



SCHOLAR RESEARCH PAPERS

STUDENTS AND TEACHERS AS RESEARCH SCIENTISTS PROGRAM (STARS)

Friday, July 15, 2011

101/104 Benton Hall – 120/121 Research Building

Senior Programs Advisor: Mr. Tony Kardis

Student Advisors: Mr. Terrence Brennan, Ms. Jennifer Freund, Dr. Heidi Hope

Luke Babich, University City, “Developing Models in STK to Improve Satellite Efficiency”
Dr. Michael Swartwout, Saint Louis University

Kaylyn Bauer, Wentzville Holt, “The Effects of Iron (II) Bispicolylamine Triflate on an Array of Substrates”
Dr. Eike Bauer, UMSL

Rico Beuford, Parkway North, “The Effects of 6-Hydroxydopamine Lesions of the Substantia Nigra on Rat Sleep,” Dr. Michael Anch, Saint Louis University

Trisha Bhat, John Burroughs, “The Cleavage of MIB1 in Gastric Cells Undergoing Metaplasia”
Dr. Jason Mills, Washington University

Raveena Boodram, Parkway West, “Optical Probes for Assessment of β -Amyloid ($A\beta$) Plaques in Alzheimer’s Disease,” Dr. Vijay Sharma, Washington University

Nell Briggs, Crossroads, “The Role of Ataxia Telangiectasia Mutated in Insulin-Independent Glucose Transport,” Dr. Jonathan Fisher, Saint Louis University

Abby Brooks, Cor Jesu, “Antifungal Activity of Plant Defensins MsDef1 and MtDef4 on Economically Important Filamentous Fungi,” Dr. Dilip Shah, Danforth Plant Science Center

Alexandra Diane Bruns-Smith, Ladue Horton Watkins, “Postnatal Neurogenesis in the Adult Painted Turtle Brain,” Dr. Daniel Warren, Saint Louis University

Adela Čajić, Affton, “X-linked Hypophosphatemic Rickets Mutation on Exon 22 in *PHEX*”
Dr. Steven Mumm/Dr. Michael Whyte, Washington University

Lazaros Marios Konstantinos Chalkias, Anatolia College, “The Peroxidase Chain Reaction”
Dr. Peter Zassenhaus, Saint Louis University

Alana Chavaux, Wentzville Holt, “The Effect of 6-Hydroxydopamine Lesions of the Substantia Nigra on Rat Sleep,” Dr. Michael Anch, Saint Louis University

Jena Nichole Doering, Maplewood-Richmond Heights, “The Effect of 6-Hydroxydopamine Lesions of the Substantia Nigra on Rat Sleep,” Dr. Michael Anch, Saint Louis University

Aditya Dommaraju, Lindbergh, “Using Peroxidase Chain Reaction to Detect Infectious Agents”
Dr. Peter Zassenhaus, Saint Louis University

Christopher Joshua Takashi Ema, Lutheran South, “Uses of P-toluenesulfonates in Compound Formation for Inorganic Synthesis,” Dr. Stephen Holmes, UMSL

Michael P. Flom, Christian Brothers College High School, “The Effects of Sodium Hypochlorite on the Production of Glutathione in *Streptococcus agalactiae*,” Dr. Blythe Janowiak, Saint Louis University

Layla Foroughi, Parkway Central, “Analysis of Phospholipase C in *Camelina sativa*”
Dr. Sam Wang, UMSL/Danforth Plant Science Center

Brett Fredericksen, O’Fallon Township, “The Effects of Early Life Stress on Learning in *Drosophila*”
Dr. Wendi Neckameyer, Saint Louis University

Lauren Friedman, Clayton, “Function of STAT1 in Immune Response of Neonate Mice to Sendai Virus”
Dr. Laurie Shornick, Saint Louis University

Yingjie Fu, Parkway South, “Optimizing Conditions for Mouse $\beta 5$ and $\beta 5i$ Protein Expression in *E. coli*”
Dr. Dorota Skowyra, Saint Louis University

Jonathan Galka, North Broward Prep., “Differences in the Primary Songs of Blue-Gray (*Traupis episcopus*) and Palm (*Traupis palmarum*): Consequences for Hybridization,” Dr. Godfrey Bourne, UMSL

Alexander P. Ganninger, Chaminade, “The Effect of Ferritin Protein on the Expression of Hepatic BMP6”
Dr. Robert Fleming, Saint Louis University

Manali Gokhale, Parkway North, “Vertical Nanowires as 3-D Substrates for Biosensing”
Dr. Srikanth Singamaneni, Washington University

Josh Gollub, John Burroughs, “Docking to Determine the Binding Energy to Inhibit YopH on *Yersinia pestis*,” Dr. Chung Wong, UMSL

David Gu, John Burroughs, “Using Automated Docking and Lamarckian Genetics to Inhibit *Yersinia pestis*,” Dr. Chung Wong, UMSL

Will Hardy, Francis Howell, “Evaluation of Taxol, a Highly Potent Chemotherapeutic in Drug Resistant Tumor Cells in the Presence MDR1 Pgd (P-Glycoprotein) Inhibitor,” Dr. Vijay Sharma, Washington University

Shawn He, Parkway Central, “Passivation of Aluminum Nanoparticles with Epoxides as Capping Agents”
Dr. Steven Buckner, Saint Louis University

Andrea Herman, Villa Duchesne, “Predation Rates on Caterpillars in Areas Invaded by *Lonicera maackii*”
Dr. Robert Marquis, UMSL

James Huang, Eureka, “Synthesis and Functionalization of Gold Nanorods for Use as Sensors”
Dr. Keith Stine, UMSL

Christopher Huetsch, Mascoutah, “Torsion Tests for Substrates to Promote Neuronal Adhesion for Mitochondrial Detection,” Dr. Amy Harkins, Saint Louis University

Anna Ji, Marquette, “Development of a Soy Protein-blend Nutritional Beverage for Elderly People with Dysphagia,” Dr. Elaine Krul/Dr. Robin Connelly/Dr. Barry Tulk, Solae Company

Bowon Jung, Ladue Horton Watkins, “Dependence of Homologous Recombination on Stoichiometric Interaction between *Escherichia coli* RecO and Single Stranded DNA,” Dr. Sergey Korolev, Saint Louis University

Gowri Kalugotla, MICDS, “Molecular Cloning and Characterization of EC_Contig5475, Potential Methyltransferase in *Eschscholzia californica*,” Dr. Toni Kutchan, Danforth Plant Science Center

Tharun Kotaru, Parkway South, “Male-Male Pheromone Trailing Behaviors in the African Snake *Lamprophis fuliginosus*,” Dr. Robert Aldridge, Saint Louis University

Neel Kothari, Francis Howell Central, “Development of Pdots for Near Infrared Molecular Imaging and Treatment of Tumors,” Dr. Samuel Achilefu, Washington University

Hayley Landman, MICDS, “Invasive Forest Species in Tropical Rainforest Detected by Space-borne Satellite Remote Sensing,” Dr. Abuduwasiti Wulamu, Saint Louis University

Victoria Liu, John Burroughs, “The Effect of Multiple Episodic Threshold Primes on Older and Younger Adults,” Dr. David Balota, Washington University

Richard Lu, Lafayette, “Activateable Dichromic Fluorescence Molecular Probes”
Dr. Samuel Achilefu, Washington University

Jacob Luciani, Lindbergh, “Photoelectron Angular Distributions for Cu⁻ Anions”
Dr. Richard Mabbs, Washington University

Rachel Maxwell, Lindbergh, “Vaporization Enthalpies of Ibuprofen and Naproxen by Correlation Gas Chromatography,” Dr. Jim Chickos, UMSL

Matthew Millett, Clayton, “Carbon Sequestration in Deep Saline Aquifers: An Evaluation of pH Measurements,” Dr. Young-Shin Jun, Washington University

Smitha Milli, Francis Howell North, “Does Decreased Heart Rate Response to Obstructive Sleep Apnea Predict Adverse Cardiovascular Diseases in Older Females,” Dr. Phyllis Stein, Washington University

Danny Nightingale, John Burroughs, “The Effectiveness of Double Peroxidase DNA as a Catalyst for Biofuel Cells,” Dr. Dana Baum, Saint Louis University

Meghana Pagadala, Rivermont Collegiate, “The Mechanism by Which CD8⁺ FoxP3⁺ T Cells Regulate Osteoclast Activity,” Dr. Rajeev Aurora, Saint Louis University

Srinivas Panchamukhi, Carbondale, “Effect of Suppression of DIMM Dependent Sleep-related Genes with the Use of RNA in *Drosophila melanogaster*,” Dr. Paul Taghert, Washington University

Isha Pathak, Parkway South, “The Effect of Monovalent and Divalent Ions on the Tetrameric Stability of the KirBac 1.1 Protein,” Dr. Decha Enkvetchakul, Saint Louis University

Belle Perez, Parkway Central, “The Expression of Nodulation Related Genes in Wild Type and Transgenic Soybean Hairy Roots,” Dr. Sona Pandey, Danforth Plant Science Center

Tally Portnoi, MICDS, “Nonlinear Dynamics of Ethanol Biofuel Cells”
Dr. Istvan Kiss, Saint Louis University

Suyash Raj, MICDS, “Momentary Equilibrium Phenomena in Adsorption TAP-Studies”
Dr. Grigoriy Yablonsky, Washington University

Brett Rapponotti, Clayton, “Effect of Chromium (III) on the Release of Zn (II) in Hematite”
Dr. Jeffrey Catalano, Washington University

Meg Rasche, Westminster Christian, “Evaluation of Adult and Neonatal Immune Response through MIP2 and KC,” Dr. Laurie Shornick, Saint Louis University

Jasmine Leah Raskas, Clayton, “Analysis of Gas Phase Diatomic Molecules by Intracavity Laser Spectroscopy,” Dr. Jim O’Brien/Dr. Leah O’Brien, UMSL

Faith Reid, Crossroads, “School Preparedness for Disasters: School Nurse Involvement, Pandemic Readiness, and H1N1 Experience,” Dr. Terri Rebmann, Saint Louis University

Joe Roddy, John Burroughs, “The Synthesis of an Organoiron Compound”
Dr. John Bleeke, Washington University

David Rubenstein, Whitfield, “Effect of Ataxia Telangiectasia Mutated on GLUT1 Regulation and Localization,” Dr. Jonathan Fisher, Saint Louis University

Sydney Sabino, Villa Duchesne, “Protein Purification by Site Directed Mutagenesis of Plasmid DNA in *Escherichia coli*,” Dr. Colin Nichols, Washington University

Emily C. Schroeder, Columbia, “The Insertion of the MIGa Gene into Two Plasmids: pMB007 and pMB008,” Dr. Michael Brent, Washington University

Dylan Schultz, Clayton, “Analysis of Diatomic Gas Phase Molecules Using Intracavity Laser Spectroscopy”
Dr. Jim O’Brien/Dr. Leah O’Brien, UMSL

Harry Seo, MICDS, “Determination of Solar Cells Parameters Under Illuminated Conditions Using Genetic Algorithm,” Dr. Ramesh Agarwal, Washington University

Fatima Sharif, University of Missouri High School, “Relationship Between Heart Rate Response After Sleep Disordered Breathing Events and Likelihood of a Cardiovascular-related Outcome in Older Adult Males,” Dr. Phyllis Stein, Washington University

Connie Shen, Parkway South, “The Effect of KP6 on Ion Channels in *Ustilago maydis*”
Dr. Tom Smith, Danforth Plant Science Center

Taylor Smith, Marquette, “Investigating the Heinrich Ratio in Aviation Incident Reports”
Dr. Grigoriy Yablonsky, Saint Louis University

Elizabeth Soffer, John Burroughs, “Examining Cortical Folding in Prematurely Born Intrauterine Growth Restricted Infants,” Dr. Amit Mathur/Dr. Terrie Inder, Washington University

Tyler Stratton, MICDS, “Computational Analysis of Base-stacking Interactions in RNA Nucleotides”
Dr. Brent Znosko, Saint Louis University

Shalini Subbarao, Parkway West, “Electrocatalysis by Ascorbic Acid on Self-assembled Monolayers Assembled on Nanoporous Gold,” Dr. Keith Stine, UMSL

Sarah Tait, Clayton, “Transport of Rhodopsin RH1 from the Retinula to Rhabdomere in *Drosophila*”
Dr. Joel Eissenberg, Saint Louis University

Connor Tinen, Eureka, “Deployable Panels for the Increase of Drag and Power Production on the Angus Cubesats,” Dr. Michael Swartwout, Saint Louis University

Harika Vallabhaneni, Visitation, “The Identification of the IRS Mutation and Further Analyzation of Mitochondrial-nuclear Interactions,” Dr. Jack Kennell, Saint Louis University

Taylor Voelker, Parkway North, “Arthropod Attack Rate on Shelter Building Caterpillars Among Four Common Species of Oak,” Dr. Robert Marquis, UMSL

Christine Wang, Ladue Horton Watkins, “Assessing Vaccine Compliance Among Non-hospital Healthcare Workers,” Dr. Terri Rebmann, Saint Louis University

Christopher Wang, Parkway Central, “Designing a Stereolithography Tool for Cell Sorting Applications”
Dr. Joshua Maurer, Washington University

James Wang, Parkway West, “Expression Analysis of Transgenic Corn Lines Containing MsDef1, MtDef4, and KP4,” Dr. Dilip Shah, Danforth Plant Science Center

Armond Welch, Olive, “Genetic and Molecular Characterization of a Seed Abortion Mutant in *Arabidopsis*,” Dr. Wenyan Xiao, Saint Louis University

Yuxuan Luke Xing, MICDS, “The Effects of Cross Domain Route Priming”
Dr. David A. Balota, Washington University

Haohang Xu, Ladue Horton Watkins, “A Computational Analysis of Base Stacking Interactions in DNA”
Dr. Michael Lewis, Saint Louis University

Bethany Zhang, Marquette, “Dependence of RecO on ssDNA Annealing”
Dr. Sergey Korolev, Saint Louis University

Dennis Zhu, Parkway Central, “Expression of Long Non-coding RNA MALAT1 in Human Multiple Myeloma,” Dr. Michael Tomasson, Washington University

Joshua Zink-Duda, Saint Louis University High School, “Using Dinsar to Measure Ground Deformation Over the Saint Louis Area,” Dr. Abuduwasiti Wulamu, Saint Louis University

Casey Zuccarello, MICDS, “The Study of Photoreactive Polymers Through the Use of Solid-state Nuclear Magnetic Resonance Spectroscopy,” Dr. Sophia Hayes, Washington University

