
Mr. and Mrs. Lee Olitzky
Drs. Wayne Osgood and Jan Jacobs
Ms. Risa Owens
Dr. John Palmer
Ms. Maxine Phillips
Drs. Gene Sander and Louise Canfield
Dr. Paul Schenker
Ms. Ellen Shenkarow
Drs. Eric and Andrea Schindler
Dr. Justin Schmidt
Drs. Nick and Camilla Strausfeld

Contributions to the program can be made at any time and are deeply appreciated. Our long range goal is to build an endowment for UBRP so that future UA students will have the opportunity to learn science by doing
research. Checks should be made payable to “The University of Arizona Foundation” and “UBRP Fund” should be written in the memo section of the check. Checks can be sent to the College of Science Development Office, Gould Simpson, room 1025, PO Box 210077, The University of Arizona, Tucson, AZ 85721-0077.
III.

OUTREACH PROGRAMS

IN

BIOLOGY
For the past thirteen years, the Department of Biochemistry has been engaged in an elementary school, educational outreach program known as “The Manduca Project.” The program was developed through the collaborative efforts of many teachers and scientists. Development was guided by the philosophy that teachers are the educational experts and scientists are resources ripe for exploitation. The Manduca Project, although originally intended as a science project on insect development, has evolved into an integrative program involving lessons in mathematics, art, science, computer technology, and the language arts. Graduate students and research associates, especially women and Hispanic scientists, routinely visit the local schools to provide information and to serve as role models. Since its inception, hundreds of children have taken part in the project. Teachers report that the children become so excited with the caterpillars and their lessons that they involve their parents in the project.

Additional information on the Manduca Project can be found on the web: http://www.manducaproject.com. Elementary school teachers can obtain the knowledge and materials to conduct the project in their classrooms, including where to order Manduca sexta eggs and diet.

In July 2004, a weeklong workshop for elementary school teachers was offered at the University, taught by TUSD teacher, Patricia Weaver, Curriculum Specialist at Mission View Elementary School, and TUSD teacher, Cecilia Valenzuela, Davis Bilingual Elementary School, assisted with the planning/preparation. Both teachers have considerable experience in running this project and have developed a broad range of interdisciplinary approaches to the study of the Manduca sexta and its life cycle in the elementary curriculum. Fourteen teachers from 11 elementary schools and three school districts participated. Listed below are the teachers who took the summer workshop.

2004 Manduca Project Teachers

Sheri Gordon – DeGrazia Elementary School
Ruth Gerhart – Roadrunner Elementary
Heather Hadler – Estes Elementary School
Jeanie Hamon – Dunham Elementary School
Selina Johnson – UA/SAMEC
Jo Ann Lee – Wright Elementary School
Charles Lemley – Tanque Verde School District
Sheri Marlin – Borton Elementary School
Marilyn McClure – Hollinger Elementary School
Carolyn Mongoose – Johnson Elementary School
Ashley Simmons – Magee Middle School
Barbara Toothman – Roadrunner Elementary School
Kelly Tracy – Estes Elementary School
Maria Valencia – Hollinger Elementary School
The Undergraduate Biology Research Program, in an effort to make the resources of this institution available to undergraduate science majors at other institutions, particularly small liberal arts colleges, offers a 12-week summer research program for non-UA students. Funding for this program comes from the National Science Foundation and the American Society for Pharmacology and Experimental Therapeutics.

Listed below are the students who were Visiting Student Researchers for 2004, with their home institutions and UA faculty sponsors.

**Melissa Callahan**  
Lewis & Clark College, Oregon  
Dr. Michael Wells, Biochemistry and Molecular Biophysics

**Genevieve Cheng**  
Muhlenberg College, Pennsylvania  
Dr. Alan Nighorn, ARL-Neurobiology

**Megan Gingrich**  
Skidmore College, New York  
Dr. Hanna (Johnny) Fares, Molecular & Cellular Biology

**Nora Gutierrez**  
University of St. Thomas, Texas  
Dr. Katerina Dvorakova, Pediatrics

**Kelly Miller**  
Dartmouth College, New Hampshire  
Dr. Laurence Hurley, Pharmacology/Toxicology

**David Mosley**  
University of Florida, Florida  
Dr. Jamie Collins, Pediatrics

**Miriam Schoenfield**  
Brandeis University, Massachusetts  
Dr. Konrad Zinsmaier, Chemistry
**Shubin Shahab**  
Georgia Institute of Technology, Georgia  
Dr. Robert Erickson, Pediatrics

**SCIENCE CONNECTION**

Science Connection, initiated in 1991 by UBRP participant Robert West, is an outreach program to pre-college classrooms in the Tucson metropolitan area that is in its 14th year. The goal of Science Connection is to help undergraduates share their enthusiasm for science with children and to make the undergraduates aware of current issues in science education and teaching as a possible career choice. The main thrust of the program is for undergraduate students to visit local schools to do hands-on science activities on topics that range from astronomy through zoology. Information about the course (MCB 491) and volunteer program can be found at the Science Connection webpage <http://sciconn.mcb.arizona.edu/>.

**2004 Science Connection Participants**

- Diana Acuna
- Justin Bartel
- Brynne Crowell
- James Deer
- Samira Ehteshami
- Molly Engelhard
- Amber Franklin
- Mikhal Gold
- Veronica Gonzalez
- Susan Greenhut
- Laura Hall
- Christopher Hammond
- Ehsan Heidari
- Amir Hobheidar
- Emily Julien
- Jooyoung Kim
- Rupa Krishna
- Stefanie Mares
- Daniel Martínez
- Russell Means
- Linh Nguyen
- Nguyen Nguyen
- Cynthia Perry
- Valerie Piotrowski
- Guadalupe Romero
- Shahnaz Sadeghi-mirmobi
- Kriston Schellinger
- Dino Subasic
- Cindy Taylor
- H. Dominique Trujillo
- Nataša Vojvodic
- Julia Weakley
- Stephanie Woo