28TH ANNUAL CENTRAL CALIFORNIA RESEARCH SYMPOSIUM

PROCEEDINGS OF THE 2007 SYMPOSIUM

Convened on

Thursday, April 12, 2007

in the

University Business Center

California State University, Fresno

TWENTY-EIGTHTH ANNUAL CENTRAL CALIFORNIA RESEARCH SYMPOSIUM

PROCEEDINGS

Sponsoring Institutions

California State University, Fresno
Research and Sponsored Programs

University of California, San Francisco
Fresno Medical Education Program

Alliant International University

Fresno City College

United States Department of Agriculture
Agricultural Research Service

Convened in the *University Business Center*
on the campus of

California State University, Fresno

Thursday, April 12, 2007

TABLE OF CONTENTS

PREFACE

Welcome to the *28th Annual Central California Research Symposium*.

From its inception, the purpose of this symposium has been to bring together investigators, students, and faculty from a variety of disciplines to share the results of their scholarly work. The continuation of these activities in the Central Valley is encouraged by this opportunity for exchange. We hope that all participants will gain new insights from this experience and that learning about the interests of other scholars will enrich them.

Abstracts for this year's event were reviewed and selected for presentation by the Symposium Planning Committee. In this review, the committee looked for a well-written abstract on a topic of scholarly merit.

This year *UCSF Fresno* has provided two cash awards for the best symposium presentation by a student--one for an undergraduate student and one for a graduate student. *Alliant International University, Fresno* has provided a cash award for the best poster presentation by a student. In addition to providing a cash award, the *Office of Research and Sponsored Programs* at *California State University, Fresno* has planned and administered the symposium in cooperation with these institutions.

Presenters and guests are invited to a social hour following the student awards, which will be held in the University Business Center Gallery.

These proceedings are published as a permanent record of the work presented. We hope they will stimulate ideas for future work and subsequent symposia.

PLANNING COMMITTEE

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO
FRESNO MEDICAL EDUCATION PROGRAM

Donna Hudson, Ph.D.
Symposium Co-Chairperson

Joan Voris, M.D.
Malcolm F. Anderson, M.D.
Robert Hierholzer, M.D.
Michael Peterson, M.D.
Kent Yamaguchi, M.D.
Davin Youngclarke

CALIFORNIA STATE UNIVERSITY, FRESNO

Thomas McClanahan, Ph.D.
Symposium Co-Chairperson

Mark Arvanigian, Ph.D.
Saeed Attar, Ph.D.
Sharon Benes, Ph.D.
Alejandro Calderon-Urrea, Ph.D.
Ramakrishna Nunna, Ph.D.
Karl Oswald, Ph.D.
Brian Tsukimura, Ph.D.
Doug Carey

ALLIANT INTERNATIONAL UNIVERSITY, FRESNO

Siobhan O'Toole, Ph.D.

CLOVIS BOTANICAL GARDEN

Cynthia Eayre, Ph.D.

FRESNO CITY COLLEGE

Edward Lindley, Ph.D.
Rick Stewart

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

Joseph Smilanick, Ph.D.

EVENT AND PROCEEDINGS COORDINATORS

Millie C. Byers & Maral Cingoz
California State University, Fresno

CALIFORNIA
STATE
UNIVERSITY,
FRESNO

April 2007

MESSAGE TO ALL RESEARCH SYMPOSIUM PARTICIPANTS

California State University, Fresno is pleased to serve as the host campus for the *Twenty-Eighth Annual Central California Research Symposium.*

This symposium continues to provide a unique forum for the presentation and discussion of scholarly activities of interest to researchers throughout the Fresno Community. The program for the symposium reflects our commitment to promoting interdisciplinary research, encouraging scholarly exchange on theoretical and pragmatic topics, and providing an opportunity for both students and research scholars to share common interests. Cooperative efforts such as these benefit the individual institutions involved and ultimately the public that we all serve.

We appreciate your participation in this symposium, and it is my pleasure to extend my warmest welcome to our campus.

Sincerely,

John D. Welty
President

Office of
the President

Thomas Administration Building, 103
5241 North Maple Ave. M/S TA48
Fresno, CA 93740-8027

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University of California
San Francisco

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WELCOME

28th Annual Central California Research Symposium

Dear Symposium Participants and Visitors:

Once again I am impressed by the variety of research projects we have ongoing in the Central Valley and how privileged we are to have the richness and diversity of academic activity in our own backyard. The studies represented here will lead to an improved quality of life for our community. It is indeed exciting to be involved in this.

It is my pleasure to welcome you to this 28th Annual Research Symposium. Whether you are attending today as a participant or a visitor, I believe you will fell challenged and energized as you explore the research displayed here today.

Sincerely,

Joan L. Voris, MD
Associate Dean, UCSF Fresno Medical Education Program
Assistant Clinical Professor of Pediatrics, UCSF

Fresno City College
1101 East University Avenue, Fresno, California 93741 Phone: 559-442-4600 FAX: 559-265-5777

Office of the President

March 12, 2007

Symposium Participants
Central California Research Symposium
University Grants and Research Office
California State University, Fresno
4910 North Chestnut Avenue
Fresno, CA 93726-1852

Dear Symposium Participants:

Fresno City College is pleased, once again, to be a sponsor of the Annual Central California Research Symposium. This cooperative venture not only advances the frontiers of knowledge but leverages the research resources of each participating institution. Fresno City College is proud to be a partner in hosting this program and extends best wishes to all participants.

I hope the Symposium will be both informative and enjoyable for you.

Sincerely,

Ned Doffoney
President

mr

United States Department of Agriculture
Research, Education and Economics
Agricultural Research Service

March 20, 2007

Symposium Participants
28th Annual Central California Research Symposium
Fresno, California

Greetings,

On behalf of the USDA, ARS, San Joaquin Valley Agricultural Sciences Center in Parlier, I want to welcome you to the 28th Annual Central California Research Symposium. Fresno has a large research community that includes scientists from state, university, and federal institutions covering a wide range of disciplines (i.e., biological and physical sciences, agriculture, medicine). This symposium provides an opportunity to share and exchange current research information in various fields among scientists, students and the general public. Through your participation in this Symposium you will gain knowledge of current research being conducted in your areas of interest.

Your participation will open new perspectives and provide new opportunities for you and your parent organization. If we can be of any assistance to you on agricultural matters, please do not hesitate to contact us.

Again, welcome to the Symposium. I hope that your scientific endeavors and horizons increase in the future.

With best regards,

Edwin L. Civerolo
Director

Office of the Director
San Joaquin Valley Agricultural Sciences Center
9611 So. Riverbend Avenue • Parlier, CA 93648
Tel: 559-596-2702 - Fax: 559-596-2701
Email: eciverolo@fresno.ars.usda.gov
Pacific West Area
Agricultural Research – Investing in Your Future

Plenary Session

University Business Center
Auditorium, Room 191

12:00 Opening Remarks

Dr. Thomas McClanahan, California State University, Fresno

Dr. Amit Lal, Defense Advanced Research Projects Agency (DARPA)

Dr. Joan Voris, University of California, San Francisco
Fresno Medical Education Program

Dr. Donna Hudson, University of California, San Francisco
Fresno Medical Education Program

12:10 ***3-D Nanogap Molecular Electronics***
Chung Hoon Lee, Ph.D.

12:25 ***Expressing Profile of Transgenic Nicotiana tabacum Plants Expressing Caenorhadbitis elegans' Cell Death Genes***
Carlos A. Tristan, Alejandro Calderon-Urrea, Ph.D.

12:40 ***Infant Sleep and the Parent-Child Attachment Relationship***
Melissa Dittmar, Kathleen Ramos, Ph.D., Kathleen Reid, Ph.D.

12:55 ***Burning and Grazing Increase Biodiversity in Vernal Pool Grasslands***
Bobby Kamansky, Steve Blumenshine, Ph.D.

1:10-1:30 **Break--University Business Center, Gottschalks Gallery**

Concurrent Session A

University Business Center
Auditorium, Room 191

1:30 ***Expunging Herself--Elizabeth Bishop Disappears***
Leela Sannyasin, Chris Henson, Ph.D.

1:45 ***Contesting Cultural Incompatibility Theories of Latino Health***
Gilberto Lopez, James Mullooly, Ph.D.

2:00 ***Health, Wealth, and Home: The Effects of Household Air Quality Income***
Paula D. Wright, VaNee L. VanVleck, Ph.D.

2:15 ***Anti-American Foreign Policy: Strained Relations between the United States and Latin America***
Ashlin E. Mattos, Russell Mardon, Ph.D.

2:30 ***ROBOTRAK: A Software for Monitoring, Control, and Coordination of Intelligent Robotic Swarms***
Anthony Alvarez, Ming Li, Ph.D.

2:45 ***Information and Communication Technology and Its Effects on Nonprofits***
Salvador S. Gallegos, Matthew A. Jendian, Ph.D.

3:00 **Break--University Business Center, Gottschalks Gallery**

3:30 **Concurrent Sessions Resume**

Concurrent Session B

University Business Center
Room 192

1:30 ***Media's Perception on Health Disparities: A Meta-Analysis of Newspaper Publications***
Tonantzin Soto, John Capitman, Ph.D.

1:45 ***Newspaper Framing of a Hospital: The Impact of Hospital Public Relations***
Antonina Trachuk, Tamyra Pierce, Ph.D.

2:00 ***Risk Factors of Gang Membership: Results from an Analysis of Self-Reported Gang Members in the Fresno County Jail***
David C. Pyrooz, Jason Kissner, Ph.D.

2:15 ***The Eleventh Century Royal Portrait Manuscript Leaf of King Gagik-Abas of Kars, Queen Goranduxt, and Princess Marem: Who Commissioned It and Why?***
Hazel Antaramian Hofman, Jennifer Borland, Ph.D.

2:30 ***No Person Shall Be Forced to Have an Abortion against His Will: A Case of Epicene Pronouns in Written Discourse***
Rebecca Headrick, Shigeko Okamoto, Ph.D.

2:45 ***Analysis and Characterization of Putative AtWRKY6 and AtWRKY53 Orthologs in Podophyllum peltatum***
Natalie Powers, John V.H. Constable, Ph.D, Alejandro Calderon-Urrea, Ph.D.

3:00 **Break -- University Business Center, Gottschalks Gallery**

3:30 **Concurrent Sessions Resume**

Concurrent Session C

University Business Center
Room 193

1:30 ***Cancer Survival in California Hispanic Farm Workers, 1988- 2001***
Jennifer L. Dodge, M.P.H., Paul K. Mills, Ph.D., Deborah G. Riordan, M.P.H.

1:45 ***Proteomic Identification of a Functional ß3-IntegrinInteraction with a Protease: Implications for Cancer Metastasis***
Jason Bush, Ph.D.

2:00 ***Hmong Women Issues: Identity and Mental Health***
Song Lee, Ph.D.

2:15 ***Patients Attitude towards Physicians and Health Screening Issues among First-Generation Asian-Indian Immigrants to the United States***
Kiran Toor, M.D.

2:30 ***Evolutionary Control of Large Damages to Steel Structures during Seismic Activity***
Thomas Attard, Ph.D., Robin Dansby, Ph.D., Mirjana Marusic, Ph.D.

2:45 ***Non-Destructive Sensor Development of the Detection and Measurement of Residual Stresses***
Thomas L. Nguyen, Ph.D .

3:00 **Break--University Business Center, Gottschalks Gallery**

3:30 **Concurrent Sessions Resume**

Concurrent Session D

University Business Center
Room 194 AB

1:30 ***Women in the Secured Housing Unit of California Prisons***
Stephanie N. FrattoTorres, Barbara Owen, Ph.D.

1:45 ***An Appreciative Inquiry Ethnography of a Native American Tribe***
Trudy L. Tucker, Connie Conlee, Ph.D.

2:00 ***Communication Theory: A Graduate Student's Grappling with Questions, Answers and Processes***
Kherstin Khan, Diane Blair, Ph.D.

2:15 ***Breaking News: Are the Media Creating an Illusion of Importance?***
Faith Sidlow, Tamyra Pierce, Ph.D.

2:30 ***The Motives for Viewing Reality Television among Age, Sex and Race***
Laine J. Hendricks, Tamyra Pierce, Ph.D.

2:45 ***Convergence Education***
Kirstie Hettinga, Tamyra Pierce, Ph.D.

3:00 **Break -- University Business Center, Gottschalks Gallery**

3:30 **Concurrent Sessions Resume**

Concurrent Session E

University Business Center
Auditorium, Room 191

3:30 ***Fluid Biomechanics of a Mussel Bed***
Sean Thompson, Emily Carrington, Gretchen Moeser, Brian Tsukimura, Ph.D.

3:45 ***Settling Behavior of Planktonic Marine Larvaein Realistic Flow and Wave Conditions***
David Sischo, M.A.R. Koehl, Tom Hata, Tim Cooper, Michael Hadfield, Brian Tsukimura., Ph.D.

4:00 ***Unique Thiol Compositions of Two Actinomycetes***
Todd L. Johnson, Mamta Rawat, Ph.D.

4:15 ***Spatial and Temporal Variations in Levels of Particle-Bound Pollutants in Fresno***
Maria Woodcock, Enrique Lopez, Kenndy Vu, Laiky Nor, Alam Hasson, Ph.D.

4:30 ***Degrading Propargyl Bromide with Soil Bacteria***
Antonio Toribio, Arthur Johnson, Alice Wright, Ph.D.

4:45 ***Diesel Exhaust Chemicals Identified in Cerebrospinal Fluid and Possible Effects in Various Regions of the Brain in a Rodent Model***
Jarrad Merriman, Tim R. Tyner, M.S., Victor McCray, M.D., Kent Yamaguchi M.D., Dianne Lim, Alam Hasson, Ph.D., Mukesh Misra, M.D.

5:00 ***Effects of Diesel Exhaust Chemicals on Wound Healing in Healthy and Diabetic Mouse Models***
Tiffany Friedland, Tim R. Tyner, MS, Antonio Toribio, Kennedy Vu, Kenty Sian, M.D., Kent Yamaguchi, M.D.

5:15 **Conclusion--University Business Center, Gottschalks Gallery**
Proceed to Student Awards and Social Hour

Concurrent Session F — University Business Center Room 192

3:30 ***Effects of Racial Concordance, Physician Sex, and Patient Education on Patient Satisfaction***
Diana L. Stuber, Scott Moore, Ph.D.

3:45 ***Prehospital Intranasal Versus Intravenous Administration of Naloxone for Narcotic Overdose***
Ian Dryden, Tania Robertson, MD, Gregory W. Hendey, M.D., Geoff Stroh, M.D., Marc Shalit, M.D.

4:00 ***Size-Segregated Measurements of Organic Compoundsin Particulate Matter in the Central Valley***
Enrique Lopez, Myeong Chung, Christina Sabado, Dora Rendulic, Mark Sorenson, Kennedy Vu, Laiky Nor, Alam Hasson, Ph.D.

4:15 ***Gross Alpha Radiation Levels in Private Drinking Water Wells in Foothill Areas of the Sierra Nevada Mountains***
Jessica Woody, Sandra Donohue, Ph.D.

4:30 ***If You Build It, Who Will Come? Landbird Response to Riparian Restoration at the San Joaquin River National Wildlife Refuge***
Karl Kraft, Madhusudan Katti, Ph.D.

4:45 ***Effects of the Parasitic Nematode Meloidogyne incognita on Transgenic Tobacco Plants Expressing an Antisense Construct of the Cell Death***
Fumiko Yamamoto, Glenda W. Polack, Alejandro Calderon-Urrea, Ph.D.

5:00 ***The Foraging Behavior of Birds Along Urban Gradients***
Caroline Rhodes, Madhusudan Katti, Ph.D.

5:15 **Conclusion--University Business Center, Gottschalks Gallery**
Proceed to Student Awards and Social

Concurrent Session G

University Business Center
Room 193

3:30 ***A Good Baby: Infant Sleep and Parental Judgments about Moral Goodness***
Kathleen Ramos, Ph.D., Amanda Lockling, Melissa Dittmar

3:45 ***California Statewide Family Medicine Preceptorship Program's Impact on Medical Students' Specialty Selection: A Seven-Year Analysis***
Victoria S. Kubal, M.S., BCB A., John Zweifler, M.D., MPH, Susan Hughes, M.S.

4:00 ***Ambivalent Relationship: The United States and the Russian Constitutional Monarchy 1905-1911***
Greg Morris

4:15 ***An Evaluation of a Loneliness Intervention Program for College Students***
Sean Seepersad, Ph.D.

4:30 ***Reassessing Computer Aided Design in Architectural Practice***
Jason Charalambides, Ph.D.

4:45 ***Erosion Control Using Compost Soil on Roadside Embankment***
Ming Xiao, Ph.D., Christopher Abela, Keith Mortensen, Michael Beltran, Aaron Oliver

5:00 ***Crown Delineation and Profile Characterization of Old Growth Conifer Forest Using LIDAR Data***
Segun Ogunjemiyo, Ph.D.

5:15 **Conclusion --University Business Center, Gottschalks Gallery**
Proceed to Students Awards and Social Hour

Concurrent Session H

University Business Center
Room 194 AB

3:30 ***Applying the Frustration-Aggression Hypothesis to Driving Situations: A Preliminary Analysis***
Hilary Casner, Sundé Nesbit, Ph.D.

3:45 ***Facial Composite Identification across Delay and Identification Procedure***
Katelyn Kelly, Lisa Silvera, Karl Oswald, Ph.D.

4:00 ***Bedtime for Baby: Parental Responsiveness during Infant Sleep Routines***
Amanda Lockling, Melissa Dittmar, Kathleen Ramos, Ph.D.

4:15 ***The Relationship Between Exercise and Perceived Control: A Meta-Analysis***
Ashley J. Gosney, Sunde Nesbit, Ph.D., Paul Price, Ph.D.

4:30 ***The Montreal Cognitive Assessment, MoCA: A Brief Early Cognitive Screening Tool for Alzheimer's disease***
Andrea Salazar, Amanda Mortimer, Ph.D., Linda Hewett, Loren Alving

4:45 ***Eyewitness Memory in Realistic Context***
Adam B. Hess, Hilary Casner, Bethany Ranes, Jenna Jones, Matthew J. Sharps, Ph.D.

5:00 ***"Mindless" Decision Making and Contextual Reasoning in Environmental Issues***
Matthew J. Sharps, Ph.D., Adam B. Hess, Bethany Ranes

5:15 **Conclusion --University Business Center, Gottschalks Gallery**
Proceed to Students Awards and Social Hour

Concurrent Session I

Peters Business Building
Room 101

3:30 ***Using Photovoice in Needs Assessment to Promote Action in an Underserved Community***
Alicia Gonzalez, John Capitman, Ph.D., Marlene Bengiamin, Ph.D.

3:45 ***Important Issues in Power Supply Noise Measurement***
Arpita Paul, Ramakrishna Nunna, Ph.D.

4:00 ***Arabic Influences in the Castilian Literature***
Maribel Moreno Galvez, Ted Bergman, Ph.D.

5:15 **Conclusion --University Business Center, Gottschalks Gallery**
Proceed to Students Awards and Social Hour

Poster Session I
12:00 p.m. until 2:00 p.m.

University Business Center
Gottschalks Gallery

Authors will be available for questions from 12:00 p.m. until 2:00 p.m.

(1) ***Understanding and Preventing Relational Aggression in Adolescent Girls***
Marites Alvarado, Elena Klaw, Ph.D.

(2) ***Modeling Radio Interference to Spacecraft Tracking***
Peter W. Kinman, Ph.D.

(3) ***Immediate Operation versus Initial Conservative Management of Appendiceal Mass in Children***
Winnie Tong, David Hodge, Steven N. Parks

(4) ***The Universal Appeal of James Bond: Mythological Mystery Man***
Steven Armstrong, Gabriele Rico, Ph.D.

(5) ***Geo-Spatial Modeling of Wine Grape Quality Using GIS***
Sivakumar Sachidhanantham, Robert Wample, Ph.D., Matthew Yen, Ph.D., Balaji Sethuramasamyraja, Ph.D.

(6) ***Synuclein and Its Role in Parkinson's disease***
Parvinder Kaur, David Bruck, Ph.D.

(7) ***The Prevalence and Resident Knowledge of Metabolic Syndrome in Santa Cruz, Bolivia-Hospital Universitario Municipal San Juan de Dios***
Peter A. Boehringer, Steven Stoltz

(8) ***Automated Computer Assessment of Carotid Artery Stenosis from 3D Medical Datasets Acquired by Computer Tomography Angiography***
Elizabeth Tong, M.S., Max Wintermark, M.D., Christine Glastonbury M.B.B.S., Benison C. Lau, Sarah Schaeffer, M.P.H., Peter J. Haar, M.St., Gabriel Acevedo-Bolton, Ph.D., David Saloner, Ph.D.

(9) ***A New Planar Chiral Ferrocenyl Aminophosphine Ligand for Ru(II))-Catalyzed Asymmetric Transfer Hydrogenation of Acetophenone Derivatives***
Felix Perez, Saeed Attar, Ph.D.

Poster Session I Continued
12:00 p.m. until 2:00 p.m.

University Business Center
Gottschalks Gallery

10) ***Synthesis and Characterization of a New Ruthenium (II) Catalyst for Asymmetric Transfer Hydrogenation of Acetophenone Derivatives***
Gerson Uc-Basulto, Saeed Attar, Ph.D.

(11) ***Tsunami Awareness on the Coast of Washington State***
Brynne Walker, Richard Sedlock, Ph.D.

(12) ***The Possibility of Moral Values in an Interpersonal Context: A Problem in Max Scheler's Phenomenological Ethics***
Robert Victor G. Miole, Richard Tieszen, Ph.D.

(13) ***Convergent Evolution of Antifreeze Proteins: Bioinformatics of the Genes and Proteins***
Edward Reese, V.V. Krishnan, Ph.D.

(14) ***Assistive Technology Service Delivery: A Multidisciplinary Perspective***
Scott Kupferman, Charles Arokiasamy, Ph.D.

(15) ***Enzyme Linked Immunosorbent Assay for Quantification of B. Thuringiensis Toxins in Genetically Modified Cotton***
Leslie M. Dominguez, M.L. McCullough, Alice Wright, Ph.D.

(16) ***Utilization Characteristics of CT Colonography in a US Veteran Population***
Diana Fatyga, DeVang Prajapati, M.D.

(17) ***Impact of Ego Identity Status and Adverse Childhood Experiences on Temperament Clarity***
Janna Mahfoud, Kathleen Ramos, Ph.D., Lillian Nelson

(18) ***Post Treatment Complications of Botulism Type A and B: A Review of Four Cases***
Loan Nguyen, M.D., P. Volkov, M.D., M. Patel, R. Libke, M.D.

(19) ***Unexpected Death in Children 0-5 Years-Old***
Ester Gonzalez, Tina M. Garcia, Davin Youngclarke, M.A., Nikhat Shaik, M.D., Neelu Mehra M.D., Don Fileds, D.O.

(20) ***Cultural Framework and Anger Expression in Russian Immigrant Women***
Zhanna Bagdasarov, Christine Edmondson, Ph.D.

Poster Session I Continued
12:00 p.m. until 2:00 p.m.

University Business Center
Gottschalks Gallery

(21) ***Adsorption Kinetics of Antifreeze Glycoproteins***
Joshua Silveira, V.V. Krishnan, Ph.D.

(22) ***Normative Data for the Gaze Stabilization Test (GST) Protocols on the inVision for High Performance Athletes***
Rachel Worman, S.P.T., Peggy R. Trueblood, Ph.D., P.T., Toni Tyner, P.T., M.L.S., Scott R. Sailor, Ed.D.

(23) ***Synthesis and Characterization of One Dimensional ZnO Nanostructure***
Jenny Parra, J. Jasinski, V.J. Leppert, V. Katkanant, D. Zhang

(24) ***Quantification of Volatile Organic Compound Emissions from California Dairy Facilities***
Mark Sorenson, Dale Sullivan, Phillip Alanis, Brian Shamp, Koua Cha, Alam Hasson, Ph.D.

(25) ***A Key to Brachyuran Megalopae of the San Francisco Bay Estuary***
Vanessa Becerra, Brian Tsukimura, Ph.D.

Poster Session II
3:00 p.m. until 5:00 p.m.

University Business Center
Gottschalks Gallery

Authors will be available for questions from 3:00 p.m. until 5:00 p.m.

(1) ***Light Intensity Effects on Structure and Development of Vegetative and Reproductive Leaves of Podophyllum peltatum (Mayapple)***
Taylor Sanchez, Alicia Brookshire, John V.H. Constable, Ph.D.

(2) ***Selection of Extraction Conditions for Phenylephrine in Clandestine Methamphetamine Laboratory Case Samples***
Shaylene Scott, Nathan Sunderson, Alan Gandler, Leonid Vydro, Eric Person, Ph.D.

(3) ***Refinement of Linguistic Intonation Patterns through Use of Musical Criteria***
Jered Sherrill, Benjamin Boone, Ph.D.

(4) ***Influence of Mutations on the Folding Transition State of Proteins:FSD-1 as a Model System***
Jaspreet Singh, Gurinder Ghotra, Rajadas Jayakumar, Yong Duan, V.V. Krishnan, Ph.D.

(5) ***Does Dabbing the Skin Surface Dry During Ice Massage Treatment Accentuate Cryotherapeutic Effects?***
Amrik Sidhu, Gary Lentell, D.P.T, P.T., Robert Pettitt, Ph.D., A.T.C, C.S.C.S.

(6) ***The Effects of Depression on Anger Expression in Romantic Relationships***
Debbie Schmidt, Christine Edmondson, Ph.D.

(7) ***The Effect of the Oakhurst Wastewater Treatment Plant on Fresno River Water Quality***
Megan R. Bailey, Steve Blumenshine, Ph.D.

(8) ***Phenotypic Characterization and Genetic Mapping of Traits in the Pepper Root Rot Pathogen***
Nicholas E. Blanchard, Victoria Gomes, David Sischo, Kaitlin Crawford, Michael Ruiz, Steven Miller, Gurmel Sidhu, James P. Prince, Ph.D.

(9) ***The Effects of Urban Development and Climate on Species Distribution in the San Joaquin Valley, California***
Danny Tovar, Sean Boyd, Conrad Braganza, Vanessa Cadiz, Scott Hatfield, Bobby Kamansky, Madhusudan Katti, Ph.D., Laura Miller, Greg Phillips, Salvador Salcido, Jose Soto, Jim Vang

Poster Session II Continued
3:00 p.m. until 5:00 p.m.

University Business Center
Gottschalks Gallery

(10) ***Disease Resistance Genes Cluster in the Genome of Pepper***
Dylan B. Storey, Ebenezer A. Ogundiwin, Linda Donnelly, David Sischo, Gurmel Sidhu, James P. Prince, Ph.D.

(11) ***A Comparison of Data Dissemination Protocols for Large-Scale Wireless Sensor Networks***
Chulho Won, J. Youn, Hong Zhou

(12) ***Changing Landscapes and Sustainability: Fresno County's Ecological Footprint and the Effects of Urbanization***
Craig Kellogg, V. Becerra, C. Braganza, K. Kraft, G. Phillips, S. Salcido, J. Soto, J. Vang, M. Katti, Ph.D.

(13) ***Anger Expression within Conduct and Intermittent Explosive Disorders***
Janet Saenz, Christine Edmondson, Ph.D.

(14) ***Protein Profile of Transgenic Nicotiana tabacum Plants Expressing Caenorhadbitis elegans' Cell Death Genes***
Christian G. Aguilar, Alejandro Calderon-Urrea, Ph.D.

(15) ***An Investigation of Quinones as Biomarkers for Exposure to Air Pollution***
Kennedy Vu, Dianne Lim, Akihiro Ikeda, Christina Sabado, Tim Tyner, Alam Hasson, Ph.D.

(17) ***Community Partners in Research: The Tib Trainer***
Marilyn E. Miller, Ph.D., P.T., G.C.S., Peggy Trueblood, Ph.D., P.T.

(18) ***Selenium Impact on Frog Corticosterone Level and Development***
Foung Vang, Brian Tsukimura, Ph.D., Patrick Kelly, Ryan Earley, Ph.D.

(19) ***How Spatial is Social Distance?***
Justin L. Matthews, Teenie Matlock, Ph.D.

(20) ***Case Study: Schwannomatosis with Involvement of Multiple Nerves***
Tai Yiu Tong, Sara H.Y. Tong, E.W.K. Lee, M.D.

(21) ***Incorporating GPS-GIS Technology in Student Learning to Enhance Decision-Making Competency***
Sandra J. Donohue, D.P.A., R.E.H.S.

Poster Session II Continued
3:00 p.m. until 5:00 p.m.

University Business Center
Gottschalks Gallery

(22) ***Quantitative Analysis of the Effects of Ionizing Radiation on Arabidopsis thaliana***
Sheppora Hood, Takako Kurimoto, John V.H. Constable, Ph.D., Amir Huda, Ph.D.

(23) ***Characterization of Mycobacterium smegmatis 137E6 transposon Mutant***
Hasan Alhaddad, Venkata Kethanaboyina, Mamta Rawat, Ph.D.

(24) ***Identification and Characterization of Two Diamide Sensitive M. smegmatis Transposon Mutants***
Teresa Lee, Swetha K. Kovvali, Mamta Rawat, Ph.D.

(25) ***Characterization of Mycobacterium smegmatis Mutant 109C4***
Blair Riding, Kaushiki Mahapatra, Mamta Rawat, Ph.D.

(26) ***Short-Chain dehydrogenase-reductase Gene Interrupted in Diamide Sensitive Mycobacterium I transposon Mutant***
Chad Jorgensen, Yaw Anane, Mamta Rawat, Ph.D.

Judges for Undergraduate and Graduate Student Presentations and Poster Presentations:

Dr. Mark Arvanigian	California State University, Fresno
Dr. Saeed Attar	California State University, Fresno
Dr. Sharon Benes	California State University, Fresno
Dr. Alejandro Calderon-Urrea	California State University, Fresno
Ms. Marie Fisk	California State University, Fresno
Dr. Dan Griffin	California State University, Fresno
Dr. Howard Hendrix	California State University, Fresno
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Mr. Chuck Radke	California State University, Fresno
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Moderators for Oral Presentations:

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Dr. Daniel Griffin	California State University, Fresno
Dr. Donna Hudson	University of California San Francisco, Fresno
Mr. Chuck Radke	California State University, Fresno
Mr. Davin Youngclarke	University of California San Francisco, Fresno

Presentations will be judged based on the following criteria and considerations:

- Merit, creativity, timeliness, and value to an audience of scholars not necessarily from the same discipline
- Authors are encouraged to present their work using terminology suitable for a multi-disciplinary audience
- Results of completed work, as well as work-in-progress, for which there is preliminary data

ORAL PRESENTATION ABSTRACTS

(IN ALPHABETICAL ORDER BY PRESENTING AUTHOR)

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ROBOTRAK: A Software for Monitoring, Control, and Coordination, of Intelligent Robotic Swarms

Robotic swarms have been a hot topic in recent years. In robotic swarms, a team of network enabled bots are dispatched to some areas to fulfill certain tasks, such as military actions and chemical substance tracking. However, how to monitor, control, and coordinate swarms in a real-time manner such that bots can collaborate efficiently and effectively is a challenging issue.

In this work, as part of the Provost Research Activities Awards funded project: "Planning and Management of Next Generation Wide Area Wireless Networks – A Cross-System integration Approach", a real-time software to enforce the monitoring, and control, and coordination of Intelligent Robotic Swarms (ROBOTRAK) has been developed. Using TCP connections through wireless medium, the server running ROBOTRAK can exchange information with the robotic swarm reliably and continuously. For monitoring purpose, all the bots collect and report wireless signal strength, interference, neighboring bots list, and location information. For control purpose, the bots communicate with the server can be guided from starting locations to destination locations. For coordination purpose, the server keeps the swarm on task, and minimizes the work needed to be completed by the robot swarm. For example, if one robot moves far away from the rest of the team and gets isolated, the server can identify this situation quickly and guide it to move towards the rest of the team. Furthermore, to maintain network privacy, multi-security levels and a dynamic password technique were implemented.

We have developed this software system with Microsoft Visual Basic 6.0. All the designed features and functionalities have been successfully implemented with nice graphical user interfaces (GUI) and extensively tested in various scenarios such as multiple robots and multiple instances of running ROBOTRAK software. Results show that ROBOTRAK is user friendly and can help monitor, control, and coordinate robotic swarms timely, effectively, and efficiently.

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The Eleventh Century Royal Portrait Manuscript Leaf of King Gagik-Abas of Kars, Queen Goranduxt, and Princess

A visual and contextual comparative study of the eleventh-century royal portrait of King Gagik-Abas of Kars and his family, Queen Goranduxt and Princess Marem, was made to determine the most likely patron of the illumination and the "lost" manuscript from which it came. The illumination is a fragmentary painting of the last royal Bagratuni family prior to the annexation of its kingdom by the Byzantines in 1065. A serendipitous find in 1911 brought the defaced, medieval miniature leaf to the forefront of scholarly study. Over the last fifty years, the painting has attracted several prominent scholars to closely examine its composition, iconography, and stylistic characteristics for a better understanding of the image. The studies have revealed a specific role of the king towards the princess with respect to the inheritance of the throne. Further scholarly review has alluded to a possible role of the queen with respect to the portraiture. However, neither study expanded their assumptions to examine the painting as a whole, that is, within a broader geo-political and social context.

My research expands the exploratory process. It is built upon a contextual understanding of the royal portrait from the image depicted in the painting itself and from the sociopolitical, historical, geographical, and theological informational sources that would have affected the climate whereupon such an image would have been commissioned. Within a contemporary contextual framework, my research attempts to systematically explore the prospect of the queen's role of patronage.

Using a tiered process, the following steps are used to further the support for the queen as central to the question of commission: first, using the composition of the image, the queen is established as a unique contributor to the production of the portrait; second, the notion that the queen commissioned the work is further explored using comparative visual studies of portraits found in Byzantine illuminated manuscripts, concluding top three scenarios identified to be the most likely intentions of the queen's commission.

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Evolutionary Control of Large Damages to Steel Structures during Seismic Activity

Performance-based engineering includes the use of damage-mitigation systems to increase seismic protection in structures. In particular, the lateral force-resisting system in buildings is enhanced using structural control to satisfy certain permissible and safe response levels - for example, not allowing a particular amount of lateral deflection to be exceeded on a given story. The objective of this study is to specifically reduce responses in experimentally-tested and computer-simulated buildings by dissipating the earthquake energy that is imparted to buildings using installed semi-active dampers. Experimentally, seismic tests are conducted on a large 'shaking table' in the Center for Earthquake Modeling and Simulation (CEMS) in the structures laboratory adjoined to the Engineering East (EE) wing on the campus of the California State University, Fresno.

An evolutionary gain matrix is implemented in an algorithm that is embedded within a controller unit that receives the sensor data from the shaking building during the earthquake. The unit then 'feeds back' optimal semi-active ("reaction") forces to the building so as to offset any potential damages. The embedded algorithm (COntrol NONlinear time-history analysis, or CONON), which resides on a computer chip inside the controller unit, automates the process using permissible 'damage-safe' and 'elastic' performance-objectives. In this manner, the performance index of the steel buildings is evolutionarily minimized at each time-step during the shaking. The results of the evolutionary approach are compared to more conventional Linear Quadratic Regulator (LQR) 'static' techniques that depend on 'weighing matrices' to minimize the cost function and can either be inefficient or possibly result in the inaccurate control of seismic demands. The comparison indicates that damage to buildings is significantly reduced using the proposed evolutionary method, which is independent of the weighing matrices, and shows a marked increase in the ability to meet the desired performance-objectives.

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Proteomic Identification of a Functional ß3-Integrin Interaction with a Protease: Implications for Cancer Metastasis

Integrins are heterodimeric transmembrane receptors involved in sensing and transmitting informational cues from the extracellular environment to the cell. This study explored the scope and nature of changes to the proteome in response to elimination of the beta3 integrin using a knockout murine model. Isotope-coded affinity tagging in combination with sub-cellular fractionation, multiple dimensions of separation and tandem mass spectrometry were used to characterize differentially expressed proteins between ß3 integrin-lacking mouse embryonic fibroblasts and isogenic wild-type controls. From a membrane protein fraction, forty-eight proteins were identified in which expression differed by > 1.5-fold. These proteins could be clustered into several similar groups, with cytoskeletal-associated and protease-related proteins being predominant. We found that expression of the ß3 integrin was inversely correlated with Cathepsin B, a lysosomal cysteine protease, as its expression increased over 3.5-fold in the ß3 integrin knockout cells. This inverse correlation was also observed in stable heterologous cells transfected with ß3 integrin, where the intracellular expression and activity of Cathepsin B was decreased comparedto untransfected control cells, analogous to the ß3 integrin knockout fibroblasts. Our data suggests that the composition of the cellular proteome is strongly influenced by integrin expression patterns and reveals a strong functional relationship between ß3 integrin and Cathepsin B. This unexpected link between two markers of advanced oncological disease may provide insight for alternative therapeutic intervention.

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Applying the Frustration-Aggression Hypothesis to Driving Situations: A Preliminary Analysis

Driving anger, popularly known as "road rage", has become an issue of both public and psychological concern. Over 200 people from 1990 to 1996 were killed as a direct result of the aggressive acting out of angered drivers (AAA, 1997). Past research has attempted to identify the causes of driving anger, and this project is an expansion upon those findings.

One of the explanations for driving anger which shows much empirical support is that of the frustration-aggression hypothesis. In the past application of this hypothesis to driving anger, the frustrator was identified as traffic congestion and the aggressive outcome as driving anger. However, some research findings indicate that traffic congestion may not be a reliable trigger for driving anger.

The purpose of this study was to investigate the possibility that any pre-existing source of frustration may lead to an aggressive driving response. Specifically, in this case the source of frustration was in the form of a series of abstract reasoning matrix tasks. Participants in the control condition received matrix problems that were easily solvable and they were given positive feedback regardless of their performance. Immediately following the matrix tasks, participants rated their levels of frustration and then viewed videotaped, simulated scenes of driving in the experimental condition were expected to report increased angry and aggressive responses to the driving situations, when compared to those in the control condition. Implications of this study include increased knowledge concerning the causes of driving anger.

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Reassessing Computer Aided Design in Architectural Practice

Architectural design is a process of decision making. There are quantitative and non quantitative issues that a designer has to address. The advance in the use of computer technology in design has been particularly slow, if not misinterpreted altogether since the early stages of the generation of commercial Computer Aided Design (CAD) programs. The quantitative power of a computer was used to generate a finalized set of drawings, conforming thus IT to the standards of analog drafting. The early attempts by commercial CAD program designers to generate fully fledged 3D modeling programs proved useful to very few users, leaving the bulk of the industry in the minimal use of 2D computer drafting. Building Information Modeling (BIM) which appeared recently, can be viewed as the new generation of Computer Aided Design. Given the level of computer education provided by current University Architecture programs, the anticipation of adoption of BIM to its full potential by the industry seems like an awfully distant faded target. By the time new designers possess the knowledge to implement BIM as it is today a much more potent version of CAD will be anticipated by the Information Technology (IT).

The problem lies in the lack of communication between IT and the building design professionals which leads to inaccurately assessed objectives. The design professionals use experiential methods and address issues in ways that do not conform to the potential of computers as design tools. Computers have not gained the trust of architects for their capabilities in risk analysis and elimination of alternatives so as to become autonomous decision making agents.

The objective was to develop and seamlessly incorporate the quantitative processing advantages of Computer Aided Design technology within the usual practices of the industry. Examples where this stealth type technology was implemented allow design professionals to engage in setting the projects' primary objectives and computers to perform risk analysis, resolve complex quantitative problems, and generate results in form of virtual models and even construction documents. The process can be automated and semi automated, allowing a controlled degree of interaction between the architect/designer and the computer program. The end result benefits the end use while minimizing any losses due to learning curve factors by the building design professionals.

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Infant Sleep and the Parent-Child Attachment Relationship

Introduction: The present study sought to explore the relationship between infant sleep and parent-child attachment. The most common recommendation given to parents in regard to dealing with infant sleep is behavioral sleep training, based on limiting responsiveness to the child when they are supposed to be sleeping. Despite the popularity of this method, Attachment Theory suggests that limiting responsiveness in this way may lead to an insecure child-parent attachment relationship. Some experts promote parent child co-sleeping in order to increase parental responsiveness during nighttime hours, thought to contribute to a secure parent-child attachment. Our research sought to explore a relationship between family sleeping arrangements and the quality of the mother-infant attachment relationship as well as the possibility of a relationship between family sleeping arrangements and behavioral sleep problems.

Methods: Participants were 20 pairs of mothers and infants between the ages of 12 and 18 months. Each infant wore an acti-watch for 5 days nights to record data regarding movement and sleep patterns. Each pair participated in a "Strange Situation" where interactions were coded in order to assess attachment quality. Finally, mothers completed a survey reporting information regarding sleep history, sleeping arrangements in the home and demographics.

Results: Of the 20 infants studied, 3 were identified as having an insecure attachment relationship. These three were all solitary sleepers who had been sleep trained. Data showed that infants who sleep alone spent more time in bed, more time asleep and woke fewer times throughout the night. However, mothers of co-sleepers reported less problematic behavior than those of solitary sleepers.

Conclusions: Our results suggest that parental non-responsiveness throughout the night may lead to an insecure attachment relationship although co-sleeping versus solitary sleeping is not the variable that determines attachment quality. Instead, maternal responsiveness (which is limited by sleep training) can influence attachment quality.

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Cancer Survival in California Hispanic Farm Workers, 1988-2001

Introduction: Although epidemiologic studies have identified elevated cancer risk in farm workers for some cancer types, little is known about cancer survival in this population. This study aimed to determine if cancer survival differs between a Hispanic farm worker population and the general Hispanic population in California.

Methods: Hispanic United Farm Workers of America (UFW) union members and California Hispanics diagnosed from 1988-2001 with a first primary cancer were identified from the California Cancer Registry. Kaplan-Meier observed 5-year cause-specific survival rates were calculated and log-rank tests assessed population differences. Cox proportional hazards models for the most common cancers provided age, stage and year of diagnosis adjusted hazard ratios.

Results: Observed five-year cancer-specific survival rates were lower for Hispanic UFW males compared to California Hispanic males for all cancer sites combined (53.7% versus 57.7%, respectively) and colorectal cancer (48.1% versus 60.6%, respectively) and higher for non-Hodgkin lymphoma (86.7% versus 57.6%, respectively). Only non-Hodgkin lymphoma survival differences remained significant (p=0.021) after adjusting for age and stage at diagnosis. No statistically significant survival differences were detected between UFW and California Hispanic females.

Conclusions: Although survival was generally similar between UFW members and California Hispanics, lower crude survival among UFW males for all sites combined and colorectal cancer warrants public health measures to address barriers to cancer screening in California's Hispanic farm working populations. Histology-specific analyses with larger sample sizes are required before reaching conclusions on non-Hodgkin lymphoma survival differences.

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Prehospital Intranasal versus Intravenous Administration of Naloxone for Narcotic Overdose

Study Objectives: The narcotic antagonist medication, naloxone, can be a life saving intervention by reversing the respiratory and mental status depression caused by an overdose of narcotics. Since intravenous (IV) administration of naloxone can be difficult, time consuming, and risky, intranasal (IN) administration may prove to be a better alternative. This study investigates the efficacy of IV versus IN administration of naloxone, by comparing the mean time intervals from patient contact and administration of naloxone to the clinical response for each route of administration.

Methods: Emergency Medical Services (EMS) and hospital records, from March 2003 to July 2004, were retrospectively reviewed from the EMS database. Patients suspected of narcotic overdose and treated with naloxone in the pre-hospital setting were included. Administration type, dose number, administration time, patient contact time, and clinical response time, were documented. Clinical response time was operationally defined as an increase in respiratory rate or Glascow Coma Scale (GCS) of at least six. The mean time interval from naloxone administration to clinical response, the mean time interval from patient contact to clinical response, and the percentage of patients successfully treated with one and two doses of naloxone, were then compared. Means and proportions were compared using t-tests and chi-square tests as appropriate.

Results: 147 patients met the inclusion criteria during the study period; 97 were treated with IV naloxone and 50 were treated with IN naloxone. Clinical response was noted in 56% of the IV group and in 64% of the IN group ($p = 0.3$). More patients in the IN group received two doses of naloxone (38% vs. 19%, $p = 0.05$). The time interval between naloxone administration time and clinical response was longer for the IN group versus the IV group (12.6 vs. 8.1 min., $p = 0.004$). However, the mean time interval from patient contact to clinical response was not significantly different between the IV and IN groups (20.3 vs. 19.4 min., $p=0.7$).

Conclusion: The dose to clinical response time for naloxone was longer for IN administration, but the overall time for patient contact to clinical response was the same for both IV and IN routes. However, two doses were required more often when using the IN route. Due to difficult and hazardous nature of obtaining IV access in some patients experiencing narcotic overdoses, IN naloxone appears to be a safe and effective alternative.

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Women in the Secured Housing Unit of California Prisons

This project fills a void in the women's prison literature by reporting descriptive detail about women in the Secured Housing Unit or SHU, of the California Department of Corrections and Rehabilitation. The 2005 population census sample of 142 distinct female inmates was derived from coding of official records kept weekly in the SHU at Valley State Prison for Women. Using a multi-method approach, the frequency and nature of the prison rule violations committed by the sample and the institutional response to the in prison offenses are all described by layered contextual detail. The project utilizes three data sources that are all official records collected and kept by California Department of Corrections and Rehabilitation. Women in the sample ranged in age from 16 to 58, were disproportionately African American and Hispanic, and nearly half of the sample had a recorded violent felony conviction. Most frequently recorded in prison offenses include battery on staff, threatening staff, battery on an inmate with a weapon, possession of a weapon, and battery on an inmate. These frequent offenses were found to most often to be preceded by a verbal escalation leading to the offense and never led to a recorded stabbing or death.

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Effects of Diesel Exhaust Chemicals on Wound Healing in Healthy and Diabetic Mouse Models

The management of diabetic wounds is a major clinical challenge. Among patients diagnosed with diabetes, the lifetime risk of developing lower-extremity ulcers is estimated to be 15% to 25%, and the treatment cost is estimated to range from $15,000 to $28,000 per episode. Current research therapies include the use of vasodilators and angiogenesis-stimulating agents to improve blood flow and antioxidants to reduce ischemia-related tissue damage. While high levels of free radicals (H2O2) generated by neutrophils and macrophage at wound sites contribute to lipid peroxidation and tissue damage, recent studies suggest that low levels of H2O2 may induce angiogenesis and enhance the wound healing process.

A growing concern in Fresno and the Central Valley is poor air quality. Of particular significance are diesel emissions which include a variety of noxious pollutants. Diesel exhaust chemicals have been linked to the exacerbation of many health conditions, including heart and respiratory diseases. Some constituents of diesel exhaust have been found in higher concentrations in Fresno than in any other part of the country, including 9, 10-phenanthraquinone, a highly reactive 3-ring polyaromatic hydrocarbon oxygen derivative. Preliminary studies in cell-free assays have revealed that this chemical undergoes redox cycling and is capable of generating significant levels of free radical (H2O2), indefinitely.

This project examined the effects of 9, 10-phenanthraquinone (PQ) on wound healing in a healthy and diabetic mouse model. Briefly, homozygous diabetic (db) and heterozygous nondiabetic (+/-) mice were exposed to high levels of PQ (150 mg/kg/d) orally for 14 days prior to wounding. Mice were kept on PQ and the healing rate (wound epithelialization) evaluated 10 days post-wounding. Wound biopsies were taken and slides prepared to assess neovascularization and tissue free radical levels. Significant differences were demonstrated in the healing rate of db and +/- mice.

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Information and Communication Technology and Its Effects on Nonprofits

This research addresses the availability problem of Information & Communication Technology (ICT) among NPOs, and its effects on the nonprofit sector. Though a digital divide exists for many nonprofit organizations (NPOs), most agencies can obtain the needed technological knowledge to more effectively and efficiently accomplish their missions.
This is a continuation of research work aimed at measuring the technological divide.

A sample of small to medium sized (SMEs) NPOs in Fresno County is used in this case study. Information from surveys, personal interviews, Information Systems audits, and previously collected data (by University students) is used for analysis.

The research shows that NPOs have a perception that funding for ICT is very limited, and beyond their reach. The results will show the contrary, ICT is readily available to the nonprofit sector than commonly believed.

The study was kept within small to medium sized (SMEs) NPOs; therefore, the focus was in the area of technology in NPOs. Recommendations are presented to assist various NPOs in implementing the improvement of their ICT.

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Arabic influences in the Castilian Literature

When one mentions the presence of the Arabs in Spain usually the first thoughts are of a dark cloud of violence, hatred, holy wars and differences between Christians and Arabs. Although, the Arab and Christian communities had many differences they coexisted harmoniously in a society where unity, diversity and tolerance played important roles. Due to the unity and tolerance between the cultures prior to the Reconquest, the expulsion of the Arab community from Spain, Arabs and Christians shared many talents among each other. The presence of the Arabic culture influenced many of the Christian writers' to explore new methods of writing styles.

There where different techniques of Literature introduced by the Arabs however, only four will be discussed. One of the first styles of literature introduced by the Arabs consisted of oral poetry based on the readings of the Koran. The second style of poetry consisted of themes which embrace nature and it was written in classical Arabic. In the theme of nature the most influential poet was Adb al-Rahman I who wrote the poem "a una palmera", (To a Palm Tree). The third style of poetry introduced was the Muwashshahat and Zajal or Zéjel which where written in a vernacular language instead of the classical Arabic and it consisted of themes of human virtue and passion. Finally, the fourth style consists of short stories. Arabic short stories played an important role in the development of Castilian Literature. For example, One Thousand and one nights, and Calila y Dimna are some of the most recognized short stories from the Iberian Peninsula. All these themes and styles of literature captured the attention of many Christian writers and poets because one can trace and identify the similarities between the literature of the Arabs and Christians. Some examples of Christian Literature with similarities to does of the Arabs consist of the "cantigas de Santa María", the lyrics "Villancicos" and short stories like el conde Lucanor by Don Juan Manuel, to mention a few. The presence and influences of the Arabic Literature in the Iberian Peninsula the literature flourished with oral and written poetry and short stories. By having knowledge of the influences of the Arabs one can identify analogous methods of literature between Arabs and Christians.

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Using Photovoice in Needs Assessment to Promote Action in an Underserved Community

Background: Rural communities often experience healthcare access barriers1. Findings from a focus group conducted in the community under study found lack of comprehensive, preventive healthcare and insurance as barriers to accessing needed services.

Purpose: This study identifies the healthcare, social service needs and access issues experienced by members of an underserved, rural community in California's central valley. The use of multiple data sources to ensure participation from all community segments is emphasized.

Learning Objectives:
1. Apply Photovoice as a needs assessments tool
2. Describe how to empower youth to participate in community needs assessment

Method: We used a needs assessment tool to conduct face-to-face interviews with 183 parents of school-aged children and 53 elders. We trained ten youths to use Photovoice. They took forty-six photos and expressed their perception in writing. Descriptive analyses to questions addressing common problems in Home Garden were conducted.
Qualitative analyses were performed using an inductive approach on verbatim answers to open-ended questions. The qualitative analysis was enhanced by results from Photovoice using the SHOWeD method developed by Caroline C. Wang, DrPH, MPH.

Results: The family and elder interviews reveal a need for access to healthcare and social services, affordable insurance, recreation, and community service. The community envisions a future that is safe and healthy. Photovoice enabled youth to express concerns about environmental burdens in their neighborhood. They feel the unclean appearance of the community gives a bad impression to the public.

Conclusions: Photovoice empowers youth and serves as a powerful tool for the community's voice. Photovoice enhances what the needs assessment captured by combining the community's story through the eyes of the youth, families and elders.

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The Relationship between Exercise and Perceived Control: A Meta-Analysis

There is considerable evidence that a serious lack of exercise plagues the health of many Americans. Therefore, it is not surprising that an important issue health psychologists face is devising methods for exercise motivation. Even more important than initiating exercise behavior is gaining an understanding of prolonged adherence to exercise programs. Only about one half of individuals who start participating in an exercise program on their own accord will still be participating in it six months after the initiation (Dishman, 1982).

This meta-analysis investigated the relationship between exercise and one's perceived control, with regards to both present exercise behavior and adherence to exercise programs. It was hypothesized that there was a low to moderate correlation between an individual's exercise behavior and her or his perceived control. More specifically, it was hypothesized that one's level of exercise behavior would vary accordingly to the type of perceived control one reports as well as various demographic factors.

Extensive searches conducted through the PsycINFO system resulted in several articles (approximately 20) containing information regarding exercise behavior and perceived control. The main determinant of whether or not an article would be used in the statistical analysis was the presence or lack of a correlation between exercise and perceived control in the results section. The preliminary steps for the statistical analyses are complete and the entire analyses are currently underway.

Overall, the previous literature suggests a low correlation between exercise and perceived control, which generally supports the hypothesis of the present study. The results may guide the future research of health psychologists toward devising more effective exercise regimens that are based on one's sense of perceived control.

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No Person Shall Be Forced to Have an Abortion against His Will: A Case of Epicene Pronouns in Written Discourse

These studies examine intensely debated epicene pronouns: generic masculine he, singular they, and he or she. One hundred and one college students participated in a study by writing about an educated person. These writings, along with fourteen academic texts from various disciplines, and nine discussion forums were collected and analyzed according to epicene pronouns. Additionally, a survey that investigated the acceptability of epicene pronouns was administered to eight writing experts, such as English teachers and a newspaper editor. These studies illustrate extensive use of singular *they* in written discourse. Singular *they* was the preferred pronoun in the present studies; it was used 70% in the first study and 33% in the second study. Although they was the preferred epicene pronoun, the majority of teachers and experts said *they* would not accept singular they from students' or employees' writings. Singular *they* usage has increased 38% since Meyers's (1989) study. This increase may suggest a grammaticalization in progress.

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The Motives for Viewing Reality Television among Age, Sex and Race

This study examined the motives for watching reality television among various age, sex and race groups. Little to no previous research has examined racial or age differences in motives for viewing reality television. Likewise, no research exists examining audience interactivity or participation as an added motive for viewing.

Multiple purposive samples were surveyed in a classroom setting on a large west-coast university campus Surveys were distributed during a lecture style class period and participants were given ten minutes to complete questionnaire. No incentives or class-credit were offered in exchange for completing the survey. A total of 353 participants (students and faculty) were surveyed to assess their reality television viewing and participation habits, preferences for certain reality subgenres, and motives for watching reality programming. 74 percent of participants claimed to watch reality television.

Aside from demographics of each participant, results found common motives for watching reality television, which included entertainment, passing time, and relaxation. African-American's were more motivated by entertainment, while Armenians by information. Younger age groups sought to pass time, while older age groups looked for entertainment in reality television. Overall, females reported having stronger reasons for watching reality television than did males, especially in the areas of entertainment, escape, companionship, habit and participation.

It was concluded that females audiences, older age groups, and non-white viewers are more strongly motivated to watch reality television for specific reasons that other audience segments.

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Eyewitness Memory in Realistic Context

Eyewitness identification research has typically focused either on specific factors in isolation, or on attempts at ecologically valid contexts in less-controlled crime simulations. There has been a lack of studies which "bridge" these approaches. This was the intent of the present experiments, which addressed the effects of stimulus complexity and weapon presence on memory for dress and physical characteristics of assailants, for weapons and peripheral sources of hazard, and for perpetrators in lineups. Standardized contexts were used for solid experimental control. Results indicated that eyewitness memory under even idealized conditions was highly unreliable, both for perpetrator characteristics and for other aspects of the crime scene, including weapons and peripheral sources of hazard. Clothing, physical appearance, and actions were poorly recalled. The presence of a weapon was also poorly recalled; the majority of respondents, faced with a "perpetrator" armed with nothing more lethal than a power screwdriver, still believed that a weapon was present and used in the scene depicted. In those scenes in which peripheral sources of hazard were included (explosive devices or potential explosive devices, similar to the improvised explosive devices [IED's] currently encountered in Iraq), only 1% of respondents detected an "explicit" explosive device (a grenade shell, from which the actual explosive, of course, had been removed), placed in plain sight. No one detected a potential "implicit" source of explosive (a military ammunition box) placed within detonation range of the grenade shell. Finally, it was shown that in context, and with a single visual transformation characteristic of real-world "lineup" criminal identification procedures, only 10% of respondents were able to make an accurate identification of a given perpetrator. These results add to the growing body of information on the elements of eyewitness situations which are most likely to yield difficulty in investigative and courtroom settings.

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Convergence Education

This study focuses on the changes in journalism education wrought by the forward movement of convergence and whether or not the education provided reflects the skills needed by professional journalists. One of the goals of this research was to determine whether or not more students of specific option within the mass communication and journalism major were being taught to write for a variety of mediums. The survey also looked at how students use the Internet — to complete coursework and for communication.

This study utilized quantitative methods and surveyed 63 students from California State University, Fresno. The students responded to survey that measured their use of the Internet to complete class work, whether or not they had learned new computer courses for their classes and if they communicated with professors and classmates online. This was measured on a five-point scale.

The results revealed a significant difference in Internet use between students of varying options within the MCJ major. Students reported using the Internet to complete online coursework. In addition, results showed that students who used the Internet to communicate with professors were more likely to use the Internet to communicate with classmates. Finally, a relationship was found between students completing class assignments online and their use of the school-provided Blackboard service.

While relationships were found linking students' Internet use and their class work, it was determined that there is a need for additional research in this field. Media professionals suggest that applicants without multimedia skills are less likely to be hired in a competitive market. Therefore, more research is needed in this area.

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Unique Thiol Compositions of Two Actinomycetes

Low-molecular weight thiols exist in all living organisms and possess strong antioxidant properties. Of these intracellular redox buffers, glutathione is among the most prominent as it is found in a wide range of organisms. Bacteria in the Order Actinomycetales, however, are known to produce mycothiol, a unique tripeptide, and lack glutathione. Several studies have found evidence for glutathione dependent enzymes in several Actinomycete species, including Rhodococcus AD45 as well as Streptomyces griseus, though the actual thiol composition of many such species had not been characterized. This research aimed to quantify the mycothiol and glutathione contents of a wide range of Actinomycete species.

Cultures were grown in tryptic soy broth (TSB) liquid media, incubatedat 30° C or 37° C, and harvested in the exponential growth phase. We applied a derivitization solution to the cells, which consisted of 50% acetonitrile and a fluorescent labeling reagent, monobromobimane (mBBr). High performance liquid chromatography (HPLC) was used to separate the labeled thiols, which were then detected via spectroflourometer. We determined the thiol composition for Rhodococcus rha1, Rhodococcus erythropolis, Rhodococcus AD45, Streptomyces griseus, Streptomyces ghanaensis, Rubrobacter radiotolerans, Kinneococcus radiotolerans, Deinococcus radiodurans, and Mycobacterium smegmatis.

Most Actinomycetes analyzed in this study produced mycothiol as the dominant thiol as expected. However, we found that the production of mycothiol is not mutually exclusive with that of glutathione, as shown in Rhodococcus AD45, a species of bacteria renowned for the ability to degrade isoprene and other related organic pollutants. An analysis of glutathione and mycothiol levels through the growth cycle of this organism revealed a changing ratio of glutathione to mycothiol. Furthermore, Rubrobacter radiotolerans, a radiation resistant Actinomycete, did not have mycothiol but contained glutathione. Understanding the thiol composition of Actinomycetes may shed light on detoxification pathways that could use mycothiol as a cofactor.

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Burning and Grazing Increase Biodiversity in Vernal Pool Grasslands

Annual grasses from the Mediterranean region now dominate many grassland ecosystems in the Central Valley. These ecosystems often have low species diversity compared to historical diversity and contain a dense thatch buildup caused by annual grass residual matter. Fire suppression and inadequate or poorly timed grazing may contribute to low diversity. We present the results of a two-year study at the James K. Herbert Wetland Prairie Preserve in Tulare County, where vernal pool, vernal pool edge and upland plant communities can be studied. The objectives for this study are: 1) to understand how prescribed fire affects species diversity in the upland, edge and pool areas in and surrounding vernal pools, 2) to understand how burning and grazing interact to affect native and non-native species diversity, 3) to study vernal pool diversity without treatment with grazing or fire. We treated nine vernal pools with fire and grazing while eleven pools received grazing only treatments and three pools received no treatment. We found that burning significantly increases plant species diversity compared to grazed, unburned pools and ungrazed, unburned pools. Ungrazed, unburned pools had the lowest diversity in our study. Though total biodiversity increased during the study in response to treatment with fire, native forbs and grasses increased in greater numbers and abundance compared to non-natives in the treatment plots. The results suggest both fire and grazing are effective tools in controlling exotic species while enhancing native species abundance, vigor and reproduction.

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Facial Composite Identification across Delay and Identification Procedure

The purpose of this study is to determine if novices can create, from memory, identifiable computer-generated composites using the computer software FACES™. FACES™ and other software programs like it are used in many police agencies in order to apprehend suspects. However, there is little research on FACES™ in particular. In the first phase of the experiment, participants will view a mug-shot for a brief period, and then work on an unrelated task for 10 minutes before creating a composite of the target. In the second phase of the experiment, other participants will be asked to identify the target composite from a simultaneous lineup of five photographs. Previous research in this area indicates that identification accuracy will decline as the memory demand placed on participants is increased. The participants received one unit of lab credit toward their psychology 10 classes. There was minimal risk involved in this study. Procedures to minimize risk included allowing students to withdraw from the experiment at any time with no penalty and complete confidentiality.

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Communication Theory: A Graduate Student's Grappling with Questions, Answers and Processes

This paper is a culmination of my experience with communication theory. Theory is considered a set of tools for understanding and acting in the world, in a sense a process. Similarly, communication/ing is viewed as a process where communication, itself, is problematized. These two conceptualizations work together to provide insight to the reflexive nature of theory and communication. Based on communication scholars' grappling with these very issues, I discuss how assumptions about theory impact understandings of communication and how assumptions of communication impact understandings of theory. Graduate students tend to approach theory with the presumption they will come away with definitive answers. More valuable than answers, though, is understanding the set of questions; thus realizing their political, personal and professional implications.

Communication theories are generally categorized into three main sections; theories of explanation, theories of understanding and critical theory. To explicate the importance of understanding the assumptions of the set of theoretical questions, I take a theory of understanding, socio-cultural theory, and a critical feminist theory, and apply each to the wedding ceremony. The purpose of this is to show how different sets of questions provide different, but equally valuable understandings of communication and theory. I conclude with a discussion of what this means for me not only as a scholar, but also personally, because the presumption I make is that theorizing is a lived experience.

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If You Build It, Who Will Come? Landbird Response Toriparian Restoration at the San Joaquin River National

Biodiversity loss under human landscape alteration is often sought to be reversed through ecological restoration. Most restoration projects focus on restoring habitat by reintroducing elements of the native flora, letting the remaining plant and animal species from the native community return on their own. Research / monitoring efforts therefore emphasize rapid recovery of ecosystem processes, and have only recently begun addressing recovery of functional groups and community assembly. Such engineered habitats are an underexploited opportunity for ecologists to understand the basic processes underlying community assembly, and to follow a community's long-term trajectory. Here I examine avian responses, specifically community assembly, to riparian restoration along the San Joaquin River in the Central Valley of California. I use point counts and vegetation assessment to investigate bird habitat relationships and seasonal habitat use patterns. Preliminary results from 2006 (four years post restoration) show increases in vegetation height, cover, and structural complexity, and that cultivated riparian forests appear to be supporting a diverse avian community. Bird species richness ranges from 6 to 13 (total of 23) in the summer and 3 to 12 species per point in the fall (total 21). In the summer the most abundant functional groups were ground granivores and insectivores, followed by foliage insectivores, bark insectivores, aerial insectivores, and generalist omnivores. In the fall ground granivores were the most abundant functional group followed by bark insectivores, aerial insectivores, ground insectivores, foliage granivores, and generalist omnivores. Results from my ongoing study provide a baseline for monitoring the reassembly of this riparian forest community, now likely to experience greater management inputs under new agreements to restore the San Joaquin River, and provide insights into the process of community assembly in engineered habitats.

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California Statewide Family Medicine Preceptorship Program's Impact on Medical Students' Specialty

Introduction: Population increases, coupled with dwindling interest in primary care residencies, suggest the supply of primary care physicians in general, and family medicine physicians in particular, will be inadequate to meet future needs. The California Academy of Family Physicians Foundation (CAFP-F) has funded the Family Medicine Preceptorship Program to allow first-year California allopathic and osteopathic students the opportunity to explore careers in family medicine by precepting full-time with a family medicine physician for four weeks. This study's first objective was to determine the proportion of CAFP-F Family Medicine Preceptorship participants who matched into family medicine and compare this to program applicants who did not participate in the program. The second objective was to investigate whether applying to the preceptorship program, year, and medical school were predictors of family medicine residency match.

Methods: Medical and osteopathic students who applied to the CAFP-F Family Medicine Preceptorship program from 1996 to 2002 were followed until they matched into specialty selection. Participants were compared to non-participants for family medicine and primary care match rates via chi-squared analysis. Using California family medicine match data from 1999 to 2005, binary logistic regression was performed with family medicine match as the outcome measure and school, application/participation status, and year as the covariates.

Results: According to the chi-squared analysis, 24% of the participants matched into family medicine residency programs, while only 13% of non-participants went into family medicine ($p < .001$). Logistic regression odds ratio for participants compared to non-applicants matching into family medicine was 2.7 with a 95% confidence interval of 2.0 to 3.6 ($p < .001$). The odds ratio for non-participants compared to non-applicants matching into family medicine was not statistically significant.

Conclusion: Participants in the CAFP-F Family Medicine Preceptorship program were more likely than both non-participants and non-applicants to select a family medicine residency.

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3-D Nanogap Molecular Electronics

Molecular electronics is using individual molecules as conducting elements to perform electronic circuit functions. Individual molecules are hundreds of times smaller than the smallest features conceivably attainable by semiconductor technology. Since individual molecules are easily made exactly the same by the billions and trillions, the dramatic reduction in size, and the sheer enormity of numbers in manufacture, is the principle benefits offered by the field of molecular electronics. Moreover, diversity of molecular structures and associated properties has expanded the field of molecular electronics to electronic components, bio-sensors and quantum electronics.

The success of molecular electronics lies in theoretical and experimental understanding the charge transport and the coupling of molecules to electrodes. Theoretical studies of charge transport through a molecule seek to understand electron transfer rates depend on donor and acceptor properties and on electronic coupling states. Experimental studies of charge transport seek to observables such as conductivity in molecular junction. The major difficulties studying the charge transport lie in constructing molecular junctions with a high degree of reliability and reproducibility. A typical molecular junction is constructed by two metal electrodes and molecule(s) connected between them. The two electrodes are usually fabricated on dielectric substrates and patterned by using electron-beam lithography that has the resolution limit and a limited accessibility. In consequence, providing nanoscale electrode gap without any substrate around the gaps for a single molecule attachment is essential to develop electronic and biological systems at the molecular level.

In the laboratory we will demonstrate methods of fabricating 3-dimentional nanogaps. The 3-dimentional nanogaps are fabricated by conventional bulk-micromachining techniques that are easily accessible compared to electron-beam or nanolithography. This technique allows not only constructing a single nanogap formed in 3-D structure configuration but also enabling nanogap arrays.

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Hmong Women Issues: Identity and Mental Health

This mixed-method research investigated perceptions, behaviors, and mental health issues of Hmong women in the United States. One of the main goals was to examine associations among mental health, behaviors, and demographic variables. Another goal was to examine whether perceptions of the participants were similar to their reported behaviors. Lastly, another main goal was to create a Hmong women identity model based on their perceptions and behaviors.

Thirty-eight Hmong women from Fresno, California ages 18 to 92 were given a survey on their behaviors and perceptions. They were also given the Hopkins Symptom Checklist-25 to assess symptoms of depression and anxiety. The women were broken down into three groups based on their length of stay in the United States: wave1 (more than 10 years), wave2 (5-10 years), wave3 (less than 1 year). Five women, representing the different waves and ages, were further interviewed on their perceptions regarding women and societal views. The Mantel-Haenszel Chi-Square Test was utilized to capture associations among the variables and descriptive statistics were utilized to determine whether perceptions were congruent to behaviors. Themes abstracted from the interview transcripts and data from the survey were used to formulate the identity model.

Statistical data analysis yielded some associations among mental health, perceptions, behaviors, and demographic variables. For example, perception of who should be more respected and actions to improve one's life were found to be associated with anxiety. Additionally, perceptions of who should be more respected, women's role in voicing concerns, education, maintaining cultural practices, and educational level were found to be associated with depression. Furthermore, more than half of the participants reportedly behave in ways that were different from their perceptions or beliefs. Utilizing the various data sets and interviews, a five stage identity model was created to better visualize the different perceptions and behaviors of Hmong women as they acculturate into the culture of the United States. The Hmong have only been relocating to the United States since 1975. Results showed that the acculturation process seemed to affect mental health and perception of Hmong women. Mental health was associated with some of the perceptions, which were related to their length stay in the United States. The five stage identity model was created to assist helping professionals to gain insights into the perceptions and struggles of Hmong women.

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Bedtime for Baby: Parental Responsiveness during Infant Sleep Routines

Background: Sensitive responsiveness is the key predictor of secure attachment in adult-infant relationships (Ainsworth, 1978). We focused on sensitive responsiveness of parents during the management of infant sleep.

Methods: 20 parents of infants 12 months or younger completed surveys and went through an interview about their infant's sleep routines. The survey included the Nighttime Parental Responsiveness Questionnaire to identify nighttime sensitive responsiveness. A coding scheme was developed by adapting Ainsworth's Maternal Sensitivity Scales (1969) to apply to sleep routines. We coded the transcribed interviews for the qualities of care described by Ainsworth as sensitive: 1) awareness of signals, 2) accurate interpretation of signals, 3) prompt response, 4) appropriate response, 5) rhythmicity, and 6) affect.

Results: In a sleep context, parents with high awareness scores recognized subtle signs of tiredness such as eye rubbing and general fussiness, while less aware parents only noticed crying. Those who accurately interpreted sleep signals expressed empathy for their baby, whereas misinterpretation was often reflected in the belief that the baby was manipulating the parents. With regard to promptness, some parents made a point of waiting until the child was in a full-fledged cry before attending, whereas others laughed at the idea of letting the baby cry without response. Appropriate response to sleep signals was the most difficult category to code because it seemed to be ideological in nature. We decided that it was appropriate to always provide comfort to a distressed baby even during sleep times, but inappropriate to use the television to soothe babies to sleep (based on medical recommendations against television viewing in infancy). Rhythmicity was most apparent in parents' attempts to create a bedtime routine including keeping the environment conducive to sleep, but also being willing to be flexible based on the infant's specific needs. We noted that parental affect varied from expressing frustration and anger at babies during bedtimes and night walking to expressing a sense of awe and appreciation for their babies at those times. Based on the Nighttime Parental Responsiveness Survey, the two interviewees with the lowest overall responsiveness scores (4 on a 7-point scale) put their babies down with a bottle on a strict schedule and left them alone or with the television to fall asleep. The two interviewees with the highest possible overall responsiveness scores (7 on a 7-point scale) both rocked and walked their babies to sleep at night, and had more flexible bedtime.

Conclusion: The interviews provide insights into the application of the concept sensitive responsiveness to parenting strategies in regard to infant sleep.

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Size-Segregated Measurements of Organic Compounds in Particulate Matter in the Central Valley

Current research supports the idea that exposure to elevated levels of small solid and liquid particles suspended in outdoor air, known as particulate matter (PM), contributes to various deleterious health effects such as reduced lung function, increased mortality rates, and a higher tendency to develop cardiovascular disease. Recent work has suggested a relationship between organic chemicals present within PM and increased adverse health effects. In particular, a class of organics called quinones has been implicated in causing health problems. These findings have significant implications for the Central Valley; the region remains among the most polluted in the nation, and high levels of PM and quinones may contribute to elevated incidences of asthma and other diseases experienced by local residents.

The goal of this study is to understand the origins and levels of quinones found within PM. Field samples were collected using a combination of Teflon filters and a Lundgren impactor between November 2005 and July 2006. Organics within the sample were extracted and analyzed by gas chromatography with mass spectrometry. Levels of about seventy organic pollutants (including alkanes, carboxylic acids, polycyclic aromatic hydrocarbons (PAHs), and quinones) were quantified.

Levels of all organics were consistently higher during the winter than at other times of the year. More volatile compounds such as alkanes were found predominantly in coarse particles, while less volatile components such as quinones were mostly in fine particles. PAH and quinone levels are positively correlated, indicating either that quinones and PAHs are emitted from the same sources, or that quinones are formed in the atmosphere from PAHs. Relative levels of alkanes and acids are consistent with traffic as the predominant source of PM collected in these samples. Collectively, these data provide important information on the origins of quinones in the Central Valley.

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Contesting Cultural Incompatibility Theories of Latino Health

Obesity and overweight are issues that have received special attention by governments and health related institutions in the last decade. Obesity rates in the United States have increased dramatically in the last fifteen years with five of the ten leading causes of death being illnesses related to overweight and obesity. This problem is very prevalent in California's Central San Joaquin Valley, with no less than 40% and 25% of the total population being overweight and obese respectably. Within ethnic minority groups, Mexican-Americans have had the highest increase in overweight and obesity since 1991. Research is divided as to why this specific group has had the highest increase in obesity. Of the three dominant arguments, one side claims that biology is the primary influencing factor affecting health. The second claims social-economic factors are the primary cause.

The third argument is that cultural beliefs are to blame for overweight and obesity among Latinos. This paper examines views and attitudes towards overweight and obesity by Mexican immigrants in California's Central Valley and challenges the belief that Latinos have an idealized concept of a larger body. By better understanding the interrelation between culture and health we are better prepared to implement effective programs that serve the valley's health needs. Research methods include participant observations and interviews on the health perceptions, specifically on overweight and obesity, of Mexican immigrants living in Fresno, CA. Findings indicate that socio-economic status is a greater factor than cultural incompatibilities in the high prevalence of overweight and obesity in the Mexican immigrant population. It is concluded that Mexican immigrant knowledge of health does not deviate from that of biomedicine and research must therefore stop using cultural incompatibility theories to rationalize Latino health disparities.

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Anti-American Foreign Policy: Strained Relations between the United States and Latin America

U.S. foreign policy in the post 9/11 era can be seen in the context of what may be labeled as a neo-conservative approach to foreign policy, under the leadership of President George W. Bush. This study will limit its examination of neoconservatism only as it applies to the international sphere. There are three important tenants to this model of foreign policy: patriotism is vital to achieve international goals, world organizations are not a solution to solving international problems, and a strong military is a necessity to "export democracy" and help in the "nation-building" process.

In certain areas around the world, support for U.S. foreign policy post 9/11 has been heavily criticized. This appears to be the case in Latin America where recent democratically elected presidential candidates have been elected on "anti-American foreign policy" platforms. The greatest threat to U.S. influence in the region comes from the President of Venezuela, Hugo Chavez Frias. Frias, along with other leaders in Latin America, are turning away from U.S. advocated free markets and moving towards a type of new-socialist economic model of development.

The recent shifts to the left that are characteristic of many countries in Latin America are perhaps one of the most intriguing areas of study in international relations. The obvious question is; what is causing this shift in Latin America today? This paper will argue, using primary sources and case studies, that one possible reason for this shift in Latin American policy can be attributed to the aggressive neo-conservative model of foreign policy employed by the Bush administration. Bush's aggressive stance on unilateralism and "nation building," coupled with failed U.S. policy in Iraq, has led to damaged U.S. influence in Latin America. As a result, alternative economic models of development, based on reaction to neoconservative ideology, are emerging in the region.

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Diesel Exhaust Chemicals Identified in Cerebrospinal Fluid and Possible Effects in Various Regions of the Brain in a Rodent Model

Phenanthraquinone (PQ) is a highly reactive oxidized 3-ring polyaromatic hydrocarbon formed during diesel combustion. PQ has been measured in exceptionally high levels in ambient Fresno air during the fall and winter when air quality is poor. Studies of PQ reactivity in cell-free assays have revealed that it undergoes redox cycling and is capable of generating free radical species, like H2O2, indefinitely.

Diesel exhaust chemicals have been linked to the exacerbation of many health conditions, including heart and respiratory diseases. Scientific evidence shows that oxidative damage may play a part in many brain-associated neurodegenerative diseases. This study was designed to determine whether PQ would cross the blood-brain barrier into the central nervous system. In addition we examined the histological effects on specific areas of the brain in a rodent model. We hypothesize that exposure to PQ will cause an increase in free radicals and decrease in antioxidants, resulting in oxidative damage to neurons.

Thirty rats (n=10) were exposed (oral administration) to 30 mg/kg/day PQ (low dose), 300 mg/kg/day PQ (high dose) or no PQ (control) for 24 days. CSF was collected and PQ measured by gas chromatography/mass spectrometry (GCMS). Briefly, a 26G needle was inserted through the posterior atlanto-occipital membrane and into the cisterna magna. 50-100 ƒÝl of CSF was collected and extracted with dichloromethane (DCM) for GCMS analysis. PQ was detected in CSF of both high and low dose rats, but not control animals. Intact brains were harvested 24 days post-exposure and sectioned at various regions (cerebral cortex, brain stem and cerebellar cortex) for assessment of pathophysiologic markers (H&E stain).

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Ambivalent Relationship: The United States and the Russian Constitutional Monarchy 1905-1911

The fundamental contention of this study is that American public opinion of Russia and its constitutional monarchy was molded and shaped by the profound cultural differences between the two nations. Notwithstanding an appreciation for the richness of Russian artistic achievements, Americans viewed with equal contempt the odious tsarist regime, a dangerous and radical revolutionary movement, and the ignorant masses. For a brief time the constitutional monarchy tempered these fears, embodying American hopes for the peaceful transformation of Russia into a freedom loving, democratic nation. However, the failure of Russia to transform itself only served to deepen American scorn and the public soon found little value in maintaining ties with Russia. Through readings of newspapers, magazines, memoirs, and travel writings, it is hoped that some sense of public opinion can be established. Used in conjunction with political statements and by exploring larger ideological attitudes on issues such as race and immigration a better understanding of American perceptions is garnered. Doing so will reveal an inherently ambivalent American public caught between its liberal ideals and conservative outlook.

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Non-destructive Sensor Development of the Detection and Measurement of Residual Stresses

Uncontrolled residual stresses have been known to cause many unexpected structural failures. Current technology of detection and measurement of residual stresses is limited to destructive means, in which the sample may render unusable after the measurement. Our research focused on the non-destructive means of quantifying the state of residual stresses.

Ultra-high frequency acoustic surface waves, similar to those generated by an earthquake, were employed. The development work was based on theory of acoustoelasticity to establish the relationship between surface acoustic wave velocity and residual stresses near the surface region of a workpiece. The measurement concept was based on the pitch-catch method, in which the generated ultrasonic signals travel through a pre-determined region in the workpiece and are received by a second identical transducer. Our research identified some specific cases of residual stress generation by common machining processes such as surface grinding and surface milling. Several design configurations were evaluated in the search for reliable ultrasonic signal reception. It was learned that several competing effects such as workpiece's hardness condition, material forming condition, etc., could have an influence on the measurement of surface wave velocity. Experimental studies were conducted with these influencing parameters isolated to show the presence of residual stresses in test samples. Our developed technique successfully filtered out these influencing factors resulting in more reliable measurements. Furthermore, our developed sensor system provided useful information of surface residual stresses generated from typical machining process.

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Crown Delineation and Profile Characterization of Old Growth Conifer Forest Using LIDAR Data

Automated tree recognition and crown delineations are computer-assisted procedures for identifying individual trees and segmenting their crown boundaries on digital imagery. The concepts are not new to digital image analysis, but were rarely implemented until recently due to high-resolution data requirement. The need to obtain detailed forest information, coupled with recent advances in remote sensing technology, marked by the advent of airborne sensors with capability for acquiring high resolution data, sparked the growing interests in the procedures. The primary objectives of this study are to derive crown attributes using LIDAR data acquired over a structurally complex old-growth conifer forest stand.

The data used for the study were acquired within a 4-hectare plot at the Wind River Canopy crane Research Facility in southern Washington State, on the western slopes of the Cascade Range. The raw LIDAR data were processed to extract surface elevation and to create raster-based canopy height model, which was used for tree identification and crown segmentation. Both manual and automated approaches were adopted in identifying tree locations and delineating their crown boundaries. Among the crown attributes derived were crown height, crown length, crown radius, height to crown base and crown radius profiles. The estimated variables were compared with field measurements. The results showed a high correlation between the two sets of estimates. The results demonstrate the capability of small footprint lidar systems for characterizing forest structure and estimating forest biophysical parameters.

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Important Issues in Power Supply Noise Measurement

Delay variation due to power supply noise is the most important concern in modern submicron CMOS designs. On chip power supply noise causes significant delay variation. The change in supply voltage locally applied to each gate element modulates the capability to drive load capacitance. Therefore, power supply noise detection is very important. An on-chip detector circuit for power supply noise detection is not only detects noise (i.e. the variation of supply voltage) but also detects noise that does not originate from supply voltage variation. There may be noise due to the interconnect path for clock sharing and signal path from one circuit to other. In this research, we are trying to detect the variation in power supply grid in presence of dense interconnect and compare this with the noise which is present only due to power supply variation. Our results show a significant variation in these two measurements. These results are useful in measurement of noise in denser submicron integrated circuits.

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Analysis and Characterization of Putative AtWRKY6 and AtWRKY53 Orthologs in *Podophyllum peltatum*

One of the most crucial processes to the development of higher eukaryotes is programmed cell death (PCD). In both plants and animals, for example, PCD is involved in such processes as defense against pathogens and development. It has been extensively studied in animals because of potential medical applications, but it is still little understood in plants, despite potential applications to agriculture and biopharming. The most easily studied manifestation of PCD in plants is leaf senescence; we therefore propose an organism with a simple senescence program to further research in this field: Podophyllum peltatum. For this study, we propose to verify the presence and study the expression patterns of two senescence-associated transcription factors previously characterized in Arabidopsis thaliana: AtWRKY6 and AtWRKY53. These are immediate early senescence-associated genes—possibly 'master regulators' of senescence. Since the P. peltatum genome has not been sequenced, we must use a PCR (polymerase chain reaction) based strategy to locate the orthologs of interest in the P. peltatum genome. Using primers designed to flank the most conserved regions of the A. thaliana genes, we amplified P. peltatum DNA, and cloned and sequenced the resulting fragments. We then used Southern blotting to verify that they belong to the P. peltatum genome. To elicit their full-length transcripts, we synthesized a cDNA library, and will screen it using the fragments as probes. We will study their expression via RT-PCR and in situ hybridization. We found two fragments- one each for AtWRKY6 and AtWRKY53- in which the WRKY-coding region (conserved in all WRKY genes) is completely conserved. Furthermore, Southern blotting experiments suggest that the AtWRKY6- like gene is regulated by methylation- that is de-methylated when the plant begins the senesce. Taken together, these results suggest that the P. peltatum genome contains functional AtWRKY6 and AtWRKY53 orthologs. The particulars of their expression remain to be seen.

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Risk Factors of Gang Membership: Results from an Analysis of Self-Reported Gang Members in the Fresno County Jail

This study quantitatively analyzes an atypical population in the annals of gang research. The Fresno County Sheriff's department approached faculty of the department of Criminology at California State University, Fresno requesting a needs-assessment demographic study of inmates housed in their facilities.

Under faculty supervision, an instrument was designed in 2005 by graduate students and a section was included pertaining specifically to those who self-reported to a history of gang membership. Face to face interviews were employed to obtain cross-sectional data of 200 randomly sampled inmates. Two different statistical tests were run to establish significance. Independent sample t-tests were utilized to determine significant differences of the mean responses between the gang and non-gang populations and the logistic regression model was used to find risk factors that significantly predict gang membership.

The results indicate that gang members are significantly more likely than non-gang respondents to: have grown up in households of lower socioeconomic status, to have been arrested as a juvenile, report inferior relationships with their mothers, begin using substances (alcohol or drugs) as a juvenile, and to have grown up with gang members in their family. In addition, the logistic regression results indicate gang membership is predicted by cultural influences, juvenile arrest, low self-control, and growing up with gang family. Also, across a number of independent variables, the results indicate significant disparity between the current gang and non-gang population while few significant differences between the former gang and non-gang population.

Implications from this study include addressing the durational issues involved in gang membership with the effects of low self-control and growing up with gang family. Also, these data expose a new variable (growing up with gang family) that has been excluded from modern longitudinal studies. The significant results of this variable in this study implicate its necessary insertion in the future life course or developmental domain research of delinquent youth.

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A Good Baby: Infant Sleep and Parental Judgments about Moral Goodness

Background: Advice to parents about infant sleep abounds, and is often contradictory, suggesting that such advice may be deeply ideological. This research was conducted, in part, to discover the nature of the ideological issues that shape the debate over appropriate management of infant sleep.

Methods: Twenty parents of infants younger than 13 months old completed surveys and were interviewed about their infants' sleep habits and their own parenting with respect to infant sleep. In order to explore moral judgments, we analyzed the text of the transcribed interviews for uses of the words "good," "bad," and "should".

Results: Use of morally laden terminology was common in the interviews. Only one interview did not include any uses of these terms; the others ranged from one to nine instances. The use of "good" (found in 8 of 20 interviews) generally referred to babies sleeping a lot or without assistance (e.g., "He's a good boy, he goes right to sleep when I lay him down.") The use of "bad" (found in 10 interviews) was generally found in discussions of the parent's judgments of themselves (e.g., "I feel really bad about making her cry.") Use of the word "should" (found in 12 interviews) was found in two contexts, first in parental descriptions of what they believe their child was capable of (e.g., "she should be sleeping better after she stops teething"), and second in descriptions of advice they receive from others (e.g., "the doctor says I should just let her cry.") The use of morally laden terminology in the interview was negatively correlated with a belief in the role of temperament in shaping infants' sleep habits, as identified by the Infant Sleep Vignettes Interpretations Scale. Single parents used "good" more often than married parents. Parents with fewer bedrooms in the home (perhaps an indicator of social class) used "bad" more often than those with more bedrooms in the home.

Conclusions: Parents to infant struggle with inconsistent moral convictions about infant sleep. However, the tendency to assign moral value to sleep habits is not universal and may be associated with structural stresses on the family unit.

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The Foraging Behavior of Birds along Urban Gradients

With rapid urbanization as the dominant trend in California and worldwide, there is interest in studying urban habitats, their effects on habitat usage by animals and their role in modifying animal behavior. Urban areas are made up of heterogeneous habitats that vary along gradients such as age of development and density of housing. For example, a study conducted in Phoenix, AZ showed that urban animals may be less influenced by climactic factors, predators or resource availability than animals in the wild. That study contrasted birds foraging in wild vs urban habitats. The focus of my study is to compare variable habitat patches within the urban environment and assess their effects on foraging birds. I compare: 1) neighborhoods at least 10 years old to neighborhoods less than 10 years old and 2) low density neighborhoods with high density neighborhoods. To measure these effects I am using artificial food patches around the city of Fresno and I will measure the amount of food leftover after a day of foraging (also known as Giving Up Density, GUD). In newer neighborhoods I expect less food leftover (lower GUD) than in older neighborhoods due to less food available in the local environment. I also expect lower GUD in high density housing compared to low density housing because of less vegetation and food in the environment. Here I will present the preliminary results obtained in the winter and spring of 2006/2007. I suggest that urban research such as mine will permit integration of urban ecosystems into wildlife management plans and give information for regional land planning.

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The Montreal Cognitive Assessment, MoCA: A Brief Early Cognitive Screening Tool for Alzheimer's Disease

The proposed study examines the usefulness of the Montreal Cognitive Assessment (MoCA) as an earlier, more in depth assessment in the diagnosis of Alzheimer's disease in comparison to the routinely used cognitive tests. Patients at the University of California San Francisco Fresno Alzheimer's and Memory Center were administered the MoCA during their neurological assessment visit. Five patients were tested and experience roughly ten minutes of cognitive screening in which their memory, visuospatial skills, executive functioning, attention, concentration, working memory, language, and orientation to time and place was evaluated. The patients' scores from the MoCA will then be compared to the other routine brief cognitive screening tools used at the Alzheimer's and Memory Center.

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Expunging Herself—Elizabeth Bishop Disappears

(Icebergs behoove the soul both being self-made from elements least visible)
Elizabeth Bishop, "The Imaginary Iceberg"

"I don't write confessional poetry," Elizabeth Bishop asserted in 1976. Despite this repudiation, her poetry has persistently been linked with Confessionalism, the mid-twentieth century school associated with a small group of poets who exposed tragic childhoods, troubled marriages, and psychological breakdowns using emotionally charged admissions, jarring syntax, and explicit psychoanalytical images. My paper explores the links between Bishop's subject matter, the Confessionalists', and the techniques she used to disguise autobiography in her poetry. Bishop expunges her obvious presence when dealing with exceptionally intimate material. To achieve this distance, she uses a collection of rhetorical moves I call "sneaky first person."

This technique divides itself into three main devices: inscrutability, embedded first person, and implied direct address. Inscrutability is comprised of an expunged real author, and barely-there speakers and characters. Embedded first person executes its viewpoint in the flashed, delayed, and conflated forms. Lastly, implied direct address uses implicit commands and subtle humor. The elements of 'sneaky first person' act together on the reader to conjure a malleable implied author. That is, the person whom the reader invents as she reads. The set of choices that create the poem, its ideas, images, and inferred system of values belong to this author. The voices of Bishop's implied authors open her work to multiple, but equally valid, interpretations founded on diverse critical theories. Bishop's well known "One Art" provides examples of all these strategies, which can be seen as characteristics of all her poetry. Studying Bishop's distancing techniques can suggest methods writers and teachers can use to deal with sensitive autobiographical material craft poetry that resists sensation and sentimentality. It can facilitate the construction of works that remain open to dissimilar reading from diverse audiences.

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An Evaluation of a Loneliness Intervention Program for College Students

One of the important challenges that individuals face is successfully satisfying their social needs while relying less on family and more on friends (Weiss, 1989). Adolescents and young adults may be particularly vulnerable to feelings of loneliness through failure to successfully satisfy their social needs (Brennan, 1982, 1984). Experiencing persistent feelings of loneliness is accompanied by a host of other problems, such as: physical illness, suicide, alcohol use, poor psychological adjustment, aggression, and low grades in university (Perlman & Landolt, 1999).

While the links between loneliness and adjustment problems have been known for some time, investigations into successful intervention programs for lonely young people have been limited. Previous evaluated intervention programs have only focused on developing social skills and not specifically on reducing loneliness. This study was geared towards creating and evaluating a loneliness intervention program for college students based upon recommendations other researchers have made regarding effective strategies for reducing loneliness.

The program was developed as a seven week psycho-educational program covering topics on cognitive-behavioral components of loneliness, coping strategies, and social skills training. The evaluation of the program was a pretest-posttest-follow up posttest design having both an experimental group and a control group. Participants for the experimental group were college students recruited through advertisements in a university newspaper, flyers, word of mouth, announcements, while participants for the control group were recruited through an introductory human development class. The program was conducted twice in a Fall semester and then in a Spring semester at a large mid-Western university.

In total 16 participants took part in the loneliness intervention program as the experimental group. The Matched Control Sample had 18 participants (9 in the Fall group, 9 in the Spring group), which was matched with experimental group on levels of loneliness, depression, gender, romantic status. For the pretest-posttest-follow up posttest, both the experimental and control group were given identical questionnaires evaluating: loneliness, depression, self-disclosure, social skills, self esteem, attachment styles, coping and alcohol use. The results suggest the treatment was effective. Results compared the experimental group with the Matched Control Sample using repeated measures MANOVA for the pretest-posttest data. They revealed that the experimental group compared to the Matched Control Sample made significant reductions in loneliness, depression, negative attachment styles (such as preoccupation), and negative coping behaviors (such as ruminating). There was also a significant increase in social skills. The findings suggest that the program was successful in helping college students reduce their feelings loneliness.

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"Mindless" Decision Making and Contextual Reasoning in Environmental

Decisions are often made without reference to vital information, even under conditions in which such information is readily available. Our previous research showed that this can be explained under the aegis of the Gestalt/Feature-Intensive (G/FI) Processing theory of cognition; in the absence of relevant information in the immediate decision context, respondents tend to rely on gestalt processing which, although more rapid than more in-depth feature-intensive cognition, is more likely to result in premature or inaccurate decision making (Sharps, 2003; Sharps & Nunes, 2002). Previous research demonstrated these effects in the realm of general or executive decision making (Sharps & Martin, 2002). In the present research, these influences were tested in the realm of reasoning and decision making about environmental issues. Respondents rated the utility of decisions concerning such issues as overpopulation, energy policy, and food production, either in the presence or absence of simple information pertinent to the issue at hand. The information provided required no training, was relatively obvious, and was rated as moderately well-known to the adult study population. Presentation of such information in the immediate context of environmental decisions significantly improved respondents' abilities to understand their negative consequences. These results add to earlier demonstrations of the importance of contextual information in decision context; provide further confirmation of the utility of the gestalt/feature-intensive processing theory of cognitive representation in addressing higher cognitive processing; and demonstrate a significant cognitive influence on environmental decision making which may help to explain the formulation and acceptance of inadequate or erroneous environmental policy.

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Breaking News: Are the Media Creating an Illusion of Importance?

Local television news viewership has been decreasing rapidly over the past ten years. Many in the industry blame increased competition from satellite channels and the internet. We investigated whether it is merely increased competition that is causing the decrease in viewership, or whether television stations are overreacting by hyping their news content in an effort to attract viewers, which in turn might be turning viewers off.

We conducted a survey to explore why viewers are turning away from local television news. We looked at whether viewers were turned off by the use of the term "breaking news" to describe any story, regardless of whether it was bonafide breaking news. Participants included 67 undergraduate college students from the Department of Mass Communication and Journalism at California State University, Fresno. Results showed most of the participants gave their full attention to a story labeled breaking news, no matter what the subject matter, and that they believed a story labeled breaking news to be more important than stories that did not carry the label. Results showed that women tended to believe more than men that stories labeled breaking news were more important than other stories, and women tended to believe stories labeled breaking news were truly breaking news. Our survey found that nearly half of the participants perceived a television station to be less credible if it overused the term breaking news.

We are in the process of expanding our sample size and reworking a few of the survey questions to find out whether viewers are driven away from television stations that sensationalize or hype their news. Our goal is to perform a content analysis on local news to determine how many and what types of stories are labeled breaking news and to conduct an additional study with participants who have viewed newscasts.

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Settling Behavior of Planktonic Marine Larvae in Realistic Flow and Wave Conditions

Many benthic marine animals release planktonic larvae that are dispersed by ocean currents. After becoming "competent" to undergo metamorphosis, larvae can settle into benthic habitats known as fouling communities. These conglomerations of sessile organisms encrust on docks, boats, and other nautical equipment, increasing drag and fouling exposed surfaces. Organisms already comprising the community can affect where larvae settle via chemical cues and alterations of ambient water flow. We studied the effects of benthic organisms on the initial touchdown behavior of competent larvae of the tubeworm Hydroides elegans, an abundant member of warm-water fouling communities worldwide. We videotaped behavior of larvae of H. elegans near substrata in a laboratory flume in which we produced water currents and waves (wind chop) similar to those recorded across fouling communities in Pearl Harbor, HI. Substrata tested represented early stages in fouling community succession: "clean" (unfouled glass), "biofilmed" (natural biofilm on a flat surface), and "fouled" (natural biofilm on a rough surface of tubes of H. elegans adults). Substratum type had no significance on mean downward velocities of larvae carried in the water near the bottom. Larvae lingered on substrata after contact, whereas neutrally-bouyant particles did not. In flowing water, the duration of larval touchdowns on the bottom correlated with the degree of fouling (mean touchdown duration = 1.6s on clean, 2.6s on biofilmed, and 3.6s on fouled surfaces ($p<0.05$). In contrast, there was no correlation between degree of fouling and the number of times larvae landed on the bottom per horizontal distance they traveled in the ambient flow. In waves, vertical transport was more variable and larval touchdown durations were longer ($p<0.05$) than in unidirectional flow. Thus, in realistic water flow, substratum chemistry and roughness can affect larval touchdown behavior.

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Media's Perception on Health Disparities: A Meta-Analysis of Newspaper Publications

Introduction: How do mainstream media interpret health disparity reports to the public? The U.S. has aimed to eliminate health disparities as a national goal (US DHHS, 2000). The media plays an important role in influencing advocacy and policy change. Newspaper reports may shape how the public frames the causes and potential solutions for racial/ethnic health disparities, but little is known about how these reports are addressing these issues.

Objective: This report examines health disparities coverage in the media. Which health disparities receive the most attention? How is health disparities framed in the media? What has been cited as the cause of disparity? Have solutions been reported to address these issues?

Methods: We used LexisNexis to sample 57 articles from the 20 highest newspaper circulations according to the Audit Bureau of Circulations. Inclusion criteria included "race" used as term for an ethnic group, a health topic must be covered in relation to race/ethnicity, and the population must be within the U.S. We covered articles published between 06/01/2006 to 08/31/2006. Keywords for the search were race, ethnicity and health.

Results: Disparities concerning Blacks (66.7%) and Latinos (21.1%) were the most frequently addressed. Cultural issues were the most commonly reported cause (52.6%) for disparities, with health care provider issues as the least common (21.2%). Furthermore, solutions to disparities were mostly cultural-based approaches (31.6%).

Conclusion: Health disparity issues have been narrowly addressed by the media. A broader social context of disease must be considered, such as environment, genetics, socioeconomic status, and providers.

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Effects of Racial Concordance, Physician Sex, and Patient Education on Patient Satisfaction

As the healthcare system grows and competition increases, patient-satisfaction has become an important issue in the industry. Identifying the most communicatively desirable physician-patient dyad provides insight into achieving greater patient satisfaction and thus an increase in patient compliance with treatment. This research article explores the cultural variables of ethnicity and sex on the dependent measure of satisfaction with a physician.

A survey was constructed to quantify subject's patient satisfaction ($f\tilde{N}$=.95). 603 surveys were distributed using multiple purposive sampling techniques.

Hypothesis one predicting racial concordant patient-physician relationships to result in greater patient satisfaction was not supported. Hypothesis two predicting both male and female patients would report greater patient satisfaction with a female physician over a male physician was not supported. Support for hypothesis three stating satisfaction of patients with a higher level of education will be greater than that of lower educated patients, was determined. Although significance was not great, a correlation of education and patient satisfaction was detected.

In conclusion, hypotheses were partially confirmed. Utilization of Spearman's rho revealed a relationship between education and patient satisfaction. This information may be utilized by the health care industry to improve patient-satisfaction by providing more opportunities for health related education. Additional findings revealed a correlation indicating that as patient age increased satisfaction increased. One may conclude that the older a patient is, the more satisfied he/she is with their attending physician. The study furthers our knowledge of cultural competence by investigating the most communicatively desirable physician-patient dyads.

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Fluid Biomechanics of a Mussel Bed

Mussels, an important intertidal species, provide food, filter water, and provide interstitial habitat for many species. To attach to a substrate, mussels produce byssal threads by extending the muscular foot to the substrate. It has been shown that thread production is limited by the ability of the foot to protrude into flow, and placed this physiological threshold of thread production at ~18 cm/s for solitary Mytilus edulis (Moeser et al., 2006). Given that flows on wave swept shores are routinely two orders of magnitude higher (e.g. 35 m/s), it is unclear when mussels can produce byssal threads on exposed coasts. This study evaluates the extent to which mussel aggregations (or beds) reduce extreme flows, thereby facilitating byssal thread production. An Acoustic Doppler Velocimeter (ADV) was used to measure water velocities in mussel beds of M. galloprovincialis and M. trossulus in a laminar flow flume and as well as in the field. Video was also used for particle tracking to calculate velocities within 1 cm of the bottom. Flow velocities found in the bed were greatly reduced, less than 6% of freestream velocity in lab trials, and 0.5% of freestream in the field. Overall, the magnitude of the flow reduction observed in the bed is sufficient for individual mussels to produce new byssal threads at freestream velocities that exceed their physiological threshold, even on exposed wave-swept coasts.

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Patients Attitude towards Physicians and Health Screening Issues a Among First Generation Asian-Indian immigrants to United States

Aim: To better understand expectations and attitudes of first generation immigrants from India to USA.

Background: There is a large difference in healthcare system as practiced in India and in USA. After immigrating to USA these immigrants are exposed to new healthcare systems. We do not have any data showing their attitudes to some specific health screening questions and physician preference in general. We also have significant concentration of these ethnic groups in the central valley.

With this questionnaire study we hope to get better understanding of their beliefs and expectations. We have tried to keep the questions simple and straightforward. The study investigators served as translators when needed.

Method: We formulated a list of questions we thought appropriate, mostly needing an answer in Yes/No, to make it simple. We targeted the said ethnic population in local parks, community gatherings, etc which are frequented mostly by first generation immigrants. The questions were distributed to willing subjects. We could get data from 123 unique individuals, 85 [69%] were male, 38[31%] female.

Results: 56% of people had never seen a doctor in USA. Over 70% were not aware of screening colonoscopy as a screening option. Overall awareness was 96% for HTN and DM , 76% for lipids , 66% for cancer screening worse awareness with colonoscopy and pap smears, better with mammography].The awareness increased with length of stay in USA and doctor visits. Lack of insurance seemed to be a big problem preventing physician visits. Patients' preference for physicians based on ethnic consideration decreased after entering into health system here.

Conclusion: There is a vast medical illiteracy among immigrants of Asian-Indian origin to USA, which improves somewhat with years of stay here and physician visits. Ways to overcome this would be to use the same community gatherings and information dispensing centers, encourage regular physician visits, and dissipate resources available for better health access.

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Degrading Propargyl Bromide with Soil Bacteria

As methyl bromide use is restricted, propargyl bromide has been identified as an attractive soil fumigant alternative to methyl bromide to control soil-borne pests. We have used enrichment culture techniques to isolate ten strains of bacteria capable of using propargyl bromide as a sole source of carbon and energy. The purpose of this study was to determine if the strains use propargyl bromide directly as a carbon source or if they use the products of abiotic degradation. Additionally, for organisms that degrade propargyl bromide, the rate of degradation was to be determined. Three different strains of microorganisms were grown in Minimal Media broth and mixed with propargyl bromide. After a period of growth, samples were removed from the culture and extracted. Gas chromatography was used to determine the concentration of propargyl bromide from the extracted samples. Strains presented a significant increase in propargyl bromide degradation. Degradation in the inoculated samples was considerably faster than the abiotic degradation in the uninoculated samples, suggesting the microorganisms enhance the rate of degradation. Work has begun to determine if degradation occurs in the soil. Test soil samples are spiked with pesticide and inoculated with a degrading organism under conditions approximate to the conditions in the field. This work should provide insights to into the environmental fate of propargyl bromide in the soil. Results should aid in the development of bio-remediation strategies and provide insights into appropriate use of propargyl bromide in the field.

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Newspaper Framing of a Hospital: The Impact of Hospital Public Relations

This study attempts to contribute to the understanding of how newspapers cover the healthcare facilities in mid-sized cities in the United States, and how the coverage that is initiated by journalists varies from those launched by hospital public relations efforts.

To conduct this analysis, stories covered by two sources, the Community Medical Center (a large medical center in Fresno, California) and The Fresno Bee (daily newspaper in Fresno, California) were used. Specifically, data were gathered and analyzed through interviews with public relations specialists at the medical center and the content within stories obtained from the local newspaper articles.

The analysis showed that journalists generated more coverage than did the hospital PR. It was found that the media and hospital were different in selecting a thematic focus even though the media tended to cover all the topics. Finally, hospital PR stories differed in tone and source selection; they tended to be more positive and quoted hospital staff, patients, and doctors/nurses, while media stories had a negative tone and quoted government, hospital staff, and business sources.

This study highlighted several important observations. Firstly, the news media are interested in reporting about the hospital as much as the hospital is interested in disseminating information through the news media. Secondly, the news media are likely to produce stories on the majority of hospital and health-related topics, while the hospital PR is selective about topics to generate proactively in print. Thirdly, the hospital public relations have an impact on the tone of the coverage generated proactively: there is more positive coverage in hospital PR generated stories and more negative articles initiated by reporters. Based on these findings, recommendations for both the health care public relations practitioners and journalists are suggested.

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Expression Profile of Transgenic Nicotiana tabacum PlantsExpressing Caenorhadbitis elegans' Cell Death Genes

Introduction: Transgenic tobacco (Nicotiana, tabacum) expressing Caenorhabditis elegans' cell death genes, Ced4 and Ced3, show evidence suggesting such expressions protect the plants from infection by the plant parasitic nematode Meloidogyne incognita. Although positive results have been correlated with gene expressions, the mechanism by which the nematode protection is manifested is not clearly understood. We hypothesized that expression of the C. elegans cell death genes Ced3 and Ced4 induce plant pathogenicity related genes leading to nematode resistance. Alternatively, the C. elegans cell death proteins produced by the transgenic plants are being ingested by the nematode leading to their demise. Here we tested the former hypothesis by establishing gene expression profiles of transgenic tobacco plants.

Methods: Three programmed cell death gene combinations; Ced3, Ced4 and Ced3XCed4, were used to create transgenic tobacco plants. RNA extractions were used to generate single-labeled fluorescent cDNAs. Labeled cDNA were hybridized onto Solanaceae cDNA (EST) microarrays in a reference design hybridization scheme. Hybridizations and data analyses have been conducted. Data will be validated via quantitative real time polymerase chain reaction.

Results: Absorbance ratios for extracted RNA were within the acceptable range indicating purity. Analysis via gel electrophoresis suggest the presence of high quality intact RNA. Microarray hybridizations have been conducted. Data analyses indicate the up-regulation of endogenous pathogen resistance genes.

Conclusion: These microarray studies in this project have established gene expression profiles for Ced3-, Ced4-, and Ced3XCed4-transgenic plants. These profiles have assisted in elucidating the mechanism through which nematode resistance is acquired in response to gene transformation. Data analyses indicate a significant up-regulation of several endogenous pathogen resistance genes in response to gene transformation.

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An Appreciative Inquiry Ethnography of a Native American Tribe

The project purpose was the development and implementation of an organization analysis of a non-federally recognized California Native American tribe using a specific, positive focused social change model, the Appreciative Inquiry (AI) model. AI was used to explore real world, naturally occurring communicative practices to perform an assessment of the tribal group's communications, establishing goals for preservation of their culture, and formation of processes to resolve issues with recognition by the federal government.

The project used qualitative data ethnographic collecting methods analyzing narrative stories collected from participants during the four phases of the AI discussion sessions. Care was taken to avoid a bias as a critical analysis of the qualitative data was completed through interpretive procedures, coding of data in order to produce a written narrative of results, to clarify, illustrate and synthesize the qualitative findings building basic knowledge and framework for the group to move forward. The project intervention successfully used Appreciative Inquiry, collecting a wealth of qualitative data from extensive participant narratives. The participants used this information, shaping positive goals and priorities, defining tribal needs, goals and objectives and, in doing so, became united and empowered in a very positive manner. Through this work, they have taken great strides forward for their tribal membership; have pledged to unite their people; moved to capture and document their tribal heritage, traditions and lifeways; and, are moving towards legal federal recognition. The participants emerged from the intervention with an armful of their own work, their own desires for their people, their own priorities and needs. Through this positive Appreciative Inquiry environment, they seemed to have gained an uplift in their spirits and confidence that appears to be moving them forward towards their goals.

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Spatial and Temporal Variations in Levels of Particle Bound Pollutants in Fresno

It is now established that high levels of particulate matter (PM) are linked to a number of adverse health effects. There is a growing body of evidence indicating that specific chemicals present within PM are the origin of these health problems. In recent years, a class of chemicals called quinones has attracted attention because of their ability to initiate oxidative stress and cause cell damage. Our group has previously shown that levels of these pollutants are unusually high at a sampling site at Fresno State, raising the possibility that they may contribute to regional health problems such as the high childhood asthma rate. Since measurements were only taken at a single site, the previous study could not determine whether quinone levels are uniform within the Fresno area, or whether there is a high degree of variability from location-to-location. Further, differences between daytime and nighttime levels were not examined.

To evaluate the spatial variation of quinone levels, PM samples were collected on Teflon filters at sites at Fresno State and in central Fresno between 5:00 and 18:00 during March 2007. Differences between day- and night-time quinone levels were examined by placing an additional sampler at the Fresno State site that ran between 18:00 and 5:00. Quinones were extracted from the filters by sonication with dichloromethane, and the samples were concentrated and analyzed for the presence of twelve quinones by gas chromatography / mass spectrometry.

Preliminary data indicate that levels of organics are higher at the Fresno State site than at the central Fresno site. Signals from samples collected at are higher than during the day. This appears to be due to a meteorological effect rather than a nighttime chemical source of these compounds. The data indicate that within the Fresno area, residents are likely to be exposed to different levels of quinones.

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Gross Apha Radiation Levels in Private Drinking Water Wells Foothill Areas

Alpha particles, when absorbed, are known to have carcinogenic effects on the human body. As a result, the United States EPA has set the Maximum Contaminant Level (MCL) for gross alpha radiation in municipal drinking water systems at 15 picoCuries per liter (pCi/L). This standard applies to public water systems only and does not extend to private wells, which are seldom, if ever, tested for gross alpha contamination. With mounting concerns over the elevated levels of gross alpha in some community system wells located in the Sierra Nevada Mountains, the objectives of this study were to determine if the private wells in 4 separate foothill areas were also showing high gross alpha levels (over 15 pCi/L), and whether the levels differed between the test areas.

Private well water samples were collected from 42 sites during February of 2007. Analyses for gross alpha were conducted at the Fresno County Public Health Laboratory. A one-tailed t-test was used to determine if test results exceeded the MCL and a one-way ANOVA was used to find any significant differences between the areas.

The study found that there was sufficient evidence, at the 0.05 level of significance that one area out of the 4 sampled was over the MCL for gross alpha set by the EPA, and that the same area was statistically different from the other sample areas. Possible reasons for the findings and observations made during the study are discussed.

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Health, Wealth, and Home: The Effects of Household Air Quality on Income

There have been various studies performed examining the effects of air quality on health. Further studies have examined the effects of health on income. However, there have been no studies examining the effects of air quality on income. This analysis uses statistical methods to test the hypothesis that poor air quality in the home will have a negative impact on household income through air quality's effects on individual health.

This analysis uses data from the Behavioral Risk Factor Surveillance Survey (BRFSS), fielded annually by the Center for Disease Control (CDC), and is performed using a two-stage regression model. In the first stage, I estimate the effects of household air quality on the self-reported number of days a respondent feels ill. The predicted values from the first-stage analysis are then included in the second-stage estimation of household income. Using this approach, it is possible to examine the effects of air quality on income.

I find home air quality to have a significant negative impact on household income through the effect it has on a respondent's number of poor health days. I estimate the household income lost due to poor home air quality to be as high as 16.5% annually. I also find that household air quality can be responsible for as much as one and a half poor health days per month. In conclusion, I show that degraded air quality causes a substantial loss of household income. Improving the quality of household air will have substantial health and thereby income benefits.

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Erosion Control Using Compost Soil on Roadside Embankment

Each year more than two billion tons of topsoil is lost in the US due to erosion. Soil erosion of roadside embankment leads to failure of the embankment, and the eroded soils, when carried into downstream water body, could contaminate rivers and lakes. Surface erosion control is regarded the "first line of defense" in maintaining highway serviceability and environmental protection. Using compost in highly erodible areas can decrease erosion and allow quicker establishment of vegetation. The objective of this study is to identify and evaluate the appropriate compost soils that can be used as effective roadside rainfall erosion control materials.

Bench scale experiments were conducted to test the erosion of natural base soils and compost. Rainfall simulators were constructed to simulate natural rainfall of 3.0 in/hr in intensity. Soil boxes (3ft long, 1ft wide, 7in tall) were designed and built to simulate inclined embankment (slop angle= 27o). Base soils (sand, silt, and clay) were tested under 1hr rainfall. Then three types of composts (provided by Earthwise Organics) were laid on the base soil as erosion control layer. The composts are 1) green material compost made from yard trimmings, 2) dairy manure compost, and 3) biosolid and green material co-composts (equal in mass and evenly mixed). Repeated rainfalls were used to test the long-term erosion resistance of composts. Chemical and biological analysis of the runoff constituents was conducted (by Twining Lab, Inc) to assess the environmental impact.

Without compost cover, slope failure and excessive soil loss were observed in all base soil erosion tests. With compost cover, soil loss significantly deceased. But slope failure occurred on slopes with green compost and manure compost, while co-compost retained the slope after three repeated rainfalls. The biological and chemical constituents in the runoff were measured to be low. This preliminary study concluded that different composts have different erosion control resistance. Some compost can serve as successful erosion control materials on roadside embankment.

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Effects of the Parasitic Nematode *Meloidogyne incognita* on Transgenic Tobacco Plants Expressing an Antisense Construct of the Cell Death Protection Gene *ced-9*

The damage to agricultural products caused by plant-parasitic nematodes is a serious problem. In the US alone, these nematodes do about $10 billion of damage; the loss worldwide amounts to about $100 billion. Methyl bromide, a potent soil fumigant, is an effective pesticide for controlling these nematodes, and has been applied worldwide. However, it is associated with grave environmental concerns. Therefore, it has been scheduled to be phased out and banned from US agriculture. However, alternatives are needed to control these nematodes. We propose the development of transgenic plants with introduced nematode programmed cell death (PCD) genes. Previous work has demonstrated that an antisense gene against *ced-9* (a PCD protection gene) generates loss-of-function (lf) phenotype in *Caenorhabditis elegans* via RNA interference (RNAi); the consequent induction of PCD leads to the death of the nematodes. We hypothesize that if plants can be engineered to express a *ced-9* antisense gene, it should stimulate the programmed cell death pathway of parasitic nematodes, and act just as a *ced-9* (lf) mutation.

We generated homozygous transgenic tobacco plants expressing either *Ced-9-F* (*ced-9* cDNA cloned in the sense orientation) or *Ced-9-R* (*ced-9* cDNA cloned in the antisense orientation). Using competitive RT-PCR, the RNA expression levels of the *Ced-9-R* and *Ced-9F* transgene in the leaves of transgenic plants were determined. Selected *Ced-9-R* and *Ced-9-F* transgenic tobacco lines that expressed high levels of the transgene were tested for tolerance to *Meloidogyne incognita* (Root Knot nematode) infection. Ability to hatch normally was compared between nematode eggs removed from the transgenic and from the wild-type tobacco plants. A Multi-Factor ANOVA was used to compare the means of number of galls formed in plants with the most and least expression of *ced-9-R* or *ced-9-F*.

Although no significant correlation between expression of *Ced-9-R* and tolerance to *M. incognita* was found during initial infection, it is still possible that a significant difference is present when we look at the hatching of nematodes generated in these transgenic plants. Also, the expression levels of the transgenes might be influenced by co-suppression.

POSTER PRESENTATION ABSTRACTS

(IN NUMERICAL ORDER BY POSTER BOARD NUMBER)

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Understanding and Preventing Relational Aggression in Adolescent Girls

The purpose of this article is to provide an overview of previous literature on understanding relational aggression of adolescent girls, with specific aim at making this information relevant towards prevention programs and educational institutions. This research draws upon scholarly sources regarding the definition, social and emotional development aspects, and consequences of relational aggression. Literature on peer and familial influences are examined. The article concludes with a discussion for further research based on works by Roslind Wiseman and Mary Pipher. Their programs are constructed to increase prevention and awareness efforts for relational aggression. Furthermore, the article should from the basis for future research in the issue of relational aggression.

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Modeling Radio Interference to Spacecraft Tracking

A model is proposed for estimating the probability that interference originating from radio transmissions in the Los Angeles area will adversely affect the tracking of spacecraft at the NASA complex in Goldstone, California. The tracking stations at the Goldstone complex employ radio receivers that must be sensitive enough to detect weak radio signals arriving from spacecraft in all parts of the solar system. These radio receivers are, in fact, among the most sensitive in the world. This sensitivity makes them vulnerable to interference arising from commercial radio transmissions.

The 37,000–38,000 MHz frequency band is employed by NASA for telemetering data from spacecraft to the Goldstone tracking complex. This same band is also available for the unrelated purpose of commercial wireless communications. Commercial activity in the 37,000–38,000 MHz band is being planned for the Los Angeles area. Although the Goldstone complex is separated from metropolitan Los Angeles by the San Gabriel and San Bernardino Mountains, some of the radio waves from Los Angeles will hurdle the mountains by scattering in the troposphere. In order to assess the risk to the space program, it is essential to model the accumulation of interference appearing at Goldstone due to a great number of radio transmitters that are distributed around the Los Angeles metropolitan area. Such a model is proposed here, and the model is used to calculate the probability that the tracking of a spacecraft is adversely affected.

The proposed model is probabilistic, accounting for variability in the meteorological conditions that determine the degree of tropospheric scattering. Although the complexity of the model precludes an analytical solution, a computer program has been written that simulates the random variables. With this program a probability has been calculated that a future tracking event will be compromised.

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Immediate Operation versus Initial Conservative Management of Appendiceal Mass in Children

Introduction: Appendicitis is the most common pediatric surgical emergency. Controversy exists in the management of appendiceal mass in children. Some surgeons prefer non operative management followed by interval appendectomy while others support immediate appendectomy.

Methods: This study compares the outcome of immediate operation and conservative treatment of appendiceal mass in children. 49 patients who presented to Children's Hospital Central California at Madera in 2003 with appendiceal mass were retrospectively analyzed.

Results: The mean age was 7.2 +/- 4 years. The first group included 16 children who underwent operative intervention within the first 24 hours of admission. The second group included 33 children who were managed conservatively followed by interval appendectomy. The complication rate in group 1 was 43%. Post operative wound infections or abscesses occurred in 7 patients. Laparoscopic appendectomies could not be performed in 3 patients: 2 cases were converted to open appendectomies while 1 patient required another laparoscopic appendectomy 3 months later. In group 2, the complication rate was 27 %(significantly less than group 1, p = 0.048). Interval appendectomy was performed between 2-4 months. 1 patient did not respond to conservative treatment. 3 patients developed postoperative abscess after interval appendectomies. 6 patients returned at 7, 10, 30, 50, 56 days respectively after initial conservative treatment with recurrent symptoms that required either intravenous antibiotics or drainage. Mean hospitalization duration did not reveal statistical significance between the two groups: 13 +/- 0.9 days in group 1 versus 21 +/-1.4 days in group 2 (p = 0.065). Operative time was comparable: 53 minutes in group 1 and 65.8 minutes in group 2 (p=0.09). Hospital billing charges were significantly higher for group 2 ($46,776 +/- 2, 400) than group 1 ($30,901 +/- 1,100) (p=0.038)

Conclusion: It is concluded that conservative treatment of appendiceal mass is safe albeit more costly. Interval appendectomy is recommended because of possible risk of recurrence.

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The Universal Appeal of James Bond: Mythological Mystery Man

"Bond, James Bond" famous words that have lived on through generations of Bond films, books, and articles written about Ian Fleming's creation, James Bond. Moreover, Chapman, James. "A License To Thrill: A Cultural History of the James Bond Films", (I.B. Tauris & Co Ltd) Examines the James Bond films not only as entertainment, but works of art that have contributed greatly to cinema and the culture of the times and beyond. Also, the James Bond novels are mentioned as having a great deal to do with Bond's popularity. However, few studies have focused extensively on the subconscious reasons for his appeal. In this study I will show that his character's allure lies not only in the kind of life he leads on the edge, the numerous gadgets at his disposal, the beautiful women he comes across and the plethora of maniacal enemies, but his connection to mythology is the real reason beneath the surface that Bond is so well-liked among both men and women. Joseph Campbell's "The Hero with a Thousand Faces" looks at how archetypal themes show themselves through countless mythologies within the central universal theme of the Hero's Journey. It is this journey that is perhaps one of the more crucial aspects to James Bond's appeal.

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Geo-Spatial Modeling of Wine Grape Quality Using GIS

Production of high quality wine requires high quality grapes. Variability in fruit quality exists in many vineyards for a variety of reasons. Without differential harvesting, wine quality derived from the fruit in any given vineyard is only as good as the blend of high and low quality fruit. Segregation of wine grapes based on quality has typically been accomplished by hand harvest. However, due to increasing labor costs, there is a growing need to mechanize this task. The typical quality indicators for red wine grapes are anthocyanin and Brix. Anthocyanins contribute most of the color to red wine while Brix indicates sugar content, which is commonly used to determine harvest date. Anthocyanin and Brix levels were measured at 437 geo-referenced sites in a 45 acre Cabernet Sauvignon using a portable near-infrared (NIR) spectrometer. The vineyard is located near Lodi, California. ESRI ArcGIS 9.1 was utilized for the geo-spatial modeling and analysis of these quality indicators. Subsequently, the anthocyanin data was used to produce a map of 'high' and 'low' for the vineyard. The anthocyanin concentration used to differentiate between high and low quality was above or below 0.87 mg anthocyanin/g fruit respectively. Based on this map a "shape file" was produced and used to control a Korvan 3016XL mechanical grape harvester. Three 40 tons lots of wine grapes representing the standard field blend, high anthocyanin and low anthocyanin were differentially harvested. These were fermented separately at the Woodbridge facility of Constellation Wines US a major cooperator in this project. The wines are currently being subjected to analytical and taste panel analysis.

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Synuclein and Its Role in Parkinson's Disease

The SNCA gene encodes alpha synuclein, a member of the family that also includes beta synuclein, and gamma synuclein. The protein is small (140 amino acids) and contains an N-terminal a-helical region, a hydrophobic central component and an acidic C-terminal region. Alpha-synuclein behaves like apolipoproteins. In adult mammals, synuclein expression is generally higher in brain regions that are most obviously involved in ongoing experience dependent synaptic modification. Parkinson's disease (PD) affects 5 % of the general population by the age of 85, whereas early-onset disease is infrequent. Pathologically, neuronal loss is observed for the pigmented, dopamine producing neurons of the substantia niagra while Lewy bodies containing aggregated alpha-synuclein are found in surviving cells of the brainstem. Alpha synuclein has been specifically implicated in Parkinson's disease (PD). Two autosomal dominant mutations have now been identified that segregate with familial Parkinsons Disease – A53T, and A30P substitutions. Subsequently, it was discovered that genomic duplications and triplications at the SNCA locus can also cause autosomal dominant, early onset PD.

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The Prevalence and Resident Knowledge of Metabolic Syndrome in Santa Cruz, Bolivia - Hospital Universitario

Purpose: Bolivia, like many other developing countries, is facing the challenge of providing basic preventive health services while at the same time the population is shifting toward more complex and chronic medical conditions. The purpose of this study was to measure the prevalence of metabolic syndrome in hospitalized patients in Santa Cruz, Bolivia and to survey the Bolivian internal medicine residents on their knowledge about this syndrome.

Methods: During a 4-week period in January and February of 2005, all hospitalized medicine patients at the Hospital San Juan de Dios were assessed for the presence of metabolic syndrome. In addition the Bolivian medicine residents received several lectures on metabolic syndrome and their knowledge about metabolic syndrome was post-tested through a written17-question exam.

Results: 56% of the female hospitalized patients were overweight with a body mass index (BMI) > 25. This compared with only 27% of the male hospitalized patients. 17% of the female patients and 6% of the male patients were obese (BMI > 30). Overall, the metabolic syndrome was found in 80% of females and 3% of males ($p<0.0001$). The mean score on the resident exam of medical knowledge of metabolic syndrome was 43% correct responses.

Conclusions: Overweight and obesity is much more common in the female than male hospitalized patient population in Santa Cruz, Bolivia. The metabolic syndrome disproportionately affects females more so than males. Despite the high prevalence of female obesity and metabolic syndrome the Bolivian medicine residents had low levels of knowledge about this syndrome.

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Automated Computer Assessment of Carotid Artery Stenosis from 3D Medical Datasets Acquired by Computer

Objective: To design an automated computer program for the assessment of the carotid artery from datasets acquired by Computer Tomography Angiography (CTA). The CTA studies of stroke patients were processed using the computer program and compared to the visual evaluation by a neuroradiologist to determine its accuracy.

Methods: The computer program requires minimal human interaction. First, it segments the lumen and the wall of the carotid artery by a combination of various image-analysis techniques such as edge-detection, curve-fitting, boundary-tracing, nearest-neighbor-interpolation and curvature-directed 2-D interpolation. The software then gathers various anatomical information, such as the degree of luminal narrowing, the wall thickness, and the amount of calcium clusters. The computer assessments were compared to the findings of the neuroradiologist. The association between CTA measurements andthe risk of stroke was evaluated.

Results: The study population consisted of 125 patients. 74 had no stroke/TIA, 18 had a TIA, and 33 had a stroke. There was excellent agreement between the neuroradiologist's visual assessment and the automated computer evaluation of the carotid stenosis (kappa = 0.918, $p<0.001$). The percent of diameter narrowing and the percent of area narrowing have the best correlation. Carotid wall thickness was the CTA parameter showing the strongest association with the risk of stroke.

Conclusion: The automated computer algorithm for quantifying the degree of carotid stenosis is reliable and shows high concordance with the interpretation of an experienced neuroradiologist. It is capable of processing a series of >100 CT slides in ½ hour, thus speeding up the diagnosis; it would have taken much longer if done manually. The results demonstrate a stronger association between the wall thickness and the risk of stroke. This association has yet to be confirmed in prospective studies with adequate sample size to demonstrate statistical significance.

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A New Planar Chiral Ferrocenyl Aminophosphine Ligand for Ru(II)-Catalyzed Asymmetric Transfer Hydrogenation of Acetophenone Derivatives

Ferrocene ligands with planar chirality have become excellent ligands for Ru(II)-catalyzed enantioselective transfer hydrogenation of aromatic ketones. We have synthesized a new chiral, ferrocene-based aminophosphine ligand to study its effectiveness in this reaction. In this study, 2-diphenylphosphino ferrocenecarboxaldehyde was synthesized using a chiral auxiliary. Using an enantiomerically-pure chiral amine, the chiral phosphino-aldehyde was converted to the corresponding imine and then reduced to produce a chiral ferrocenyl aminophosphine ligand. This new ligand was characterized by spectroscopy (NMR, IR) and polarimetry. The ferrocenyl aminophosphine ligand so produced was used to prepare the ruthenium(II) catalyst precursor for the asymmetric transfer hydrogenation of a variety of acetophenones. Synthesis, characterization, and results of catalytic asymmetric studies will be presented.

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Synthesis and Characterization of a New Ruthenium(II) Catalyst for Asymmetric Transfer Tydrogenation of Acetophenone Derivatives

The demand for new optically pure intermediates by the pharmaceutical industry has triggered a search for new methods of asymmetric catalysis. In particular, asymmetric reduction of C=O and C=N bonds to the corresponding alcohols and amines, respectively, remains a significant and fundamental reaction in the synthesis of pharmaceuticals. Chrial, aminophosphine-based Ruthenium(II) complexes have been shown to catalyze these reductions asymmetrically under mild conditions. In this study, a a chiral aminophosphine ligand was synthesized from readily available D- or L-alpha-methylbenzylamine. The Ru(II) complex of this ligand was then used as a catalyst precursor for the asymmetric reduction of acetophenone derivatives. Optimal reaction conditions, characterization of the ligand/catalyst and the alcohol product, as well as the enantioselectivity of the reaction, will be discussed.

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Tsunami Awareness on the Coast of Washington State

Tsunamis pose a potentially hazardous threat for the coast of Washington State. As tsunami activity becomes more frequent around the world, many organizations have been developing awareness programs to protect its citizens. One such organization is the Washington State Emergency Management Division which developed a pilot program for disaster preparation for the hotel/motel industry. Presentations and surveys were conducted for those businesses interested in tsunami preparedness. Two surveys were used throughout the study to find out what staff members of these businesses knew about tsunami preparedness. Surveys were distributed to each participant before the presentation began and at the conclusion of each presentation. This method was chosen to find out what employees learned from participating in this workshop. Results showed that management and staff needed tsunami evacuation maps in order to evacuate their guests and visitors effectively to their assigned assembly areas. It was also found that staff members believed it to be important to prepare supplies ahead of time should a tsunami occur. Although this study was done on a smaller scale, this type of research needs to be done on a larger basis to cover a sizeable scale to cover a larger percentage of the coastal hotel/motel industry. If another study like this were conducted, the entire west coast of the United States should be included.

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The Possibility of Moral Values in an Interpersonal Context: A Problem in Max Scheler's Phenomenological

I dispute Scheler's idea that moral value is inevitably a by-product of willing non-moral ends. The first part of the paper aims at providing a brief overview of Scheler's phenomenological ethics. I then evaluate two opposing arguments for whether moral values surface in willing the realization of non-moral values. I argue that the picture of moral interaction captured in Scheler's valuation is too simplistic. Moral values become extant only within the interaction of persons in which my actions either directly or proximately affect another. To capture this reality more accurately, I argue for the use of the term "interpersonal transactional categoriality" rather than "intersubjective," as used by Phillip Blosser.

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Convergent Evolution of Antifreeze Proteins: Bioinformatics of the Genes and Proteins

Antifreeze proteins (AFPs) and antifreeze glycoproteins (AFGPs), collectively abbreviated as AF(G)Ps, are synthesized by various organisms to enable their cells to survive in subzero environments, by binding to the nucleating ice crystals. These proteins show great diversity in structure, and they have been found in a variety of organisms.
Antarctic notothenioid fishes and several northern cods are phylogenetically distant, yet produce near-identical AFGPs to survive in their respective freezing environments. In a land mark paper Chen et al., (1) have shown that AFGP gene sequences and substructures provide strong evidence that AFGPs in these two polar fishes in fact evolved independently.

Evolution is a process that takes many years for significant change to occur. As a species evolves to survive, physiological changes occur at both the genetic and protein level. These changes allow for the species to exhibit new behaviors, adapting to the changes in their environment. Molecular evolution of AFGPs is an excellent model to understand the influence of environmental changes on the evolution of the species.

In this research we report bioinformatics based results on the molecular evolution with reference to the respective genes and proteins. Genetic similarities are analyzed from differences in the melting temperatures; the protein sequences are then characterized using a combination of sequence alignment techniques, and by defining an entropic cost for sequence conservation. Our results will lead to a better understanding of the influence of environmental changes vs. natural selection in molecular evolution.

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Assistive Technology Service Delivery: A Multidisciplinary Perspective

The purpose of this study is to summarize findings from a systematic exploration of existing literature and views regarding human service professionals' roles in assistive technology service delivery. To date, there is no consolidated picture of this multidisciplinary trait. A comprehensive description and evaluation of roles is a necessary step, then, to guide service providers, educators, and administrators.

This study is based on a review of 62 referred journal articles that focused on the roles of human service professionals in assistive technology service delivery. A comprehensive search of the literature was conducted based on two criteria. First, all articles were selected exclusively from refereed print or online journals. Conference papers or reports were not included in this review. Second, the focus of these articles had to be on assistive technology service delivery. Acceptable acronyms for assistive technology are as follows: (1) adaptive technology and (2) rehabilitation technology.

Six key components of service delivery emerged from this review: (1) Information, (2) Prescription, (3) Assessment, (4) Delivery, (5) Financing, and (6) Maintenance. These components were analyzed based upon the percentage of involvement of the following professionals: (a) Rehabilitation counselors, (b) occupational therapists, (c) physical therapists, (d) speech-language pathologists, (e) educators, and (f) health care providers. It is concluded that tasks between professionals overlap significantly, which led the author of the study to propose a collaborative computing software program, CollaborAT, to establish a multidisciplinary connection between professionals.

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Enzyme Linked Immunosorbent Assay For Quantification of B. Thuringiensis Toxins

Background: Transgenic cotton cultivars engineered to express toxins from Bacillus thuringiensis (Bt), which include WideStrike® (Dow AgroSciences, Indianapolis, IN) and BollgardII® (Monsanto Corporation, St. Louis, MO) brands, have been genetically engineered to produce the Cry1F, Cry2Ab and Cry1Ac proteins that, when in the presence of Lepidopteron digestive enzymes, cause microporation of the gut lining and effectively kill the pest. Quantification methods range from PCR for gene presence, in-field flowstrips for rapid analysis and microscopy for the presence of the crystal toxins. A quick and efficient method for toxin quantification has been the immunoassay, or ELISA. Cotton plants were grown under differing growing regimes, and leaf tissue was freeze dried for analysis. Previous data showed levels of toxin would be affected by the stresses (Dong and Li 2007).

Methods: An ELISA kit specific to Cry1Ac toxin (Strategic Diagnostics, Newark DE) was used with a modified preparation procedure optimized for quantification of the toxin. Freeze-dried leaf tissue was suspended in buffer, and samples were assayed and toxin level was quantified using SoftMax Pro software (Molecular Devices, Sunnyvale, CA)

Results: Results showed that stressed cotton plants, grown under excessive moisture and insufficient light regimes, had less toxin present than normally reared plants. These results are consistent with previous analyses.

Conclusions: This ELISA procedure is sufficient for quantifying Cry1Ac toxin.

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Utilization Characteristics of CT Colonography in a US Veteran Population

Introduction: Screening has been shown to reduce the morbidity and mortality from colorectal cancer. Currently there are several options for colon cancer screening, all of which have advantages and disadvantages. A recent addition to the options for colon cancer screening has been CT (computerized tomography) colonography. While several studies have been done evaluating this technology in specialized centers, studies have not been done to evaluate its use in a routine clinical setting. The objective of this preliminary study was to evaluate the clinical utility of CT colonography in a US Veteran population.

Methods: This study was approved by the VA Central California Health Care System IRB. All patients undergoing CT colonography over the last 3 years at the VA Central California Health Care System were retrospectively reviewed. Baseline characteristics, indications for use, and diagnostic yield of this test were determined.

Results: A total of 142 CT colonography scans were done over the study period. The average age of the veterans undergoing studies was 68.73 years. One hundred twenty-one studies were ordered by gastroenterologists, the rest by primary care providers and surgeons. The primary indication for CT colonography was an inadequate conventional colonoscopy preparation (76/142; 53.5 %). Significant medical co-morbidities was the indication for CT colonoscopy in 43 of 142 studies (30%).Overall polyps were detected in 23 studies (16.2 %). Extra intestinal findings on the CT colonography were found in 67 patients (47.2 %). Three studies demonstrated colonic masses or cancer. Eighty-six studies (60.5%) were limited in some way from optimal exams. The most common reasons for suboptimal study were residual stool or suboptimal distension.

Conclusions: CT colonography can be useful in selected patients; however, there are limitations which may reduce the sensitivity in detecting polyps. The majority of our studies were done in patients who had failed colonoscopies or were not good medical candidates for colonoscopy. Suboptimal distension and preparation may limit the usefulness of CT colonography for colon cancer screening. Further studies into the outcomes of patients undergoing CT colonography are needed to determine its role in colon cancer screening.

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Impact of Ego Identity Status and Adverse Childhood Experiences on Temperament Clarity

Our research team is exploring correlations between familial experiences, personal and relational development and temperament typology. Temperament clarity is measured using the preference clarity index (pci) of the Myers-Briggs Type Indicator and demonstrates the clarity of a subject's preference for one particular temperament category over its polar opposite. Our study examines questions of whether or not temperament clarity is related to maturity and if temperament clarity can be suppressed by adverse childhood experiences.

One temperament theory proposes that as a person matures, his or her temperament becomes more solidified—that a clearer temperament preference demonstrates a stronger sense of self. We desired to see if this correlation between temperament clarity and maturity exists by comparing pci to ego identity status, measured by the Ego Identity Process Questionnaire. Ego identity is the sense of individuality one has combined with his or her confidence in defining his or her self in four different domains: occupation, religion, politics, and values. In our study, a sampling of 84 university students revealed no significant correlation between pci and ego identity status. This may suggest that temperament clarity naturally exists on a wide continuum through out maturity. Further implications of the results are being explored.

Adverse childhood experiences (ACE) are defined as negative childhood experiences that involve child neglect and abuse, parental alcohol and drug abuse, or marital and family discord. Our study explores whether these negative experiences are correlated with temperament expression later on as the adolescent emerges out of the family into adulthood. Preliminary analysis reveals a negative correlation between pci and ACE. This suggests that adverse childhood experiences can inhibit a clear preference for temperament types later on in development. We are also in the process of examining the results to see if pci shows stronger correlations to certain forms of ACE compared to others.

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Post Treatment Complications of Botulism Type A and B: A Review of Four Cases

Botulism is a rare, life threatening disease caused by the neurotoxin of the spore-forming anaerobic bacterium, *Clostridium botulinum*. There are at least three types of botulinum toxins that affect humans, type A, B and E (1).

The symptoms of patients who were infected with botulism in previous case reports were described as follows : symmetric flaccid paralysis of the extremities, autonomic dysfunction and external ophthalmoplegia. In most cases their motor nerves were affected as well as their cranial nerves, which caused blurred vision, diplopia and dysphagia (1). We present four patients who were found to have botulism of either type A or B. Three patients were using IV heroin and one had ingested a four day non refrigerated carrot juice. All patients had moderate to severe respiratory symptoms at the initial presentation, three had to be intubated immediately upon admission. Within about a week, three of four patients went on to develop further complications of both motor and sensory neuropathy, mimicking Guillain-Barre Syndrome and one developed symptoms mimicking Myasthenia Gravis. All four patients had antitoxin administration within 24-48 hours of hospitalization. Three of the four patients developed complications and remained in the intensive care unit (ICU) due to failure to wean from the ventilator. One of the four patient stayed about two weeks in the ICU. We sent blood samples of these patients to Central Disease Control for examination. It is interesting to note that the three patients with complicated lengthy hospital course had type A botulism, and the one less complicated patient had the type B strain. It is known that the type A strain is more virulent than type B botulism. Two of the patients who had type A botulism developed severe sensory motor neuropathy following antitoxin treatment. Until these patients received treatment of IVIG (intravenous ImmunoGlobulin) therapy, there were no improvements in their cranial neuropathies or in respiratory function. After receiving IVIG, the patients showed marked improvements of cranial neuropathies. Their hospital courses seem to be shorter than in some previous case reports. One patient with type B botulism had a favorable outcome with the shortest length of hospital admission as compared to the others. We are hoping to emphasize the importance of early detection of botulism symptoms with immediate intervention, including recognition of some of the unusual patterns of presentation of type A botulism.

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Unexpected Death in Children 0-5 Years-Old

Introduction: Preventable injury is the leading cause of death among children in the United States despite national initiatives to improve the safety of children and their environments. Over 10,000 children die each year from injuries; more than from all diseases combined. The purpose of this study is two fold 1) to determine the distributions of cause, manner and circumstances of sudden unexplained death of children ages 0-5 in Fresno County, and 2) to index the specific institutional opportunities of this County's human service agencies to prevent future deaths and make recommendations to these agencies.

Methodology: Data was retrospectively collected from Fresno County Coroner's investigative records for all sudden, unexpected deaths of children 0-5 years-old between 2000 and 2006. Demographics, manner, cause, caretaker, location of incident and death, agency involvement, and the circumstances surrounding each death were entered into a database for analysis. Fetal demise and stillbirth cases were excluded.

Results: Information was collected on 162 deaths of young children 0-5. In our sample more males died (65%) than females (35%). Hispanic youth accounted for the majority of deaths (59%) then White (23%), black (12%), Asian (5%), Native American (<1%). Frequency of death was an inverse function of age: specifically, age 0-11 months 89(55%) deaths, age 1 year-old 25(15%), age 2 years-old 19(12%), age 3 years-old 13(8%), age 4 years-old 8(5%), and 5 years-old 8(5%). 11.7% had CPS involvement compared to the national average for all children of 1.3%.

Conclusion: Ethnicity is not associated with risk; however more boys than girls die each year who are 0-5. Accidents are the leading manner of death with the leading causes being Motor Vehicle Collisions and drowning. The youngest children are at the highest risk and CPS involvement is alarmingly high.

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Cultural Framework and Anger Expression in Russian Immigrant Women

Cross-cultural studies of immigrants indicate that acculturation is frequently stressful; adjusting immigrants can manifest symptoms of anger, anxiety, and depression (Bochner, 1994). Immigrants' adherence to a certain cultural framework can play a role in the adjustment process, and provide valuable clues for where a certain individual is within this process. During this difficult time in immigrants' lives, mismanaged anger symptoms can lead to adverse health problems, which are likely unwanted additives to the already challenging existence for them.

The present study aimed to investigate the following questions: (1) Are individualistic and collectivistic cultural frames associated with different types of anger expression? (2) Are individualistic and collectivistic cultural frames associated with health status? (3) Are different types of anger expression associated with health status? (4) Does cultural frame interact with anger expression in predicting health status? The study recruited a convenience sample of 76 Russian immigrant women between the ages of 30-65. Each participant was asked to complete the State Trait Anger Expression Inventory – II (STAXI-2), Ware's Short Form-12 Health Survey version 2 (SF-12v2), and the Self-Construal Scale (SCS) questionnaires, as well as a supplemental demographic survey, in either English or Russian, as they chose. Two hierarchical regression analyses were used to address the research questions. Preliminary results revealed a significant negative relationship between anger-in and mental health, as well as collectivistic cultural frame and mental health. In addition, those adhering to the individualistic cultural frame showed a positive relationship with good physical health.

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Adsorption Kinetics of Antifreeze Glycoproteins

Anti-freeze glycoproteins (AFGPs) refer to a unique class of biomolecules found in fishes that allow for their survival in a sub-zero environment via freezing point depression of water. The resulting difference between the melting point and freezing point is termed thermal hysteresis—a term used to quantify the respective antifreeze activity of AFGP molecules. AFGPs exhibit non-colligative freezing temperature depression 300-500 times more effective than the colligative depression observed for typical solutes. There are at least eight closely related glycoproteins and glycopeptides ranging in molecular weight from 32,000 to 2,600 g/mol; these molecules are classified AFGP1 to AFGP8 in order of decreasing size. In general, AFGP8 has weaker antifreeze activity than the AFGP1. However, in mixtures of both, their activities are additive as cooperative potentiation occurs and the full activity of AFGP8 is liberated. The purpose of this research project is to develop a mathematical model to explain the unusual thermal hysterisis of a mixture of AFGP8 and AFGP1. Our approach regards the AFGP-ice interaction to be analogous to a non-specific substrate-ligand interaction; the binding isotherm is modeled for cooperative affinity. Furthermore, the model should be able to explain such phenomena as cooperative potentiation, as well as relate physical properties of the AFGP molecule to the observed thermal hysteresis. Understanding the binding nature will lead to a comprehensive knowledge on the fundamental molecular mechanism of action of this unique class of proteins. The unique inhibitory function of anti-freeze protein molecules provides great potential for cryo-industrial usages such as preservation of tissues andcells, as well as maintaining the quality of frozen materials.

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Normative Data for the Gaze Stabilization Test (GST) Protocols on the in Vision™ for High Performance Athletes

Balance, or the ability to maintain one's center of gravity over a static or dynamic base of support, is made up of two interdependent but separate systems: gaze stabilization and postural stabilization. Gaze stabilization maintains gaze direction of the eyes and visual acuity during active head and body movements and is reliant on the visual and vestibular systems, muscular control of eye movements and the activity of the brain to integrate this sensory and motor information. Gaze stability is necessary for safe, coordinated movements in non-athletes, and even more so for the competing athlete. The purpose of this study is to collect normative data for maximum head velocity for gaze stabilization in high performance athletes to determine if the demands of sport have an effect on this ability.

Seventy-five NCAA Division I athletes from California State University, Fresno were recruited using a sample of convenience. Athletes were tested if they had participated in their sport for a minimum of 5 years, had maintained a consistent training record for 2 years and who had good health standing were tested using the gaze stabilization test (GST) protocol for the inVision™ by Neurocom International, Inc. in all three dynamic head movements (horizontal, vertical and roll). Actual head velocity (degrees/second) scores were compared to a sample of seventeen non-athletes.

Mean scores in degrees/second are reported for all athletes tested in three planes of head movement (horizontal, vertical and roll): 127 + 29 (s.d.), 104 + 29 (s.d.) and 95 + 30 (s.d.), respectively. Mean scores for non-athletes are 114 + 25 (s.d.), 81 + 19 (s.d.) and 71 + 25 (s.d.).

Results confirm there is statistically significant difference between athletes and non-athletes for vertical and roll dynamic head movements, indicating a forced demand for these head movements during sport compared to non-athletes.

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Synthesis and Characterization of One Dimensional ZnO Nanostructure

The semiconductor ZnO nanostructures are attracting increased attention in the science and technology communities partially because of their wide energy band gap (3.37 eV) and large exciton binding energy (60 meV). Potential applications of ZnO nanostructures are spreading from light emitting diodes and lasers, solar cells, photodetectors and optical switches. Here we present the synthesis of ZnO nanostructures including nanowires, nanobelts, and nanopillars. The as-grown ZnO nanostructures are strongly related to synthesizing temperature: lower temperature producing thin film, medium temperature producing crystalline nanoparticles, higher temperature starting one dimensional nanowire formation. With optimal temperature at high end nanowires in varying morphology are produced. It is our desire to create nanostructure of proper structure, chemical property and polarity.A technique used to synthesize ZnO nanowires is chemical vapor deposition via vapor liquid solid mechanism.

During ZnO nanowire growth, reactant molecules (precursors) in vapor phase were fed into the reaction region. The surface of the liquid catalyst has a large accommodative coefficient relative to the substrate, and therefore are the preferred sites for fragment nucleation. The liquid becomes supersaturated with the absorbed material and a solid segment growth occurs. Because the precipitation point of the absorbed material the catalyst remains in the liquid phase and continues to absorb fragments, thereby establishing wire formation. As this process progresses, the liquid lifts off the substrate surface due to the formation of the solid nanowire beneath it. A whitish film with abundant nanowires can be obtained on the substrates. Scanning and transmission electron microscopes (SEM and TEM) methods were used to examine shapes and sizes of nanostructures while energy filtered TEM (EFTEM) and electron energy loss spectroscopic (EELS) were used to examine the chemical composition of the as-grown nanostructures and verify their composition of zinc and oxygen to form ZnO.
Polarity of the ZnO nanopillar was determined with convergent beam electron diffraction (CBED) method, allows for unambiguous determination of the crystal polarity.In the present study ZnO nanostructures morphology with temperature ependence were studied using both SEM and TEM methods, their crystal structure and chemical composition were examined by electron diffraction contrast imaging which identified the nanopillars and chemical composition was determined by EFTEM chemical mapping and EELS spectra, respectively indicating composition of zinc and oxygen to form ZnO and studied CBED method indicates that the nanopillars were grown with Zn-polarity. Synthesis of nanowires and nanopillars were successful. We intend to further investigate nanostructures synthesis as they make possible and or enhance their applications in optical, electric areas.

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Quantification of Volatile Organic Compound Emissions from California Dairy Facilities

The San Joaquin valley suffers from a serious and growing air pollution problem. During the summer, persistently high levels of ozone build up within the region, which exacerbate health problems such as asthma. Ozone is formed in chemical reactions involving volatile organic compounds (VOCs) and oxides of nitrogen (NOx). According to the California Air Resources Board, dairy facilities are the largest source of VOCs in the valley and volatile fatty acids (VFAs) account for over 50% of these emissions. However, these estimates are controversial because fluxes of VFAs from California dairies have not been accurately measured.

In this work, a method has been developed to quantify emissions of VOCs using a flux chamber coupled to a solid phase microextraction (SPME) sampling chamber, with analysis by gas chromatography with mass spectrometry. Method parameters were optimized for the analysis of C2 – C6 carboxylic acids. The method was tested in the laboratory using samples of silage and total mixed rations (TMR) collected from two local dairies.

A total of thirty previously undetected VOCs have been identified in emissions from silage and TMR samples. C2 – C5 carboxylic acids were found to be present in all samples. Emission rates of VFAs from fresh silage samples are of the order of 10 mg/hour/m2 with acetic acid as the dominant species. The emission rates decrease by roughly an order of magnitude over a twelve hour period. The technique will be used for in-situ emission measurements from dairies, which will ultimately result in a more accurate assessment of the contribution of VFA emissions from dairies to the region’s air quality problems.

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A Key to Brachyuran Megalopae of the San Francisco Bay Estuary

In 1992, the Chinese mitten crab, Eriocheir sinensis, was discovered in the San Francisco/Delta system. Since its introduction the Chinese mitten crab has become a nuisance species. Explosions in adult populations can potentially have a negative effect on the native species of the area through competition and predation. Other adverse effects of the mitten crab are caused by juveniles that include stream bank and levee erosion through burrowing behavior and interference with commercial fisheries through gear destruction and bait stealing (Veldhuizen, 1997). If population explosions can be predicted, preparations can be made for the negative effects caused by the down stream migration of mitten crab juveniles. The mitten crab post-larval stage, the megalopae, are thought to use tidal currents to migrate from brackish water to fresh water environments where they metamorphose into juveniles (Rudnick, 2005). Year-class strength of juveniles may be predicted by megalopae abundance, in correlation with temperature, salinity and tidal currents. Megalopae abundance can be determined with light traps and plankton tows. Presently, there is no mechanism to identify the megalopae species in the San Francisco Bay/Delta system. The objective of this study is to create a dichotomous key of the brachyuran megalopae species of the San Francisco Bay system, thus allowing us to identify and quantitate E. sinensis megalopae. Using characteristics obtained from published literature, a key was generated to identify 13 species in the families Cancridae, Grapsidae, Majidae, Pinnotheridae, and Xanthidae. Illustrations of each megalopae species was obtained from published literature.

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Light Intensity Effects on Structure and Development of Vegetative and Reproductive Leaves of Podophyllum

Leaves of Mayapple exist in either vegetative (Vr) or reproductive (Rr) form. As light intensity varies widely in the species' natural understory environment, this study examined the effects of high (H, 550 umolm-2s-1) and low (L, 80 umolm-2s-1) illumination on Vr and Rr leaf characteristics. Hypotheses were that low illumination levels would (1) reduce leaf expansion rate, (2) increase leaf specific leaf area; and (3) increase final leaf area. Leaves in low illumination exhibited reduced leaf expansion rate relative to H leaves (L:0.361±0.032 vs. H:0.457±0.034 cm/d; P=0.020), although Rr leaves were larger at emergence than Vr leaves (P=0.012), leaf form did not affect expansion rate (P=0.702). The illumination effect on leaf expansion was transient, as both leaf forms achieved 90% of final leaf length in 13.0±2.2 days (form: P=0.242; illumination P=0.643). Specific leaf area (cm2/gDW) was affected by illumination (P<0.001) and leaf form (P=0.027); L leaves had ~24% greater SLA than H leaves and Rr leaves had 5% lower SLA than Vr leaves. In spite of lower SLA in L leaves, final leaf area was unchanged by illumination level, but Rr leaf final area (375±35 cm2) exceeded Vr leaf final leaf area (291±35 cm2, P=0.013). Low illumination leaves possessed ~32% greater chlorophyll concentration (P<0.001) and ~7% lower chlorophyll a/b ratio (P=0.017) than H leaves, but, leaf form did not affect either total chlorophyll (P=0.248) or chlorophyll a/b ratio (P=0.536). Hypotheses 1 and 3 were not supported, but Hypotheses 2 was supported as SLA increased under L conditions. It appears that Mayapple leaves compensate for reduced photosynthesis in L conditions by increasing SLA and chlorophyll concentration to enhance light capture. This is further supported by preliminary chlorophyll fluorescence measurement in Vr leaves showing no effect of growth light level on electron transport rate.

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Selection of Extraction Conditions for Phenylephrine in Clandestine Methamphetamine Laboratory Case Samples

Phenylephrine is a nasal decongestant that has been reintroduced to many over-the-counter cold and allergy medications after federal regulations on the sale of pseudoephedrine took place in January of 2006. The potential for phenylephrine to appear in clandestine methamphetamine laboratory case samples as a substitute for pseudoephedrine requires that forensic methods be validated for its identification. This project assessed extraction efficiency for phenylephrine using a variety of solvents and aqueous additives.

The extraction efficiency of phenylephrine standard solutions and simulated case samples was assessed using a variety of instrumental techniques including gas chromatography – mass spectrometry (GC-MS), capillary electrophoresis (CE), and UV spectroscopy (UV). Work in our lab confirmed earlier results that traditional base extractions using sodium hydroxide and chloroform or hexane do not allow the extraction of phenylephrine from these samples. The use of ion pairing agents (e.g. ammonium ions), salting agents (e.g. sodium chloride or iodide), and polar solvents (e.g. n-butanol) significantly improved extraction efficiencies for phenylephrine as assessed by both CE and UV. Detection of phenylephrine in these extractions using GC-MS was not initially successful, potentially due a combination of solvent purity issues, poor chromatography, and poor detection limits.

In conclusion, current methods of extraction are not effective for the analysis of phenylephrine. The use of alternate solvents and aqueous additives, including ion pairing agents, has the potential to allow the detection of phenylephrine in these case samples. Work continues in the Person laboratory to resolve issues surrounding the GC-MS analysis of these extracts.

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Refinement of Linguistic Intonation Patterns through Use of Musical Criteria

The object of our study is to show the musical function of pitch in speech (fundamental frequency). The observation of intonation in linguistics has to this point been one of noticing which pitches are higher or lower within the context of the purpose of the utterance. A great deal of cataloging of the features of statements, questions, commands, and interjections has produced a lexicon of contour types. These observations have by and large served the linguistic community in fine fashion. However, when a closer look is taken at the actual musical function of the pitch in the utterance another level of understanding is reached. To this point linguists have used an accurate, though crude system for the transcription of intonation in speech that looks at pitch level alone. There has been no work into the relation of the pitches within an utterance to further classify its context or purpose. Generally the linguistic notation simply falls into five levels: high, mid-high, mid, mid-low, and low. This is an adequate system for simple observation but there is possibility for much refinement by approaching the transcription of pitch from a musical perspective. A statistical analysis of the occurrence of related musical pitches (f0) within utterances shows that linguistic observations of standard intonation contours can be set down in a more specific manner. These transcriptions have shown the presence of another level of significance in the function of intonation in speech that surpasses the method currently used by linguists. Linguist's observation of intent in utterances can be shown in significant musical ratios that add more specificity to transcription.

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Influence of Mutations on the Folding Transition State of Proteins: FSD-1 as a Model System

Characterization of the folding transition-state ensemble is an important step toward a full elucidation of protein folding mechanisms. FSD-1 is a small alpha/beta protein of 28 residues, originally designed based on the backbone structure of a zinc-finger protein domain. Ab initio molecular dynamics simulations of a model protein FSD-1 suggests that the amino-acid sequence can be redesigned by specific mutations to form a more stable protein. Two such de novo designs proteins are FSD-M1 and FSD-M2.

Nuclear magnetic resonance (NMR) spectroscopy provides a powerful way to determine the 3D structures of proteins in the solutionstate. In this research we have undertaken a structural biology approach to determine the structure and dynamics of the proteins FSD-1 and its two mutants FSD-M1 and FSD-M2. The goal is to validate computational predictions that the mutant proteins are more stable thanthe wild type. We have collected 2D NMR NOESY (nuclear Overhauser effect spectroscopy) and TOCSY (total correlation spectroscopy) data of these proteins at 15oC and 30oC. The experimental data was analyzed using a combination of sparky (data analysis) and PyMol (visualization) programs. Complete sequence specific assignments of all the three proteins suggest anticipated changes in the specific regions of the spectra that correspond to the mutations. Detailed analysis of the data, preliminary NMR structural characterizations and comparison of the NMR results with computer simulations will be presented. This collaborative research between all-atom molecular dynamic simulations and NMR based structural validation is expected to provide excellent tools to understand amino acid residue level detail of protein folding mechanisms.

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Does Dabbing the Skin Surface Dry During Ice Massage Treatment Accentuate Cryotherapeutic Effects?

While ice massage (IM) is a rapid cooling technique used to facilitate therapeutic movements in the rehabilitation process, evidence of its efficacy over alternative therapeutic protocols is scarce. We hypothesized that a clinical IM protocol involving "dabbing" excess water would be superior to a "non-dabbing" protocol in accelerating a reduction in superficial skin temperature.

Sixteen healthy, young adult volunteers, in counterbalanced order received a dabbing (DB) and non-dabbing (noDB) 7-minute IM treatment over the surface of the right or left triceps surae musculature. Minute-by-minute temperature change in skin surface was evaluated using an infrared thermometer. Active (AROM) and passive (PROM) range of motion was evaluated via hand-held goniometer. Force in the triceps surae during passive stretch was evaluated with an algometer. Dependent variables (reported as M±SD) were tested with between group ANOVA with repeated measures.

Skin temperature was reduced to DB (5.8±1.1°C) in comparison to noDB (6.8±1.4°C), evoking significantly greater cooling at 1-min of IM (group X time interaction, $p<0.01$). However, after two minutes of IM, each method of application evoked the same surface temperature. Neither seven-minute IM technique yielded a significant change in AROM DB (-0.63± 2.55) in comparison to noDB (1.18± 2.90), or a change in passive-length tension relations ($p>0.05$).

This study found two to three minutes of ice massage sufficient in cooling the skin surface, independent of dabbing or no-dabbing technique used. The dabbing technique appears to cause a more rapid decrease in surface temperature initially, and is a more practical method of application. Despite method of application, no significant changes were found in AROM, or passive length-tension relationship after 7-mintues IM to the triceps surae.

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The Effects of Depression on Anger Expression in Romantic Relationships

Anger expression is an important facet of the maintenance and quality of romantic relationships. Romantic relationships affect the initiation and maintenance of depression. The present study tested the hypothesis that depressed research participants would have a higher likelihood of using anger management strategies associated with inwardly directed anger expression. This study included 198 participants (135 depressed and 63 non-depressed) that were recruited from Fresno State's student counseling center. Participants were asked to complete the brief symptom inventory, the state trait anger expression inventory, and an anger interview. The state trait anger expression inventory measured tendency to use anger expression strategies associated with outwardly directed anger (anger-out), inwardly directed anger (anger-in), and attempts to control the experience of anger before expressing it (anger control in-and anger control-out). The anger interview consisted of 2 situations involving anger provocations by romantic partners. The anger interview responses were then coded by 10 raters on 18 dimensions of anger management strategies. The coders were individually trained and familiarized with the situations, the rating scale, and the DVD format of the videotaped responses to the situations. Depression status was determined by the BSI depression subscale. Distribution of genders was similar across groups and there were no significant age differences between the groups. Analyses of variance indicated that there were no significant differences between depressed and non-depressed participants in terms of anger expression as measured by the State-Trait Anger Expression Inventory. One limitation of the study is that the effect of clinically significant anger was not controlled. Implications for understanding the role of relationships and anger expression in the initiation and maintenance of depression will be discussed.

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The Effect of the Oakhurst Wastewater Treatment Plant on Fresno River Water Quality

The objective of this study is to address the influence of the Oakhurst Wastewater Treatment Facility (OWTF) on the Fresno River water quality. The facility had recently been expanded to accommodate 550,000 gallons of waste per day, compared to its previous maximum of 250,000 gallons per day. At upstream and downstream sites established by the 2004 Fresno River Nutrient Reduction Plan, we collected water to measure field parameters indicative of wastewater effluent, including biochemical oxygen demand (BOD), nutrient concentrations, suspended and attached microbial growth, stable isotope ratios (15N:14N, 13C:12C), and total and fecal Coliform bacteria, as well as relevant chemical and physical parameters. Water samples were collected from three sites on the Fresno River, two upstream of the OWTF and one site downstream, in winter 2006. An independent team sampled from the three sites approximately one month later to examine microbial concentrations. Madera County's Engineering Department provided further nutrient and microbial data. Although most parameters measured do not indicate that the OWTF has a significant impact upon the Fresno River at this time, there is a significantly greater amount of algae and other organic material downstream of the OWTF than upstream, indicating an overall downstream increase in the amount of organic matter. Stable isotope data showed an increase, downstream of the OWTF, in 15N:14N, although the source is likely ammonia. The tributary leading into the river at a site upstream of the OWTF is certainly a point source of Coliform bacteria.

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Phenotypic Characterization and Genetic Mapping of Traits in the Pepper Root Rot Pathogen, *PHYTOPHTHORA CAPSICI*

Introduction. Pepper root rot, caused by *Phytophthora capsici* Leon, is a very serious disease of chile and bell peppers (*Capsicum* spp.). Our lab is investigating pepper's ability to resist this disease and the pathogen's ability to cause disease. We have characterized a set of 34 isolates of *P. capsici* for a variety of traits: ability to cause disease on different pepper genotypes, mating type, fungicide sensitivity/resistance, and genetic relatedness based on rRNA ITS gene sequences. We are also constructing a genetic linkage map of the pathogen in order to decipher the locations of its virulence genes.

Methodology. Ability to cause disease was tested by inoculating 11 different pepper genotypes with spores of each of the 34 isolates. Symptoms were screened at 40 days post-inoculation. Mating types of these isolates were determined by crossing them with the two standard A1 and A2 mating types on Petri plates and looking for oospores. Fungicide sensitivity was tested by growing all isolates on varying concentrations of the main fungicide used in the field, metalaxyl. A subset of five agriculturally important isolates was tested against 8 additional fungicides. In all cases, both growth of mycelium and ability to sporulate were tested. Genetic relatedness is being examined by sequencing the products of a PCR designed to amplify the ITS1 region from each *P. capsici* isolate.

Results and Conclusions. The isolates have been grouped into 14 different races based on the results of inoculations on different pepper genotypes. Isolates of both mating types, A1 and A2, were found, with both being found in the same field, indicating the likelihood of sexual recombination taking place. Several different isolates were resistant to various fungicides used to control the disease. PCR of ribosomal ITS is still underway.

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Poster Session II, Poster Board No. 9

The Effects of Urban Development and Climate on Species Distribution in the San Joaquin Valley, California

Global climate change is expected to substantially rearrange the distribution of earth's biodiversity, on global and regional scales. In northern California, mean annual temperatures are projected to rise by 3oC and 5°C by 2050 and 2100 respectively. Simultaneously, human population in the San Joaquin Valley is projected to nearly double by 2050, to 8 million due to urbanization. We investigate rapid urban development and climate as two predictor variables that are expected to influence the distribution of organisms in the San Joaquin Valley. We map the distribution of endemic species, which includes endangered and threatened varieties, within a GIS framework, to address how climate change and urban development will alter the regional distribution of biodiversity. We obtained the geographic ranges of several endemic species and plotted their relative abundance in the Valley. The projected climate and urban development are significant stressors to the current distribution of species. We expect species to either go extinct or to shift their ranges; California plant communities are already predicted to shift their range in response to urbanization and climate change. Further, we analyze the relative effect of urban development and climate change at the local scale; this component of our study may result in policy-level recommendations should one or both variables produce a significant stressor effect on species diversity. Currently, we are investigating change in land use from agricultural to urban as an important variable that will affect future biodiversity. Our results should propel an increased awareness of the rapidly escalating adverse anthropogenic impacts on the unique habitat heterogeneity and species richness of the Valley.

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Disease Resistance Genes Cluster in the Genome of Pepper

Introduction: Our laboratory has mapped the chromosomal location of genes in pepper (Capsicum) that confer resistance toe pepper root rot as well as to two viral diseases and are working on root-knot nematodes and bacterial spot. We have also mapped the location of so-called resistance gene analogs, or RGAs. Disease resistance genes cluster in the genome of pepper. We have also chosen some resistance genes to use in a marker-assisted selection program.

Methodology: All of these genes were mapped using either a set of recombinant inbred lines (RILs) from the cross PI201234 x Psp-11 or a set of F2 progeny from the cross CM334 x NuMex Joe E Parker. AFLPs, SSR, RAPD, RGA, and candidate gene markers were used.Disease resistance was screened by inoculation of plants and susceptible controls. Map positions of resistance genes were determined by using the program MAPMAKER-QTL 3.0. Three strong QTLs conferring resistance to root rot were chosen for marker-assisted selection experiments. Flanking molecular markers will be used throughout a multi-generational breeding program to make sure that they resistance genes stay in the program.

Results and Conclusions: Results are available so far for root rot, chile veinal mottle virus, and potato virus Y resistance, as well as for the RGA locations. So far, at least 6 loci have overlapping resistance genes/RGA locations. In addition, 6 loci confer resistance to multiple isolates of the pepper root rot pathogen. Results are not in, yet, for root-knot nematodes or bacterial spot. Resistance genes are clearly clustering in the pepper genome. Our marker-assisted selection program is at the third generation, now, and will be screened soon using molecular markers to identify appropriate plants for our continued breeding efforts.

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A Comparison of Data Dissemination Protocols for Large-Scale Wireless Sensor Networks

Wireless Sensor Network is an emerging technology to combine the advantages of wireless network and low power embedded system.One of the technical challenges in wireless sensor networks is to collect and report data to central station(s). Data dissemination protocol controls the process of collecting and reporting data.In this study, we investigated the effect of data dissemination protocol on the performance of application. Three different grid-based data dissemination protocols are compared using simulation. The first protocol (PROC1) builds grid overlays over the entire network statically at the initial phase. A grid is built for a specific data and is not shared with other data types. The second one (PROC2) build a grid overlay to share among different types of data. The third one (PROC3) builds a grid overlay dynamically on demand.

A network simulation (NS-2) models were built for those protocols and measured three performance metrics including success rate (packet delivery), delay, and power consumption. The performance metrics were measured with two different application scenarios (stationary and mobile station).The simulation results are summarized as follows. The alternatives in grid construction (PROC2 and PROC3) are not effective when fixed measurement station(s) is used.PROC1 improves 15 % of the success rate compared to PROC2 or PROC3. It also improves 15 % of the delay. But, there is not difference in power consumption among those three protocols.

However, grid sharing (PROC2) and on-demand grid construction (PROC3) perform better in the other application scenario, where data collection and logging are performed using mobile station(s) (e.g., car or airplane).The improvements depend on the speed of the mobile station. PRCO2 and PROC3 improve 15% to 30 % of the success rate compared to PROC1.PRCO2 and PROC3 improve 30 % or more of the power consumption. The improvement increases linearly to over 100% as the speed is increased.

In general, the use of virtual grid overlay in wireless sensor network improves the performance of data dissemination. However, this study results show that the effect of grid construction becomes significant or small depending on application characteristic.

Currently, we are extending the study to other factors affecting network performance and also planning to develop a wireless sensor network for an agriculture application.

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Changing Landscapes and Sustainability: Fresno County's Ecological Footprint and the Effects of Urbanization

Urbanization is a dominant trend transforming the natural landscapes of California, adversely affecting biodiversity and ecosystem services. While urbanization has been well studied in large metropolitan areas like the San Francisco Bay region, and Phoenix, Arizona, relatively little is known about its ecological effects in areas such as Fresno County. Located in the Great Central Valley, the heart of California, stretching from the Sierra Nevada to the Coastal Range, Fresno County contains the sixth largest city in California and some of the most fertile agricultural lands in the world. The county's population is currently growing at a rate of 1.9%/year and is estimated to increase by 58% from (821,797 in 2000 to 1,301,204) by 2025. Such an increase in population will require more land for human use and further stress the valley's environment. As expected, rising population has already increased water consumption in Fresno County. In 2000, Fresno County used 6,495 million Kilowatt hours of energy per year, and every resident disposed of a little less than 3 lbs of trash/day. Further, 162,856 tons of carbon was emitted to the atmosphere the previous year. To meet the demands of an increasing population, the Fresno County Office of General Planning allows for new development to occur on 37,737 acres of land, leading to a loss of approximately 2.9% of Fresno County's agricultural land. We investigate the ecological impacts of urbanization on agricultural land in Fresno County and measure the amount of biologically productive land and water used by the county to produce the resources it consumes- its ecological footprint. We also consider the time required for waste to be reabsorbed into the environment using prevailing technology and resource management. Insights from our analyses can help reconcile the expected urban growth with environmental protection.

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Anger Expression within Conduct and Intermittent Explosive Disorders

Conduct disorder and intermittent explosive disorder are categories in the DSM-IV describing people with aggressive behavior problems. Differential diagnosis of these disorders is important for designing appropriate treatment strategies. It is hypothesized that participants with conduct disorder will score higher on measures of anger control and anger in, while participants with intermittent explosive disorder will score higher on measures of anger out. 197 participants, 24 meeting criteria for conduct disorder, 47 meeting criteria for intermittent explosive disorder, and 11 of these same participants meeting criteria for both, were recruited from a student counseling center. They each completed the State Trait Anger Expression Inventory and anger interviews, consisting of 3 situations involving anger provocations by family members. Anger interview responses were coded by 10 raters on 18 dimensions of anger expression. Each rater was individually trained and practiced coding each situation, before rating the actual participants. In this study conduct disorder is operationally defined as meeting criteria for both the Entitlement and Poor Self Control schemas on the Young Schema Questionnaire, while intermittent explosive disorder is operationally defined as a BSI hostility scale score greater than or equal to 60. Results indicate that people with conduct disorder scored higher on measures of anger out and anger in, while people with intermittent explosive disorder generally scored higher on measures of anger out but lower on measures of anger control-out, when compared to those who did not have either disorder. No interactions existed between conduct and intermittent explosive disorders for anger expression variables. The study discusses implications for formulating appropriate treatments, for both conduct and intermittent explosive disorders.

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Protein Profile of Transgenic Nicotiana tabacum Plants Expressing Caenorhadbitis elegans' Cell Death Genes

Background: The development of transgenic crops has had an enormous impact in agriculture with benefits to both the consumer as well as the producer. However in the rush to get these items on the market we have failed to investigate what global effects transgenes have on the crop's endogenous protein profile. Here we will attempt to analyze what effects Caenorhabditis elegans' cell death genes; Ced4 and Ced3, have on transgenic tobacco's (Nicotiana tabacum) protein profile to better understand the mechanism by which they acquire resistance to parasitic nematodes. Although microarray studies indicate an up-regulation of pathogenicity related genes in response to the expression of C. elegans cell death genes, it remains to be determined if these genes are in fact being translated into proteins. are in fact being translated into proteins. We hypothesized that the expression of C. elegans cell death genes Ced3 and Ced4 induce the expression of plant pathogenicity related genes that also being translated into protein.

Methods: Image analysis of 2-D protein gels will be used to identify if pathogenicity related proteins are differentially expressed in transgenic tobacco plants when compared to their wild-type counterparts. Up-regulated protein spots will then be excised and analyzed by mass spectrometry to identify each protein that is differentially expressed.

Results: Protein extractions from transgenic tobacco plants suggest 2-D gel electrophoresis may be used to identify which proteins are being differentially expressed. However, we are currently attempting to optimize protein visualization using various detection protocols.Conclusion: These proteomic studies will establish protein expression profiles for Ced-3, Ced-4, Ced-3XCed-4 transgenic and wild-type tobacco plants to gain a better understanding of how.

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An Investigation of Quinones as Biomarkers for Exposure to Air Pollution

Particulate matter (PM) is a component of air pollution that has been linked to health problems such as asthma. Quinones are chemical species found within PM that are suspected of initiating chemical reactions that may lead to asthma attacks. Previous work has shown that levels of quinones are high in Fresno, and that peak levels occur when incidences of asthma attacks are at their maximum. To investigate the link between air pollutants and health effects on an individual, it is necessary to know the quantities of a pollutant that the individual has been exposed to. One approach to obtain this information is to monitor the levels of the pollutants or their metabolites in the urine or blood of the subject. This provides a convenient and relatively inexpensive method to monitor exposure if the levels of these biomarkers are correlated with the amount of pollutant inhaled.

The goal of this work is to evaluate the use of quinones as biomarkers for exposure to these pollutants and PM. Urine samples were collected from Sprague-Dawley rats 24 hours after exposure to 9, 10-phenanthraquinone (PQ). Additional samples were collected from human subjects during Summer 2006 and Spring 2007. Quinones were extracted from the samples and analyzed by gas chromatography/mass spectrometry.

Urinary levels of PQ in the rats were found to be correlated with the levels that the animals were exposed to. Levels within all exposed animals were significantly higher than in unexposed animals. The seven monitored quinones in human samples were below the detectionlimits during the summer, but were observable in samples collected during Spring, when ambient quinone levels are known to be higher. This study demonstrates that quinone biomarkers may be a useful method to track exposure to pollutants such as quinones and PM.

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Differential Aggressive Responses to Male and Female Provoking Situations

In contrast to other manifestations of anger, driving anger seems to be an increasingly more frequent and more socially acceptable outlet of expressing negative emotion. In a survey conducted on U.K. motorists, nearly 90% reported that they had been victims of what they perceived to be road rage. In addition, approximately 60% stated that they themselves had experienced anger while driving over the past year (Joint, 1996).

Very few studies have examined differences between males and females on "road rage" behavior. Social role theory (e.g., Eagly, 1987) suggests that men and women behave differently within social situations. Although driving situations are not explicitly social in nature and drivers often do not interact directly with one another, it is likely that anger within these situations reflects a perceived interaction between drivers. Research has shown (Nesbit, 2004) that different anger expression styles (measured by the Anger Expression scale on the State-Trait Anger Expression Scale; Spielberger, 1988) predict negative driving outcomes for men and women. It is not yet known if individuals react differently to male and female instigating drivers. The purpose of this study was to assess differences in participant's self-reported cognitive, behavioral, and emotional reactions to male and female provoking drivers within realistic driving situations. Fifty female participants viewed three videotaped simulated driving situations (a neutral situation and two anger-provoking situations), and were told to focus on their reactions within each situation. These simulated situations were created with both male and female confederate drivers, and descriptions of the situations presented to participants can be manipulated to denote the gender of the confederate driver. Immediately after each presented situation, participants rated their anger levels and the likelihood of engaging in certain aggressive and non-aggressive behaviors. Although analyses are still in progress, female participants were expected to report increased angry and aggressive responses to the provoking female drivers, when compared to the male provoking drivers. Implications of this study will be discussed in terms of intrasexual selection theories of competition and jealousy.

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Community Partners in Research: The Tib Trainer

The Physical Therapy Department was asked to study the Tib Trainer for its creator. This research sought to demonstrate the efficacy of the Tib Trainer exercise equipment when used with persons age 60+y.o.

Methods: A sample of convenience was drawn from volunteers 60+y.o. attending an on campus exercise class: N=8. Participants continued in the exercise class and added the research activity. Pre/Post-test Limits of Stability (LOS)testing on a computer assisted force plate were used to illustrate the efficacy of the Tib Trainer protocol. LOS tests are used to reliably assess fall risk.

Results: All the participants in the study had significant (p=.05) LOS gains using the Tib Trainer protocol. Although participants had significant improvements in their LOS, these results were not maintained when LOS was tested one year later.

Conclusions: Participants in the study reported they found the tib trainer protocol fun, challenging, and confidence building. More research is needed to determine: 1-what training interval is required to maintain the gains demonstrated in this study or 2-what functional activities participants need to perform regularly to maintain the gains demonstrated in this study.

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Selenium Impact on Frog Corticosterone Level and Development

The influence of environmental toxins, such as selenium, on stress and development in amphibians has not been extensively studied. High selenium concentrations have detrimental effects on frogs by increasing corticosterone levels, which cause muscle atrophy, increased metabolic rate, reduced fecundity and immunosuppression. These phenomena are considered to be stress related. I hypothesize that selenium accumulation and corticosterone level will increase with increasing selenium levels and possibly cause stress, which impacts survival.

To assess the potential detrimental effects of selenium inducing stress in frogs, a laboratory study (using Rana pipiens) and a field survey (sampling Rana catesbieana) were conducted. Rana pipiens raised in tanks were exposed to selenium levels (0 ppb, 1 ppb, 5 ppb and 13 ppb) found in ponds and the larvae food was laden with selenium (0 ppb, 1 ppb, 5 ppb and 13 ppb). We quantified selenium accumulation,hatching success, development and corticosterone levels, to assess the possible impact that stress from selenium is having on laboratory R. pipiens. Corticosterone levels were obtained from R. catesbieana's, which were found at a pond with selenium (~13 ppb) exceeding U. S. EPA's freshwater chronic criterion (5 ppb), blood as an indicator of possible selenium induced stress. Rana catesbieana liver selenium concentrations (36 to 56 ug/g; mean = 45.25 ug/g) from this pond were similar to other selenium contaminated sites (Kesterson Reservoir: 25to 88 ug/g; mean = 45 ug/g), known for high deformities and mortality in nesting birds. From the same pond, environmental samples (water, sediment, vegetation, and insects) were recorded quarterly to assess the bioaccumulation of selenium.

We are in the process of completing the second laboratory trial and will be analyzing the data (selenium and corticosterone levels) for field samples and laboratory R. pipiens. Our preliminary results indicate a significant difference ($P < 0.05$) among selenium treatments for the laboratory study and selenium was found bio-accumulating in the food chain for the field study.

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How Spatial is Social Distance?

The construct of social distance has been studied extensively since the early 1900's (e.g., Bogardus, 1933). However, studies examining the existence of absolute social distance have been scarce. Do people think about social groups in terms of space? Does spatial thinking influence the conceptualization of concepts pertaining to gender, race, SES, or national origin? Results of the current study suggest that an underlying spatial framework may influence socially relevant information.

In the current study 335 UC Merced students were given narratives that differed with regard to embedded characters' national origin. After these participants read the narrative, they drew figures representing the characters in a natural scene. Drawings were coded by view type (bird's eye, semi bird's eye, eye level), respective figure placement (horizontal, vertical, and diagonal), average figure height (mm), and inter-figure distance (mm) to get at participants' spatial representation of social information.

Differences by narrative condition were not found for figure placement nor average figure height. Inter-figure distance approached significance ($p=.058$), participants who believed that two characters shared a common national origin drew representative figures further from one another ($M=88.69$ mm, $SD=38.64$ mm) than participants who believed the individuals came from different national origins ($M=77.05$ mm, $SD=34.96$ mm). Participants who were given national origin-absent information drew figures with inter-figure distance residing between the two experimental conditions ($M=84.57$ mm, $SD=40.91$ mm). Results are discussed with regard to out-group homogeneity and social distance theory.

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Case Study: Schwannomatosis with Involvement of Multiple Merves

We present a case of a 54-year-old Chinese woman in the Department of Orthopedics Surgery in Tseung Kwan O Hospital, Hong Kong for evaluation and treatment of recurrent schwannomatosis with involvement of multiple nerves.

Briefly, the patient first presented to our clinic with left forefoot pain in 2005. MRI of spine and lower limb revealed multiple nerve sheath tumors of the extremity with involvement of the sciatic nerve. The patient underwent excision of left forefoot tumor. Histology of the tumors were confirmed to be schwannomatosis.

5 months after the first operation, patient presented with a 2-cm, soft but painful lump near the previous surgical site. Patient underwent a second operation for excision of the left posterior tibial nerve.

Postoperatively, patient complained of paraesthesia on 3 left fingers. She also had partial weakness in the intrinsic muscles of her left hand. Physical exam showed diminished left knee jerk and numbness. MRI showed multiple nerve sheath tumors arising from the left arm involving the brachial plexus, the clavicle and the supraclavicular plexus. There was also tumor extension into the spinal cord in her lower back. She underwent excision of tumors from her arm and lower back surgery (L3,4 laminectomy and excision of the intradural L4 tumor). Histology confirmed schwannoma. Follow up MRI at 6 months did not reveal any residual disease.

This case is unusual in that schwannomas are tumors of peripheral nerves and multiple schwannomas of the peripheral and central nervous system are uncommon. In our case, the patient presented with painful paraesthesia in the dermatome distribution. Notably, pain is themost common presentation of schwanomas.

Debate is ongoing to determine whether schwannomatosis is a distinct entity from Neurofibromatosis-2 based on genetic, radiologic and histologic findings. The case highlights the importance of enucleation of the tumor without damaging the nerve.

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Incorporating GPS-GIS Technology in Student Learning to Enhance

The use of Global Positioning System (GPS) and Geographic Information System (GIS) technology has become an integral part of the decision-making process in the practice of Environmental Health (EH) at all levels of government. Cutting edge application of this technology is extensively conducted in EH programs at the state and county levels in California, most notably in our area in Tulare and Madera Counties. Because of this, the Central Valley Directors of Environmental Health have informed the Environmental/Occupational Health & Safety (EOHS) Option in the Health Science Department at Fresno State of the need for incorporating discussion and use of GPS-GIS technology into the option's curriculum. In addition, the accrediting bodies for EH academic programs are strongly encouraging the development and inclusion of GPS-GIS technology in the standard programmatic curriculum of their accredited programs.

A 7 month (September, 2006, through March, 2007) project was developed to implement competency based education by developing curriculum and conducting activities in technology enhanced student learning. The project involved the integration of GPS-GIS technology into an existing environmental health course. Students learned about taking GPS readings in conjunction with collecting water samples for laboratory analysis along the San Joaquin River. Students then use the GIS shape files and maps developed from their sampling results to draw conclusions on the findings.

The ultimate goal of the project was to provide students with the knowledge and skills to use GIS mapping as a tool in decision-making. Project outcomes from this seven-month project included: 1) delivery of a learning session in a prerequisite course that provides an overview on the uses and benefits of GPS-GIS technology in decision-making; 2) development and implementation of a learning module on GPS; and 3) development and implementation of a learning module on GIS.

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Quantitative Analysis of the Effects of Ionizing Radiation on Arabidopsis thaliana

Few studies have examined the impact of radiation on physiologically active plants and subsequent impact on growth, rates of photosynthesis and respiration, and chlorophyll content. The principle objective of the study is to assess whether plants can be used as biological dosimeters to measure the amount of radiation dose after accidental radiation exposures or leaks to the environment. Arabidopsis thaliana was chosen due to its frequent use as a model in the plant sciences. This work is a continuation and expansion of a research project undertaken in 2004/2005.

Grown in controlled environment chambers with 12 hour day/20 oC/75% humidity, the plants were divided into three growth stages and will be irradiated with a linear accelerator. The effect of radiation depends on the amount of energy and the type of radiation that is delivered to the tissue. The irradiation doses are delivered as either a single dose or dual fractionated doses with the same total radiation dose. The total irradiation doses will be delivered at four levels, 0.5, 4, 50, and 150 Gy. Pre-harvest measurements include photosynthetic and respiration rates, internode length at first flower and chlorophyll concentration and chlorophyll a/b ratio. Post-harvest measurements will consist of plant height, number of leaves, and number of flowers, leaf area and total plant biomass.

This research has the potential to define whether the plants have the capability of serving as biological dosimeters as well as whether their response at different growth stages can illustrate the role of DNA repair mechanisms at different doses and different rates of dose.

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Characterization of Mycobacterium Smegmatis 137E6 Transposon Mutant

Mycobacterium smegmatis is a non-pathogenic bacterium that has gained the attention of many scientists due to its evolutionary relationship to the pathogen M. tuberculosis. Consequently, M. smegmatis has become the model organism to investigate the biochemistry and physiology of M. tuberculosis. A M. smegmatis mutant library, from which fourteen mutants were selected to be characterized, has been generated using EZ-Tn5© transposon mutagenesis. The mutants' genomic DNA was extracted and digested separately with ApaI, SphI, KpnI, BamHI, and SalI. The fragments generated were then self-ligated and prepared for PCR using outward primers complementary to the ends of the transposon. The primers are designed to amplify the flanking regions of the gene disrupted. The amplified regions were independently cloned into plasmid vector pCR2.1-TOPO© followed by transformation into E. coli DH5? competent cells. Subsequently, the plasmids were isolated, purified and sequenced. The sequences were subjected to BLAST analysis against the M. smegmatis genome and the disrupted genes were identified. Only the 137E6 mutant was of significance since the transposon seems to interrupt the intergenic region between MSMEG_0663, and MSMEG_0664. The MSMEG_0663 gene belongs to the TetR-family of transcriptional regulators. Tetracycline repressor (TetR) functions as a potent transcription factor to regulate gene expression. The MSMEG_0664 gene belongs to the FAD dependent oxidoreductase family, which is associated with the catalysis of oxidation-reduction reactions. To further characterize the function of the mutated genes, the mutant phenotype will be determined by growth assays under different stress conditions. Thereafter, the native genes will be reintroduced in the mutant to further confirm the functions of the genes.

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Identification and Characterization of Two Diamide Sensitive M. smegmatis Transposon Mutants

In 2005, 8.8 million people were infected with Mycobacterium tuberculosis (Mtb), the main bacterium responsible for causing Tuberculosis (Tb). The emergence of multi-drug resistant Mtb strains generates further concern. Mtb is a slow growing, pathogenic organism making it difficult to study; whereas, Mycobacterium smegmatis, the model organism for studying mycobacteria, is fast growing and nonpathogenic. A mutant library of M. smegmatis, created by transposon mutagenesis, was screened for sensitivity to diamide. Diamide, a thiol-specific oxidizing agent acts to cause oxidative stress. Random diamide sensitive mutants from the library were selected in order to identify the genes disrupted by the transposon. Genomic DNA was extracted and digested with various restriction enzymes that either cut at one end of the transposon or probable sites within M. smegmatis genes. The digested fragments were self-ligated and PCR-amplified with outward primers complementary to the ends of the transposon. In this manner, the primers amplified the flanking regions to the transposon. The PCR products were cloned into pCR2.1 and then transformed into competent E. coli. Plasmid DNA was extracted and sequenced. The disrupted genes in mutants 16F12 and 76F8 were identified as a multiphosphoryl transfer protein and polyphosphate (poly(P)) glucokinase, respectively. Poly(P) glucokinase catalyzes the phosphorylation of glucose using poly(P)s or ATP as the phosphoryl donor. Multiphosphoryl transfer protein is a part of a complex system involved in carbohydrate active transport especially fructose. We plan to characterize by performing growth assays in different growth mediums and subjecting them to various stress agents that mimic environmental stress. Then we plan to complement the mutants by introducing the functional copy of the genes.

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Characterization of Mycobacterium Smegmatis Mutant 109C4

Mycobacterium smegmatis is a close relative of Mycobacterium tuberculosis, which is the cause of 1.6 million deaths annually. Study of M. smegmatis may lead to new treatments effective against M. tuberculosis. As part of our graduate level nucleic acid technology class, we examined a transposon mutant of M. smegmatis, mutant strain 109C4. This mutant strain contains an insertion of the Tn5 transposon in its genome. To determine the location of the insertion we digested the genomic DNA with Sal I restriction endonuclease and ligated the digest into circular DNA. We then PCR-amplified the DNA neighboring the transposon using outward facing KAN-2 primers. Following amplification we cloned the amplified DNA into a PCR 2.1 plasmid in E. coli, then isolated the plasmid, and sequenced the cloned fragment. Using a BLAST search we determined that the sequenced fragment contained a section of the 813 base pair MSMEG 6704 that codes for a shikimate 5-dehydrogenase, indicating that the transposon is inserted within this gene. This enzyme is part of the shikimate pathway for synthesizing aromatic compounds, including aromatic amino acids, and this pathway is essential for the survival of bacteria, fungi and plants. M. smegmatis contains two other shikimate 5-dehydrogenase genes, MSMEG 3028 and MSMEG 5457, which may compensate for the mutation. Further work will be done characterizing the mutant and its growth in minimal media versus media supplemented with aromatic amino acids.

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Poster Session II, Poster Board No. 26

Short-Chain Dehydrogenase-Reductase Gene Interrupted in Diamide Sensitive Mycobacterium I Transposon Mutant

Mycobacterium genus encompasses saprophytic, opportunistic and pathogenic species that are responsible for human threats such as leprosy, tuberculosis and Buruli ulcer leading to millions of deaths around the world every year (Soden, 2005). Mycobacterium smegmatis however, is non pathogenic and can easily be studied in the laboratory. In this study, the disrupted gene in the transposon mutants 22D10 and 133H8 which were previously screened for diamide sensitivity, was identified. Genomic DNA was digested with BamHI and SalI, respectively, self ligated and amplified by PCR with outward primers complementary to the sequence at the ends of the transposon. Bands of approximately 600 bp were amplified, extracted, ligated to pCR2.1 TOPO cloning vector and transformed into E. coli DH5 á competent cells. Cloning of the correct fragment was confirmed by restriction analysis with EcoR1. Plasmid DNA was then extracted and sent for sequencing. TIGR BLAST analysis of 22D10 identified the disrupted an operon containing genes MSMEG_3371 and MSMEG_ 3372. MSMEG 3371 encodes a short-chain dehydrogenase-reductase (SDR), and is involved in oxidoreductase activity (www.tigr.com). SDR displays a wide substrate spectrum, ranging from steroids, alcohols, sugars, and aromatic compounds to xenobiotics (Kallberg, 2002). MSMEG_3372 encodes arsR, a transcriptional repressor gene, which controls membrane efflux pump expression in Staphylococcus aureus (Ji, 1992). TIGR BLAST analysis of 133H8 identified a disruption in a hypothetical protein (www.tigr.org). Further research on 22D10 and 133H8 will include characterization of the mutants under different growth conditions with reference to the wild-type M. smegmantis phenotype. We will also reintroduce the wild-type gene into the mutants, confirming mutant phenotype was due to disruption of the genes we identified.