

ANNUAL RESEARCH SYMPOSIUM

April 4, 2013

Texas A&M University-Commerce

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Organizing Committee

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PROGRAM

Session S1 (KDM Science Building, S-127)	1:00 PM -- 2:36 PM
Session S2 (KDM Science Building, S-123)	1:00 PM -- 2:36 PM
BREAK	2:36 PM -- 3:15 PM
Session S3 (KDM Science Building, S-127)	3:15 PM -- 4:51 PM
Session S4 (KDM Science Building, S-123)	3:15 PM -- 4:39 PM
Poster Presentations (Foyer of KDM Science Building)	1:00 PM -- 5:00 PM
Keynote Talk, Awards Dinner, and Presentation of Awards (Alumni Center)	6:00 PM -- 8:00 PM

SESSION S1

Room: KDM Science Building, S-127

Chair: Dr. Stephen Starnes
Chemistry

- 1:00 PM S1.01 **Believe It Anyway**
Chris Ramos, Paul Bryan, and Theodore Hansen
Department of Music
Undergraduate (College of Humanities, Social Sciences, & Arts)
- 1:12 PM S1.02 **Intonation as a Marker of Respect in Akan Indirect Complaints**
Charlotte Fofo Lomotey and Lucy Pickering
Department of Literature and Languages
Graduate (College of Humanities, Social Sciences & Arts)
- 1:24PM S1.03 **Use of Directives in the Work Place: Comparing AAC and Non-AAC Users**
Julie Bouchard and Lucy Pickering
Department of Literature and Languages
Graduate (College of Humanities, Social Sciences & Arts)
- 1:36 PM S1.04 **Embodied Identities: Using Kinesiology Programming Methods to Diminish the Hegemony of the Normal**
Betty A. Block and Gwendolyn M. Weatherford
Department of Health and Human Performance
Faculty (College of Education & Human Services)
- 1:48 PM S1.05 **Knowledge of Title IX Among Athletic Staff and Student-Athletes on a University Campus**
Holly M. Jenkins and Henry Ross
Department of Health & Human Performance
Undergraduate (College of Education & Human Services)
- 2:00 PM S1.06 **In Silico Binding Characteristics of Methanobactin Analog Peptides to First Row Transition Metal Ions**
Anupama Singh Balaji and Laurence A. Angel
Department of Chemistry
Graduate (College of Science, Engineering & Agriculture)
- 2:12 PM S1.07 **Synthesis of Chiral Porphyrin:Piperidine Derivatives and their Chiral Recognition Properties**
Anvesh Dasari, Vijay Nandipati, and Stephen D. Starnes
Department of Chemistry
Graduate (College of Science, Engineering & Agriculture)

2:24 PM S1.08 **Genes Revealed by a Subtractive Amplification Approach in Limb Regeneration of Mexican Axolotl**
Andrei Kochegarov
Department of Biological & Environmental Sciences
Faculty (College of Science, Engineering, & Agriculture)

SESSION S2

Room: KDM Science Building, S-123

Chair: Dr. Srinivas Nippani
Economics and Finance

1:00 PM S2.01 **Identification of a Human Myofibril-Inducing RNA**
Ashley N. Moses, Andrei Kochegarov, Will Lian, and Larry F. Lemanski
Department of Biological & Environmental Sciences
Undergraduate (College of Science, Engineering, & Agriculture)

1:12 PM S2.02 **Comparative Study of Venture Capital Investing in Emerging Markets**
Wilfrid S. Zoungrana and Kurtay Ogunc
Department of Economics & Finance
Graduate (College of Business & Entrepreneurship)

1:24 PM S2.03 **Heterogeneous Catalysis of Biodiesel using Novel Techniques with Starch Based Acid Catalysts**
Nathaniel Hanson, Chris Bridges, and Ben Jang
Department of Chemistry
Graduate (College of Science, Engineering, & Agriculture)

1:36 PM S2.04 **A Distinctiveness-driven Reversal of the Weapon-focus Effect**
Curt A. Carlson, Maria A. Carlson and Natalie Saladino
Department of Psychology, Counseling, & Special Education
Faculty (College of Education & Human Services)

1:48 PM S2.05 **Attitudes toward Global Citizenship in School Environment**
Marion E. Blake, Iva Katzarska-Miller, and Stephen Reysen
Department of Psychology, Counseling, & Special Education
Graduate (College of Education & Human Services)

- 2:00 PM S2.06 **Tracking a Single Object in a Video Sequence**
Pravinkumar G. Kandhare and Nikolay Metodiev Sirakov
 Department of Math & Computer Science
Graduate (College of Science, Engineering & Agriculture)
- 2:12 PM S2.07 **Asymmetric Michael Additions of α,α -Disubstituted Aldehydes to β -Nitroalkenes Catalyzed by Pyrrolidine-derived Diamine Organocatalysts under Solvent-Free Conditions**
Junpeng He, Qiankun Chen, and Bukuo Ni
 Department of Chemistry
Undergraduate (College of Science, Engineering & Agriculture)
- 2:24 PM S2.08 **Effect of Novel Food Environmental Enrichment on Mouse (*Mus musculus*) Development**
Ryan Scauzillo and Lani Lyman-Henley
 Department of Biological & Environmental Sciences
Graduate (College of Science, Engineering, & Agriculture)

2:36 PM -- 3:15 PM **BREAK**

SESSION S3

Room: KDM Science Building, S-127

Chair: Dr. Agnes Stryker
 Curriculum and Instruction

- 3:15 PM S3.01 **Interferon Induced Genes Correlated with Poor Prognosis in Breast Cancer**
Sravan Vemuri, Maria Carlson, Megan Miller, and Venu Cheriyaath
 Department of Biological & Environmental Sciences
Undergraduate (College of Science, Engineering & Agriculture)
- 3:27 PM S3.02 **The Defensive Behavior and Responsiveness to Human Contact of Naïve Captive Hybrid Snakes (*Pantherophis* + *Scotophis*) and Corn Snakes (*Pantherophis guttatus*)**
Jerrold G. Tynes and Lani Lyman-Henley
 Department of Biological & Environmental Sciences
Graduate (College of Science, Engineering, & Agriculture)
- 3:39 PM S3.03 **Quantification and Characterization of Glycolipids and Phospholipids of *Chlamydomonas reinhardtii* by HPLC-ESI-TOF-MS**
Chirag Savla, Swetha Reddy, and Laurence A. Angel
 Department of Chemistry
Graduate (College of Science, Engineering, & Agriculture)

- 3:51 PM S3.04 **An Optical Foucault Pendulum**
Charles Rogers and Richard Selvaggi
 Department of Physics & Astronomy
Faculty (College of Science, Engineering & Agriculture)
- 4:03 PM S3.05 **Study of Vanadium/Copper Oxide Interface**
Carlos Mendoza and A. R. Chourasia
 Department of Physics & Astronomy
Undergraduate (College of Science & Engineering)
- 4:15 PM S3.06 **Investigation of Gallium promoted Pd/TiO₂ Catalysts for the Selective Hydrogenation of Acetylene in the Presence of Ethylene**
Luis F. Peña and Ben Jang
 Department of Chemistry
Graduate (College of Science, Engineering & Agriculture)
- 4:27 PM S3.07 **Illustrating Motion: Using Direction and/or Speed to Illustrate Motion and Non-motion Concepts**
Richard Selvaggi
 Department of Physics & Astronomy
Faculty (College of Science, Engineering, & Agriculture)
- 4:39 PM S3.08 **Comparative Study of Metal Ion Labeling of the Conformational and Charge States of Native and Disulfide reduced Lysozyme**
Sruthi Konakanchi, Sahithi Cheruku, and Laurence A. Angel
 Department of Chemistry
Graduate (College of Science, Engineering, & Agriculture)
- 4:51 PM S3.09 **Catalytic Effect of Promoted Palladium Supported on SiO₂ and Al₂O₃ for use in the Removal of Acetylene from Ethylene Rich Feeds**
Patricia Rhodes, Victoria Dixon, and Ben Jang
 Department of Chemistry
Undergraduate (College of Science, Engineering, & Agriculture)

SESSION S4

Room: KDM Science Building, S-123

Chair: Cheri Davis
 Planetarium

- 3:15 PM S4.01 **A Study of the Niche Structures and Habitat Utilization of Urban Dwelling Winter Birds**
Thomas P. Huff and Jeffrey G. Kopachena
 Department of Biological & Environmental Sciences
Undergraduate (College of Science, Engineering, & Agriculture)

- 3:27 PM S4.02 **Lipid Profiling of *Chlamydomonas reinhardtii*: Quantification and Characterization of Glycolipids and Neutral Lipids by RP-HPLC-ESI-TOF-MS**
Swetha Bathula, Chirag, and Laurence A. Angel
 Department of Chemistry
Graduate (College of Science, Engineering, & Agriculture)
- 3:39 PM S4.03 **Possible Role of Maspardin in Trafficking and Signaling of Epidermal Growth Factor**
Anne Davenport, Hunter Joyce, and Venu Cheriya
 Department of Biological & Environmental Sciences
Graduate (College of Science, Engineering, & Agriculture)
- 3:51 PM S4.04 **Leveraging Social Capital Through Mentoring Women Administrators in Higher Education**
Julia Ballenger, Jenny Tripses, Bradley University and Linda Searby, UAB
 Department of Educational Leadership
Faculty (College of Education & Human Services)
- 4:03 PM S4.05 **Interstellar Navigation by Pulsars**
Andrew R. Dahir and Kurtis Williams
 Department of Physics & Astronomy
Undergraduate (College of Science, Engineering & Agriculture)
- 4:15 PM S4.06 **Non-Fragmented Array Based Linked List (NFABLL): A Better Linked List**
R. Daniel Creider
 Department of Computer Science & Information Systems
Faculty (College of Science, Engineering & Agriculture)
- 4:27 PM S4.07 **Maspardin Effects on BMP Signaling Molecules**
Lauren E. Bailey and Lani Lyman-Henley
 Department of Biological & Environmental Sciences
Graduate (College of Science, Engineering, & Agriculture)
- 4:39 PM S4.08 **Inferring Nuclear Matter Properties from Observations of Dynamical Neutron Star Phenomena**
William Newton
 Department of Physics and Astronomy
Faculty (College of Science, Engineering, & Agriculture)
- 4:51 PM S4.09 **Examination of Aptitude Assessment in Relation to Global Competency**
Natalia Assis and Shonda Gibson
 Institutional Research
Graduate

POSTER PRESENTATIONS

KDM Science Building Foyer (1:00 PM -- 5:00 PM)

- P1 **Music Education Majors' Preparation in Special Education**
Corrinne Hermann, Harvetta Henry, and Brittany Hott
Department of Psychology, Counseling, & Special Education
Undergraduate (College of Education & Human Services)
- P2 **Knowledge-Base Framework for Building Concept Map-Based Personal Health Information System**
Pramukh Reddy Karla and Varadraj Prabhu Gurupur
Department of Computer Science & Information System
Graduate (College of Science, Engineering, and Agriculture)
- P3 **Habitat Suitability Model for the Bell's Vireo in Northeast Texas**
Amanda Turley and Jeffrey Kopachena
Department of Biological & Environmental Sciences
Graduate (College of Science, Engineering, & Agriculture)
- P4 **Equine Assisted Activities and Therapies**
Katherine Mead and Derek Lester
Department of Educational Leadership
Graduate (College of Education and Human Services)
- P5 **Is It Truly Happily Ever After?: Marital Commitment Belief Difference Between Sex, Gender Roles, and Relationship Status**
Claudia N. Smithart and Lacy E. Krueger
Department of Psychology, Counseling, & Special Education
Undergraduate (College of Education Human Services)
- P6 **Chiral Bis-Porphyrin Hosts: Chiral Corners**
Elvis Boateng, MingHsun Yang, Caramy Spencer, and Stephen D. Starnes
Department of Chemistry
Graduate (College of Science, Engineering, & Agriculture)
- P7 **Humor Analysis in Natural Dyad Conversation**
Shigehito Menjo, Christian F. Hempelmann, Salvatore Attardo, and Lucy Pickering
Department of Literature and Languages
Graduate (College of Humanities, Social Sciences, & Arts)
- P8 **1D and 2D-NMR Spectroscopy at A&M-Commerce and Chiral Capped-Zn-Tetraphenylporphyrin: Proline Derivatives**
Paul Battles and Stephen D. Starnes
Department of Chemistry
Undergraduate (College of Science, Engineering, & Agriculture)

- P9 **The Evaluation of the Effects of Prescribed Fire, Tillage, and Herbicide Applications to Decrease Exotic Vegetation and to Reestablish Native Blackland Tallgrass Prairie Vegetation on Old Cotton Fields in Hunt County, Texas**
Audrey M. Whaley and Jeffrey G. Kopachena
 Department of Biological & Environmental Sciences
Graduate (College of Science, Engineering, & Agriculture)
- P10 **G1P3, an Immuno-Endocrine Induced Survival Factor Interacts with Bcl-2 and Inhibits Apoptosis**
Ashjan Khalel and Venu Cheriya
 Department of Biological & Environmental Sciences
Graduate (College of Science, Engineering, & Agriculture)
- P11 **HIS Bound: Enhanced TRIO Tutoring Program**
Veronica Jimenez and Maria Hinojosa
 Department of Educational Leadership
Undergraduate (College of Education & Human Services)
- P12 **Chiral Capped-Porphyrins: Chiral Anion Recognition**
Maha Alqurafi and Stephen D. Starnes
 Department of Chemistry
Graduate (College of Science, Engineering, & Agriculture)
- P13 **Students' Knowledge and Beliefs about the Testing Effect**
Lacy E. Krueger¹ Jennifer Schroeder¹ & Jennifer Sennette²
 Department of ¹Psychology, Counseling, & Special Education, ²Curriculum & Instruction
Faculty (College of Education & Human Services)
- P14 **Maspardin as a Potential Mediator of EGF in Cortical Neuronal Cells**
Hunter Joyce, Anne Davenport, and Venugopalan Cheriya
 Department of Biological & Environmental Sciences
Undergraduate (College of Science, Engineering, & Agriculture)
- P15 **A Pragmatic Study of Cartoon Comprehension**
Elisa Gironzetti and Salvatore Attardo
 Department of Literature and Languages
Graduate (College of Humanities, Social Sciences, & Arts)
- P16 **Synthesis of Water Soluble Catalysts for the Enantioselective Organocatalytic Aldol Reaction**
Juana Rivas, Yupu Qiao and Allan D. Headley
 Department of Chemistry
Graduate (College of Science, Engineering, & Agriculture)

- P17 **Identification of Human Heart RNA Responsible for Rescuing Mutant Axolotl Hearts**
William Lian, Andrei Kochegarov, Ashley Moses, Jessica Meyer, & Larry F. Lemanski
 Department of Biological & Environmental Sciences
Undergraduate (College of Science, Engineering, & Agriculture)
- P18 **The Distribution of Humor in Novels: A Statistical Analysis Using the GTVH**
Hilal Ergul and Salvatore Attardo
 Department of Literature and Languages
Graduate (College of Humanities & Social Sciences)
- P19 **Highly Enantioselective Catalysis of Michael Addition of Oxyaldehydes to Nitroolefins**
Sripagna Burugupalli, Yupu Qiao, and Allan D. Headley
 Department of Chemistry
Graduate (College of Science, Engineering, & Agriculture)
- P20 **Strategy Choice as a Factor in Study Time Allocation**
Nancy Lamphere, Andrea Rosales, and Lacy E. Krueger
 Department of Psychology, Counseling, & Special Education
Graduate (College of Education & Human Services)
- P21 **Mathematics Achievement in the Middle Grades: Predictors of Success**
Maria Carlson & Brittany Hott
 Department of Psychology, Counseling, and Special Education
Faculty (College of Education & Human Services)
- P22 **Trimethylation of Histone H3K27 Confers Metastatic Phenotype in Breast Cancer**
Megan Miller, Casey Murphy, Ashjan Khalel, and Venu Cheriya
 Department of Biological & Environmental Sciences
Undergraduate (College of Science, Engineering, & Agriculture)
- P23 **Comparative Metal Binding Studies of Methanobactin and Zinc Finger-like Peptide with Cu(II) and Zn(II) Metal Ions**
Ramakrishna Sesham, Mahesh Nasani, and Laurence A. Angel
 Department of Chemistry
Graduate (College of Science, Engineering, & Agriculture)
- P24 **Strength Focused Behavioral Interventions for Social Work Clients**
Gavin Randall Cone and Benjamin May LCSW
 Department of Social Work
Graduate (College of Humanities, Social Sciences, & Arts)

- P25 **Cow Age Effects on Body Weight, Condition, and Reproductive Performance**
John Garrett, J.L. Wahrmond, K.N. Gates, F.R.B. Ribeiro, J.A. Carter, C.A. Hughes, L.L. Ramsey, and Aaron Cooper
Department of Agricultural Sciences
Graduate (College of Science, Engineering, & Agriculture)
- P26 **Induction of p21 (WAF1/CIP1) Dependent Cell Cycle Arrest in Pancreatic Cancer Cells by IFN- β**
Rudy Castillo, Meng Sun, and Venu Cheriyaath
Department of Biological & Environmental Sciences
Undergraduate (College of Science, Engineering, & Agriculture)
- P27 **G1P3 Interaction with Cytoskeletal ACTIN Mediates ANOIKIS Resistance in Breast Cancer**
Lalitha Gaddipati and Venugopalan Cheriyaath
Department of Biological & Environmental sciences
Graduate (College of Science, Engineering, & Agriculture)
- P28 **Artificial Intelligence Based Student Learning Evaluation Tool**
Gyanchand Pankaj Jain, Eileen Faulkenberry, and Varadraj Prabhu Gurupur
Department of Computer Science & Information System
Graduate (College of Science, Engineering, & Agriculture)
- P29 **Cross Battery Testing: Best Practices for Identifying Students with Emotional and Behavioral Disabilities**
Ambre Fairfield, Brittany Hottand, Tammy Willis, and Brittany L. Hott
Department of Psychology, Counseling, & Special Education
Graduate (College of Education & Human Services)
- P30 **Maspardin: Possible BMP Inhibitor?**
Tawny L. Hanna, Lauren E. Bailey, and Lani Lyman-Henley
Department of Biological & Environmental Sciences
Undergraduate (College of Science, Engineering, & Agriculture)
- P31 **Effect of Task/Condition-Related Signal Variance on Functional Connectivity: An fMRI Simulation Study**
Kushal Bohra and Ünal Sakoğlu
Department of Computer Science & Information Systems
Graduate (College of Science, Engineering, & Agriculture)
- P32 **Texas Faculty Senates Website**
Nithish Kumar Murcherla and Maria Hinojosa,
Department of Educational Leadership
Graduate (College of Education & Human Services)

- P33 **Role of IFIT1 in P-body Formation in Breast Cancer Cells**
Alaa Ourban and Venu Cheriya
Department of Biological & Environmental Sciences
Graduate (College of Science, Engineering, & Agriculture)
- P34 **Habitat Stratification of Syntopic Nesting Barn Swallows (*Hirundo rustica*), Cave Swallows (*Petrochelidon fulva*), and Cliff Swallows (*Petrochelidon pyrrhonota*) in Northeast Texas**
Ashleigh Sherrard and Jeffrey Kopachena
Department of Biological & Environmental Sciences
Undergraduate (College of Science, Engineering, & Agriculture)
- P35 **School Based Bullying Interventions: A Meta-Synthesis**
Jennifer Goodman, Jessica Medaris, Kimberly Verity, and Brittany Hott
Department of Psychology, Counseling, & Special Education
Graduate (College of Education & Human Services)
- P36 **Effects of Injectable Trace Mineral Supplementation on Beef Cow Reproduction and Calf Performance**
Hana Huff, Jacqueline Wahrmond, and Aaron Cooper
Department of Agricultural Sciences
Undergraduate (College of Science, Engineering, & Agriculture)

Keynote Talk

Room: Alumni Center

Time: 6 PM

Chair: Mr. Albert Menchaca (Department of Physics & Astronomy)

Highlights of the NASA Kepler Mission

Dr. Matt Wood

Head, Department of Physics & Astronomy

In 2009 NASA launched the Kepler satellite with the goal of finding Earth-like planets in the habitable zones of Sun-like stars. I will give a brief overview of the ongoing mission and the science results, including discoveries in both exoplanet and stellar astrophysics research.

ABSTRACTS

Believe It Anyway

Chris Ramos

Advisor: Dr. Theodore HansenCo-Author: Paul BryanDepartment: MusicCollege: Humanities, Social Sciences, & ArtsCategory: Undergraduate

Five original, silent, short films will be presented on stage accompanied by live chamber ensembles playing original music. Paul is directing the visual aspect of the project and I am directing the aural dimensions. I will compose all of the music according to our collaboration, and I will then rehearse the ensembles prior to and conduct them during the performance. This project, like most art projects, aims to aesthetically orient the audience according to my own aesthetic rendering of the world. Paul and I have considered and continue to consider these questions with this project: Where is our place in this universe? What is our function in this universe? What are we allowed to question in this universe? We then aim to have the audience consider these same questions through our art. We have carefully selected five narratives from the Judeo-Christian Old Testament according to their aesthetic appeal that cause us to consider these questions: the stories of creation, the great flood, Abraham and Isaac, the fall of Jericho, and Job. As much as this project is a research endeavor into the philosophical implications of being, it is also a laboratory of collaboration. It is a collision of acoustics, electronics, vision, and the human spirit as an expressive and creative force. Through our work we hope to make the audience acutely aware of how both the visual and aural spectrums of artistic expression work together in the medium of passing time to explore more fully our aesthetic experience.

Intonation as a Marker of Respect in Akan Indirect Complaints

Charlotte Fofo Lomotey

Advisor: Dr. Lucy Pickering

Department: Literature and Languages

College: Humanities, Social Sciences & Arts

Category: Graduate

Complaints show expressions of one's psychological state of being dissatisfied or unhappy about an event. According to Boxer (1993), Drew (1998) and Dersley & Wooten (2000), complaints can be direct (pertain to actions committed by a hearer) or indirect (third party outside of the speaker or hearer's control), and generally depend on the distance (emotional/social) and power relationships between interlocutors (Brown & Levinson, 1978; Olstain & Weinbach, 1987; Boxer, 1993). Even though speakers may use different mitigating strategies, including altering utterances to reduce or intensify the impact of a complaint (Trosborg, 1995), prosody has been identified to play an important role in making complaints. For instance, while Ogden (2007) has identified fundamental frequency (F0) peaks with wider range, increase in speed and loudness used in third party complaints in British English, Gussenhoven (2002) has identified high/rising F0 values associated with submission and lower values with dominance, and expansion of F0 to show emotion in complaints. This study investigates the use of prosody to characterize indirect complaints in Akan, a language of Ghana, as to whether distance and/or power differentials have any influence on the prosodic manifestation of this type of complaint at both word and sentence levels. Conclusions and implications for pragmatic uses of prosody in Akan complaints are discussed based on results and discussions.

Use of Directives in the Work Place: Comparing AAC and Non-AAC Users

Julie Bouchard

Advisor: Dr. Lucy Pickering

Department: Literature and Languages

College: Humanities, Social Sciences & Arts

Category: Graduate

This presentation compares the use of directives by Augmentative and Alternative Communication device (AAC) and Non-AAC users in the Non-AAC and AAC Work Corpus (NAAWC). A subset of the corpus comprising 4 AAC users totaling 40 000 words was used for this analysis. Directives were identified and pulled out for further analysis. They were then coded as AAC or Non-AAC uttered directives depending of the speaker. The utterances were analyzed quantitatively as well as qualitatively. Quantitatively, the focus is on the comparison of modal use between AAC and Non-AAC users for the three types of modals: (1) volition and prediction, (2) permission, possibility and ability, (3) obligation and necessity. The results show that AAC users use less modals than their normally abled counterparts. The qualitative analysis furthers the analysis and shows that directives are realized differently by AAC users and that they make more use of the context to deliver their message. An audio recording of an AAC user producing directives will be used to illustrate the qualitative findings.

**Embodied Identities: Using Kinesiology Programming Methods to
Diminish the Hegemony of the Normal**

Betty A. Block

Co-Author: Gwendolyn M. Weatherford

Department: Health and Human Performance

College: Education & Human Services

Category: Faculty

The concept of embodiment and the reintroduction of the body into the disability movement debate is the focus of this investigation. This paper includes arguments from scholars from philosophy, disability studies, adapted physical education, counseling, nursing, and sociology who recognize that a dualistic approach to dealing with embodied realities is not effective. The philosophies that underlie embodiment, with specific emphasis on Merleau-Ponty and Polanyi, explain how our identities are embedded in our bodies; further, the investigation defines multiple ways in which the 'Lebenswelt' of the 'dominate normal' does not account for temporal, spatial, and proprioceptive differences for individuals with disabilities. The authors extend four approaches of inclusion by kinesiology scholars, Seaman, DePauw, Morton, & Omoto (2007), to address societal and professional inclusion issues caused by the dualistic nature of the medical and social models and offer suggestions on how the embodied identities of all who inhabit the lifeworld can contribute, participate, and live life to the fullest.

Knowledge of Title IX Among Athletic Staff and Student-Athletes on a University Campus

Holly M. Jenkins

Advisor: Dr. Henry RossDepartment: Health & Human PerformanceCollege: Education & Human ServicesCategory: Undergraduate

Title IX, part of the Education Amendment of 1972 and a key component of women's fight for equality, recently celebrated its 40th anniversary. Throughout this period, the focus of Title IX shifted from gender equity in education to gender equity in athletics. Title IX applies to all education programs receiving federal funds (e.g. elementary schools, middle schools, high schools, and universities). Although, a large number of people are familiar with Title IX, many appear to be unfamiliar with its implications. Title IX has had an enormous effect on society's views regarding sex stereotypes and how those stereotypes have been inappropriately used to limit the experiences of female and male students, thus becoming one of the more impactful and influential civil rights legislations adopted. This research will measure the basic knowledge that athletic staff and student-athletes on a college campus have of Title IX.

In Silico Binding Characteristics of Methanobactin Analog Peptides to First Row Transition Metal Ions

Anupama Singh Balaji

Advisor: Dr. Laurence A. Angel

Department: Chemistry

College: Science, Engineering & Agriculture

Category: Graduate

Methanobactins (Mbns) are a family of copper-binding natural products involved in copper uptake by methanotrophic bacteria. The Mbns that have been structurally characterized feature copper coordination by two nitrogen-containing heterocycles next to thioamide groups embedded in a peptidic backbone of varying composition. The zinc-finger Zif268 binds to neurological genes through three repeated zinc finger motifs which are stabilized by the specific coordination of Zn(II) *via* Cys₂-His₂ ligation, which provides the structural functionality of Zif268. The metal ion binding properties of the oligopeptides AcLeu-**His-Cys**-Gly-Pro-**His-Cys** and AcLeu-**His-Cys**-Tyr-Pro-**His-Cys** that reproduce some of the sequence properties of Mbns and Zif268 were studied using the B3LYP hybrid functional and LanL2DZ basis set. Geometry optimization and frequency calculations reveal that AcLeu-His-Cys-Gly-Pro-His-Cys binds to metal ions in the order of Fe³⁺>Cu²⁺>Ni²⁺>Fe²⁺>Zn²⁺>Mn²⁺>Cu⁺ for gas-phase and Fe³⁺>Ni²⁺>Cu²⁺>Cu⁺>Fe²⁺>Zn²⁺>Mn²⁺ in the aqueous-phase. Tetrahedral and square pyramidal coordination were observed predominantly depending on the charge state of AcLeu-His-Cys-Gly-Pro-His-Cys.

Synthesis of Chiral Porphyrin:Piperidine Derivatives and their Chiral Recognition Properties

Anvesh Dasari

Advisor: Dr. Stephen D. Starnes

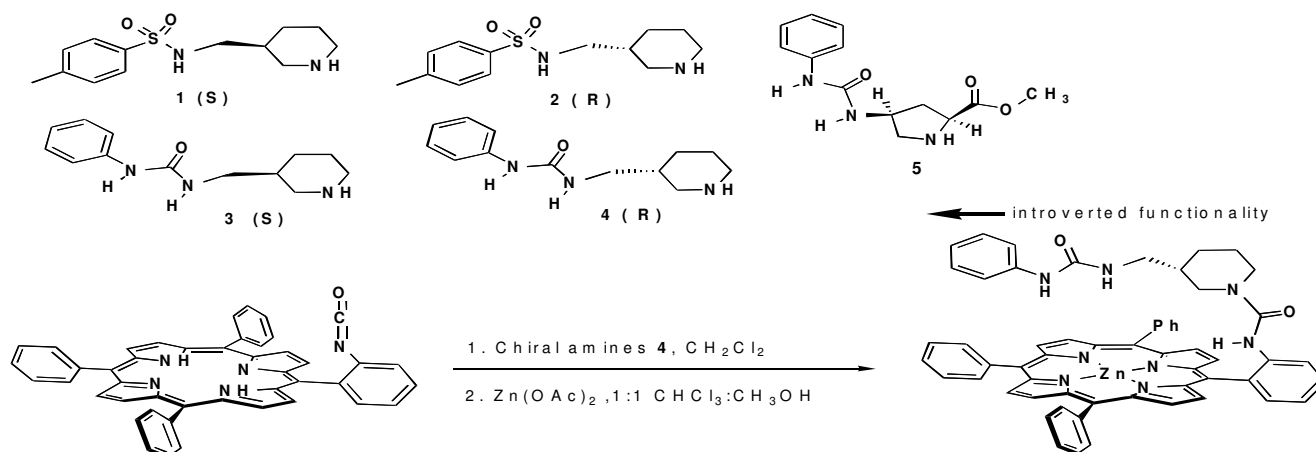
Co-Author: Vijay Nandipati

Department: Chemistry

College: Science, Engineering & Agriculture

Category: Graduate

The synthesis of a several chiral porphyrin host compounds is reported. The hosts were synthesized from the reaction of a porphyrin isocyanate with chiral piperidine and pyrrolidine derivatives. The chiral recognition properties of several porphyrin-based hosts with chiral carboxylate-containing guests and chiral amines L-nicotine and ephedrine stereoisomers is described. A unique aspect of the hosts is their introverted functionality – guest recognition motifs protrude into the interior of the host cavity where they work in tune with the porphyrin metal center for cooperative guest binding. Several hosts display a conformationally-induced organization upon binding to guests similar to that observed in protein chemistry. Binding constants of the chiral porphyrin hosts with guests, which was determined by UV/Vis titration studies, will be reported.



**Genes Revealed by a Subtractive Amplification Approach in
Limb Regeneration of Mexican Axolotl**

Andrei Kochegarov

Department: Biological & Environmental Sciences

College: Science, Engineering, & Agriculture

Category: Faculty

The Mexican axolotl is a unique vertebrate species in that the individuals, even as adults, have amazing powers of tissue regeneration. In the present study we have applied a subtractive amplification approach to identify genes which are activated during the limb regeneration process. In our own initial studies, we cloned 100 genes and thus far have identified 21 genes which are expressed during and appear to be involved in limb regeneration. These are genes known to be expressed during initial limb formation and development in the juvenile animals and appear to be reactivated to start cell proliferation and limb pattern formation during regeneration in the adult animals. The last group involved in limb patterning also includes proteins responsible for the synthesis and transport of retinoic acid (RA). We hypothesize that RA may be a morphogen which plays an important role in proximodistal limb patterning.

Identification of a Human Myofibril-Inducing RNA

Ashley N. Moses

Advisor: Dr. Larry F. Lemanski

Co-Authors: Andrei Kochegarov and Will Lian

Department: Biological & Environmental Sciences

College: Science, Engineering, & Agriculture

Category: Undergraduate

The Mexican axolotl salamander, *Ambystoma mexicanum*, has a naturally-occurring lethal mutation that causes homozygous recessive embryos to develop hearts that lack organized myofibrils and fail to beat. Myofibril Inducing RNA (MIR), an RNA derived from normal axolotl embryonic anterior endoderm, was found to rescue mutant hearts by promoting the synthesis of tropomyosin and causing the formation of organized sarcomeric myofibrils, resulting in rhythmic contractions of the heart. Human heart total RNA was tested and also found to have rescuing abilities. Our studies involved the cloning of human fetal heart total RNA and the use of bioassays to determine which of the RNA clones were capable of rescuing mutant axolotl hearts. Clone #30 led to the beating of mutant hearts and increased tropomyosin expression, as seen using immunofluorescent confocal imaging. Clone #30 is associated with the human mitochondrial genome, in particular the COX2 gene, and has shown secondary RNA structural similarities with MIR. Because Clone #30 RNA promotes myofibrillogenesis in mutant hearts, allowing the mutant heart to contract, we believe this molecule serves as a functional human homolog for MIR. These findings are extremely promising and exciting in that they have the potential to be used for the development of clinical treatments to repair human cardiac tissue after myocardial infarction by producing normal cardiac muscle tissue from nonmuscle cells. If such treatments could be effected, humans who have suffered from heart attacks or other cardiac muscle diseases might be able to return to pre-heart attack activity levels and again lead normal lives. (Supported by NIH grant HL061246 and American Heart Association grant 10GRNT4530001 to Larry F. Lemanski, PhD)

S2.02

Comparative Study of Venture Capital Investing in Emerging Markets

Wilfrid S. Zoungrana

Advisor: Dr. Kurtay Ogunc

Department: Economics & Finance

College: Business & Entrepreneurship

Category: Graduate

This is a comparative study of venture capital investing in emerging markets with a focus on Sub-saharan Africa. It will outline the necessary steps for successful implementation of venture capital in the region by studying success and failure stories from earlier cases in Brazil, Russia, India, China, Turkey and Eastern Europe. The study will also evaluate the significance of IFC in facilitating sustainable growth in emerging markets through equity investments in VC funds operating in these countries. There will be an emphasis on operational VC funds for they are critical in successful execution of these ideas.

**Heterogeneous Catalysis of Biodiesel using Novel Techniques
with Starch Based Acid Catalysts**

Nathaniel Hanson

Advisor: Dr. Ben Jang

Co-author: Chris Bridges

Department: Chemistry

College: Science, Engineering, & Agriculture

Category: Graduate

Renewable energy research has become of great importance with the turn of the century due to need created by high energy costs, biodiesel has the potential to fill that need. Ultrasound technology has been used to improve biodiesel production in two areas. a) By replacing the heat component of the reactions which produce biodiesel with low frequency high power ultrasound. b) Improving starch based acid catalysts used in the biodiesel reaction. Ultrasound along with pyrolysis are used in modifying and improving starch based catalyst for reaction. Promising catalyst have been produced and reported. Conversion of > 98% has been achieved in under 20 minutes with the aid of low frequency high power ultrasound.

A Distinctiveness-driven Reversal of the Weapon-focus Effect

Curt A. Carlson

Co-Authors: Maria A. Carlson and Natalie Saladino

Department: Psychology, Counseling, & Special Education

College: Education & Human Services

Category: Faculty

The weapon-focus effect (WFE) occurs when a perpetrator presents a weapon during a crime, causing eyewitnesses to pay greater attention to the weapon compared to the perpetrator's face or other aspects of the crime. This results in a reduced ability of the eyewitness to make an accurate identification from a later lineup. A separate research literature has shown that attention is drawn to distinctive faces (e.g., perpetrators), which leads to improved memory for these faces relative to more non-distinctive faces. We hypothesized that the WFE could be eliminated if a distinctive feature is added to a perpetrator's face. Participants ($N = 600$), each in a separate computer cubicle, watched a video in which a perpetrator (with or without a distinctive facial feature) appeared to assault them with his fists, a beer bottle, or a shotgun. After a filler task, participants viewed a lineup either containing the perpetrator from the video or a designated innocent suspect they had not seen. Results replicated the WFE, such that eyewitness identification accuracy was lowest in the shotgun condition. However, as we posited, this effect was eliminated when the perpetrator had the distinctive feature.

Attitudes toward Global Citizenship in School Environment

Marion E. Blake

Advisor: Dr. Stephen Reysen

Co-Authors: Stephen Reysen and Iva Katzarska-Miller

Department: Psychology, Counseling, & Special Education

College: Education & Human Services

Category: Graduate

Education plays a significant role in the development of an awareness and acceptance of human interconnectedness (Dower, 2008). Researchers showed that globally-minded teachers teach in ways that are aligned to these view and transfer their perspectives to students (Barnes & Curlette, 1985). The present study ($N = 167$) assessed if faculty and students endorsed global attitudes to the same degree and whether students' perceptions of their class as being global influenced their attitudes. Instructors and students completed measures concerning global learning outcomes and attitudes (e.g., concern for the environment). The results showed no differences in perception about global learning outcomes between teachers and students for global engagement or awareness. Instructors viewed the class as encouraging greater global scholarship and global citizenship identification and reported significantly higher global citizenship identification and global attitudes. Students perceived the university as encouraging global citizenship identification to a greater extent than the instructors.

Tracking a Single Object in a Video Sequence

Pravinkumar G. Kandhare

Advisor: Dr. Nikolay Metodiev Sirakov

Department: Math & Computer Science

College: Science, Engineering & Agriculture

Category: Graduate

In this presentation we will formulate basic tracking problem. We will discuss some of the fundamental algorithm used in the field of tracking object. Finally we will demonstrate a modified Kalman filter tracking a single object in video sequence. A software tool coded in java implements shrinking active contour and a modified Kalman filter which uses information from two previous frames in order to estimate the position of object in next frame. This estimation is used by active contour to find object in following frame. As stated, demonstration will be given for tracking objects in two video clips.

Asymmetric Michael Additions of α,α -Disubstituted Aldehydes to β -Nitroalkenes Catalyzed by Pyrrolidine-derived Diamine Organocatalysts under Solvent-Free Conditions

Junpeng He

Advisor: Dr. Bukuo Ni

Co-Author: Qiankun Chen

Department: Chemistry

College: Science, Engineering & Agriculture

Category: Undergraduate

The chirality of natural and pharmaceutical compounds has challenged chemists for a long time. In recent years, asymmetric reactions catalyzed by small privileged organic molecules have been investigated tremendously, especially for the Michael addition reaction. However, achieving an all-carbon quaternary stereogenic center, Michael additions of α,α -disubstituted aldehydes to β -nitroalkenes are still considered exigent topics. In this research, a series of simple chiral pyrrolidine-derived diamines synthesized from natural amino acids have been employed to afford quaternary stereogenic Michael products with high yield (up to 98% yield) and enantioselectivity (up to 95% *ee*) under solvent free condition. Resulting synthetically useful γ -nitro carbonyl compounds, the straightforward operation and eco-friendly process constructed a novel method for further synthesis of many natural products and pharmaceuticals.

**Effect of Novel Food Environmental Enrichment on
Mouse (*Mus musculus*) Development**

Ryan Scauzillo

Advisor: Dr. Lani Lyman-Henley

Department: Biological & Environmental Sciences

College: Science, Engineering, & Agriculture

Category: Graduate

Environmental enrichment in the laboratory setting has gradually become more prominent since the 1970s. During this time there has been considerable attention paid to the effects of the environmental enrichment on the behavior and physiology of the mice (*Mus musculus*). Since the overall goal of environmental enrichment is to increase species specific behaviors most of the research done with the mice has been done using nest boxes and nesting material. One area that has been rarely explored is the examination of foraging as a form of environmental enrichment. This study examined the effects of novel food environment enrichment during mating and its subsequent physiological effects on the pups. Ten control and ten enriched pairs were established with the ten enriched pairs receiving novel foods three days a week up until the time when pups begin to eat solid food. Weights were taken bi-weekly on Monday and Friday and a final weight was taken on the 24th day when the pups were weaned. It was found that there was a statistically significant difference in weaning weight between the control pups and enriched pups ($p = 2.87 \times 10^{-6}$, $\alpha = 0.05$). Based on these results, it is possible that novel foods as a form of environment enrichment can lead to overall heavier and healthier pups.

Interferon Induced Genes Correlated with Poor Prognosis in Breast Cancer

Sravan Vemuri

Advisor: Dr. Venu CheriyaCo-Author: Maria Carlson and Megan MillerDepartment: Biological & Environmental SciencesCollege: Science, Engineering & AgricultureCategory: Undergraduate

While inflammation is associated with poor prognosis in breast cancer (BC), role of inflammatory responsive genes remain unexplored. Recently, we reported a significant correlation between poor prognosis of BC with elevated expression of G1P3, and interferon-induced antiapoptotic protein. Compared to normal breast biopsies, 93 interferon stimulated genes (ISGs) were upregulated ($>2x$) in breast cancer biopsies. Therefore, we hypothesized that some of these aberrantly expressed ISGs may promote BC. To identify such procancer ISGs, clinical data from 3 studies ($n=487$) were metaanalyzed for the correlation between the expression of ISGs and the outcomes. Patients were classified into 2 cohorts (High and Low) based on the expression of each ISG using two approaches: scaled recursive partitioning (scaled RP) approach and median approach. In univariate analysis, 13 ISGs were significantly associated with poor outcomes in BC patients ($p<0.02$). In multivariate analysis, 3/13 ISGs were significantly associated with poor outcomes ($p<0.008$) with a hazard ratio of ~ 2.0 . Overall, our results suggest that inhibiting the activity of pro-cancer ISGs may enhance the tumor-surveillance activities of immune system to provide new interventions in BC.

The Defensive Behavior and Responsiveness to Human Contact of Naïve Captive Hybrid Snakes (*Pantherophis* + *Scotophis*) and Corn Snakes (*Pantherophis guttatus*)

Jerrold G. Tynes

Advisor: Dr. Lani Lyman-Henley

Department: Biological & Environmental Sciences

College: Science, Engineering, & Agriculture

Category: Graduate

New born snakes are often defensive in nature, especially within their first year of life. Their small size makes them vulnerable to a number of predators and thus they have no choice but to behave in such a way as to intimidate potential predators. A total of 25 baby snakes were analyzed for their defensive behavior towards a human finger/predator. The snakes were divided into 3 testing groups: 10 corn/rat snake hybrids (*Pantherophis/Scotophis*) from clutch A, 10 corn/rat snake hybrids from clutch B, and 5 corn snakes (*Pantherophis guttatus*) from clutch C. Snakes were placed in a testing arena and a human hand was presented 8 inches from the snakes head. The hand was then moved closer to the snake and data was recorded on defensive responses such as strikes, tongue flicks, and tail rattling. Tongue flicks (274), strikes (65) and prolonged tongue flicks (60) were the most commonly seen defensive behaviors. Females were more defensive averaging 3.63 strikes per snake where as male snakes averaged 1.67 strikes per individual. All 12 different defensive behaviors were documented and difference between clutches and sexes were analyzed.

**Quantification and Characterization of Glycolipids and Phospholipids of
Chlamydomonas reinhardtii by HPLC-ESI-TOF-MS**

Chirag Savla

Advisor: Dr. Laurence A. Angel

Co-Author: Swetha Reddy

Department: Chemistry

College: Science, Engineering, & Agriculture

Category: Graduate

The eukaryotic green algae, *Chlamydomonas reinhardtii* (*CR*) has a high lipid synthesizing capacity, particularly as a result of abiotic stresses such as nutrient deprivation or elevated light exposure, giving *CR* the potential for being a source of oils for the production of biodiesel. In this research, the lipids of *CR* were extracted by utilizing sonication with isopropanol and chloroform, followed by 12hr incubation at 48°C, centrifugation and addition of 1:1 methanol:chloroform. The dried sample was finally extracted using water:methanol 3:2. Characterization of the lipids of *CR* was achieved by high performance liquid chromatography (HPLC) and electrospray ionization, time-of-flight, mass spectrometry (ESI-TOF-MS). The quantitative measurements of phosphatidylglycerol, phosphatidylinositol, sulfoquinovosyldiacylglycerol, sulfoquinovosylmonoacylglycerol and free fatty acids were compared to those obtained from the algae *Nannochloropsis oculata* (*NO*) by He et al.¹ Sulfoquinovosyldiacylglycerol was determined for *CR* to have the highest relative proportion which agreed with the previous *NO* analysis. However, the relative proportion of phosphatidylglycerol and phosphatidylinositol was higher for *CR* than *NO*. Fatty acids with 16 carbon and 18 carbon chains were found to be common for *CR* and *NO*. Free fatty acids were found in *CR* to be in relative higher proportions when compared to the lipids in *CR* and *NO*.

1. He, H.; Rodgers, R. P.; Marshall, A. G.; Hsu, C. S., Algae Polar Lipids Characterized by Online Liquid Chromatography Coupled with Hybrid Linear Quadrupole Ion Trap/Fourier Transform Ion Cyclotron Resonance Mass Spectrometry. *Energy & Fuels* 2011, 25, 4770-4775.

S3.04

An Optical Foucault Pendulum

Charles Rogers

Co-Author: Richard Selvaggi

Department: Physics & Astronomy

College: Science, Engineering & Agriculture

Category: Faculty

Consider the motion of photons within a rotating photon clock. Will light behave as a particle as it reflects back and forth between two parallel mirrors rotating in a manner similar to the motion of a Foucault pendulum? An experiment to measure the trajectory of light in a rotating cavity is presented including implementation details and initial measurements.

Study of Vanadium/Copper Oxide Interface

Carlos Mendoza

Advisor: Dr. A. R. Chourasia

Department: Physics and Astronomy

College: Science, Engineering & Agriculture

Category: Undergraduate

The vanadium/copper oxide interface has been formed by depositing thin films of vanadium on copper oxide. Different thicknesses of the vanadium overlayer have been used. The deposition has been done in vacuum. The electron-beam method has been used to evaporate the thin films. The deposition rate of the films has been calibrated using a quartz crystal oscillator. The interface has been characterized by the X-ray Photoelectron Spectroscopy technique. Room temperature deposition shows considerable reactivity at the interface. Vanadium is oxidized to vanadium oxide followed by the reduction of copper oxide to elemental copper. The interface has also been subjected to annealing at 300°C. Annealing results in the complete oxidation of vanadium. Diffusion of copper is also observed through the vanadium overlayer.

S3.06

Investigation of Gallium promoted Pd/TiO₂ Catalysts for the Selective Hydrogenation of Acetylene in the Presence of Ethylene

Luis F. Peña

Advisor: Dr. Ben Jang

Department: Chemistry

College: Science, Engineering & Agriculture

Category: Graduate

Gallium is investigated as a promoter of supported Pd catalysts for the selective hydrogenation of acetylene in ethylene. TiO₂ support is investigated with high (1%) and low (.25%) Pd loadings. Reaction parameters including reduction temperature; H₂/C₂H₂ ratio, and Pd/Ga ratio were studied to optimize the performance of catalysts. The current results show that Ga promotes the selective hydrogenation of acetylene to ethylene over TiO₂ supported Pd catalysts, but it is a function of Ga loading. In addition, non-thermal RF plasma has been used to modify and/or reduce promoted Pd catalysts to induce strong or unique interaction between Ga and Pd. Differential scanning calorimeter in hydrogen atmosphere (H₂-DSC) was used as the main technique to gauge the interaction between Pd precursor and Ga on TiO₂ surface and will be used for the catalysts modified by plasmas. The catalytic performance of plasma modified catalysts will be systematically studied.

**Illustrating Motion: Using Direction and/or Speed to Illustrate
Motion and Non-motion Concepts**

Richard Selvaggi

Department: Physics & Astronomy

College: Science, Engineering, & Agriculture

Category: Faculty

Motion is the speed and change in direction between two objects. In 1887 Michelson and Morley illustrated the concept of speed. As this remains the most important and frequently replicated speed illustration, a critical analysis of how it does not illustrate a change in direction is presented. Further discussions and drawings are provided to understand how to illustrate speed without a change in direction (a non-motion concept) and how to illustrate speed with a change in direction (a motion concept).

Comparative Study of Metal Ion Labeling of the Conformational and Charge States of Native and Disulfide Reduced Lysozyme

Sruthi Konakanchi

Advisor: Dr. Laurence A. Angel

Co-author: Sahithi Cheruku

Department: Chemistry

College: Science, Engineering, & Agriculture

Category: Graduate

The research investigates the metal ion labeling of various conformational and charge states of native and disulfide reduced lysozyme using divalent metal ion tags of Zn^{2+} , Fe^{2+} and Ni^{2+} . The study used travelling-wave ion mobility with quadrupole and orthogonal time-of-flight mass spectrometry to quantify the extent of metal ion labeling of lysozyme as a function of pH, charge state and conformation. The characterization of three-dimensional protein structure by ion mobility mass spectrometry is an area of current interest as the gas-phase conformation, in many instances, can be related to that of the solution-phase. Labeling of native and disulfide reduced lysozyme was conducted with 3-fold molar excess of Zn^{2+} , 3-fold molar excess of Fe^{2+} and 5-fold molar excess of Ni^{2+} and collision cross sections were calculated for the various species observed. The calculated cross-sections were compared with cross sections from published X-ray crystallography and nuclear magnetic resonance spectroscopy and are found to be in good agreement with these structures. Disulfide reduced lysozyme exhibited four distinct conformational families in the gas-phase termed as the highly folded, folded, partially unfolded and unfolded. Labeling of these conformational states was observed to differ with the folded 6+ charge state of lysozyme exhibiting the greatest extent of labeling.

Catalytic Effect of Promoted Palladium Supported on SiO_2 and Al_2O_3 for Use in the Removal of Acetylene from Ethylene Rich Feeds

Patricia Rhodes

Advisor: Dr. Ben Jang

Co-Author: Victoria Dixon

Department: Chemistry

College: Science, Engineering, & Agriculture

Category: Undergraduate

Polymerized ethylene makes up a 130 million ton per year world-wide market. Due to its prolific use as a chemical precursor for many plastics, detergents, and lubricants the efficient production of polyethylene is currently of great economic importance. Industrially produced ethylene contains 0.1-1% acetylene which poisons the catalyst used in the polymerization process, in addition to being potentially hazardous due to the explosive nature of acetylides. Generally acetylene is removed from ethylene rich feed streams via a hydrogenation reaction in the presence of a supported metal catalyst. This catalyst must be highly selective in order to only hydrogenate the acetylene in the reaction gasses while leaving the ethylene unchanged. In this investigation we shall examine the use of silver as a promoter for palladium catalysts supported on silicon dioxide and aluminum oxide as well as the effect of RF-plasma treatment as an alternative promotion method for supported palladium catalysts.

S4.01

A Study of the Niche Structures and Habitat Utilization of Urban Dwelling Winter Birds

Thomas P. Huff

Advisor : Dr. Jeffrey G. Kopachena

Department: Biological & Environmental Sciences

College: Science, Engineering, & Agriculture

Category: Undergraduate

It is commonly believed that the urban landscape provides a poor habitat for many avian species in comparison with more natural settings (i.e. surrounding agricultural land). However, some data indicate that urban environments, in some situations, may exhibit relatively high species richness that can be highly stratified throughout the urban matrix. Thus, in these situations, urban development may actually increase avian biodiversity. It is our intentions to study the species richness of different winter species of birds to determine if there is a significant difference in the richness of different urban habitats. In addition, we also are going to determine how these species are distributed throughout the urban landscape, and habitat selection based on species characteristics.

Lipid Profiling of *Chlamydomonas reinhardtii*: Quantification and Characterization of Glycolipids and Neutral Lipids by RP-HPLC-ESI-TOF-MS

Swetha Bathula

Advisor: Dr. Laurence A. Angel

Co-Author: Chirag

Department: Chemistry

College: Science, Engineering, & Agriculture

Category: Graduate

The eukaryotic green algae, *Chlamydomonas reinhardtii* (CR) are autotrophic organisms with a high acyl lipid synthesizing capacity (25-30% of dry biomass), particularly as a result of abiotic stresses such as nutrient deprivation or elevated light exposure making them a promising feedstock for biodiesel production. For the lipid profiling of CR, the lipids are extracted by sonication with isopropanol and chloroform, followed by incubation, centrifugation and the addition of chloroform:methanol (1:1 v/v) before drying. The dried lipid sample was dissolved in water:methanol (3:2 v/v) and the lipids characterized using reversed phase-high performance liquid chromatography (RP-HPLC) and positive ion, electrospray ionization, time-of-flight mass spectrometer (ESI-TOF-MS). The glycolipids—digalactosyldiacylglycerol, monogalactosyldiacylglycerol, as well as the neutral lipids—mono- and tri-acylglycerols were identified. These lipids were compared to the lipids obtained from the algae *Stephanodiscus sp* (Xu et al., 2010)² and algae *Nannochloropsis oculata* (He et al., 2011).¹ For the characterization of lipids, the measurement were carried out in positive ion mode.

Xu, J. L., D. Y. Chen, X. J. Yan, J. J. Chen, and C. X. Zhou, 2010, Global characterization of the photosynthetic glycerolipids from a marine diatom *Stephanodiscus sp* by ultra performance liquid chromatography coupled with electrospray ionization-quadrupole-time of flight mass spectrometry: *Analytica Chimica Acta*, v. 663, p. 60-68.

He, H., R. P. Rodgers, A. G. Marshall, and C. S. Hsu, 2011, Algae Polar Lipids Characterized by Online Liquid Chromatography Coupled with Hybrid Linear Quadrupole Ion Trap/Fourier Transform Ion Cyclotron Resonance Mass Spectrometry: *Energy & Fuels*, v. 25, p. 4770-4775.

Possible Role of Maspardin in Trafficking and Signaling of Epidermal Growth Factor

Anne Davenport

Advisor: Dr. Venugopalan Cheriya

Co-Author: Hunter Joyce

Department: Biological & Environmental Sciences

College: Science, Engineering, & Agriculture

Category: Graduate

Mast Syndrome (SPG21) is an autosomal-recessive complicated form of hereditary spastic paraplegia characterized by progressive bilateral spasticity and weakness of the lower limbs. Mast Syndrome also presents symptoms in early childhood and is associated with dementia, developmental defects, and cerebellar and extrapyramidal signs. SPG21 is caused by a frameshift mutation of the ACP33/maspardin gene resulting in the premature termination of maspardin protein. Maspardin is a ubiquitously expressed, 33 kD protein whose function remains unclear. It is hypothesized that maspardin may be important in intracellular trafficking and signaling as this has been demonstrated with other HSP proteins. To investigate the function of maspardin within cells, a mouse knockout model for maspardin gene was developed. These mice show a phenotype similar to that of Mast Syndrome patients when compared to the wild type mouse. Current research is focused on protein-protein interactions with maspardin and its role in different cell types. Preliminary results using degradation assays of EGF receptor (EGFR) in SPG21 deficient mouse embryonic fibroblasts demonstrated a slowing of EGFR degradation. This lead us to investigate the effect maspardin would have on SPG21 deficient mouse embryonic neurons in EGF stimulation assays. Our preliminary results suggest that stimulation of EGF in maspardin deficient neurons lead to significant cell death within 48 hours ($P < 0.05$) but not in wild type cells. Wild type neurons showed significant increases in growth when compared to controls. In summary our results suggest that maspardin is indispensable for mediating EGF-induced neuronal growth and differentiation.

Leveraging Social Capital Through Mentoring Women Administrators in Higher Education

Julia Ballenger

Co-Authors: Jenny Tripses, Bradley University and Linda Searby, UAB

Department : Educational Leadership

College: Education & Human Services

Category: Faculty

The purpose of this survey research study was to determine if the women administrators in higher education were accessing mentors and, if so, what role did these mentors play in their career advancement? We also wanted to determine how these women leaders leveraged social capital through their mentoring relationships and experiences. The research questions that guided this larger study were: (a) What kinds of mentoring relationships have women higher education leaders experienced as protégés? (b) What kinds of mentoring relationships have women higher education leaders experienced as mentors? and (c) What advice would these women university leaders in higher education give to aspiring university women leaders to promote and support mentoring and networking. The research on mentoring, social capital theory, and social networks framed this study. The findings revealed that women leaders in higher education were accessing mentors and are continuing to mentor others. We also found that these women experienced multiple mentoring experiences with female and males that were beneficial in their career ascension to upper-level leadership positions. Mentoring was also found to be intentional and informal. The advice given to women university leaders in higher education included (a) Be intentional, (b) Create multiple opportunities to network and connect to contacts, (c) Create formal and informal networks, and (d) Build relationships and provide information to and exposure for the protégé. While research confirms that mentoring can be viewed as potent form of social capital, this research is in its infancy. Continued research on the potential benefits of mentoring as part of the larger social network for careers and organizations needs further research (Hooker et al., 2003).

Interstellar Navigation by Pulsars

Andrew R. Dahir

Advisor: Dr. Kurtis Williams

Department: Physics & Astronomy

College: Science, Engineering & Agriculture

Category: Undergraduate

Space travel is not a new theory to mankind, but figuring out how to know where you are in space is something that has yet to be perfected. Many of the most massive stars, astronomers believe, end their lives as neutron stars. Since neutron stars are the end result of a star that is rotating, we expect them to be spinning very fast. When a star shrinks, it spins faster (according to the principle of conservation of angular momentum). Now according to this model, the rapidly spinning, highly magnetic neutrons trap electrons and accelerate them to high speeds. The fast-moving electrons emit strong radio waves or x-ray waves which are beamed out in two directions that are aligned with the magnetic field axis of the neutron star. The time interval between consecutive pulses is called the pulsar's period. The theory in this paper for determining the position of a spacecraft relies on using pulsars distances and their known location in space. In having pulsars located on a coordinate system, a spacecraft can find the pulsars, determine which pulsar they are by measuring the pulse period, and measure the distance of the pulsar from the spacecraft. With all this information, equations of spheres can be obtained representing all possible locations from that set distance of the pulsar. By finding the intersecting points of all three spheres it leaves only two intersecting points. Using a series of software programs, these two intersection points can be solved for, thus finding the location of a spacecraft.

Non-Fragmented Array Based Linked List (NFABLL): A Better Linked List

R. Daniel Creider

Department: Computer Science & Information Systems

College: Science, Engineering & Agriculture

Category: Faculty

Common data structures used to store data in RAM to be manipulated include arrays, linked lists, and other user defined structures. Arrays are used primarily when very few insert and delete operations are made to change the contents of the data in the array. Linked lists are used when the contents of the data set has many changes with new records inserted and existing or old records deleted from the list while maintaining a particular order in the list. The use of a linked list eliminates the constant shifting of data that would occur in an array when insert and delete operations are performed. Linked lists also eliminate the possibility of having unused nodes or elements that require memory resources which could be used for other purposes by invoking the 'memory manager' to allocate and de-allocate one node at a time. Array based linked lists have the advantage of no data shifting for insert and delete operations and minimizing the interaction with the memory manager. This data structure can be used in any high level programming language which supports the use of an array, but may or may not include the use of pointers (variables in which to store RAM addresses). In the usual implementation of an array based linked list, the linked stack of unused nodes (empty or available nodes) are intermingled with the linked list of active nodes in which the data is maintained. Both the linked list of active nodes and the linked stack of empty nodes are fragmented within the same array. By altering the algorithm to maintain the array based linked list, the fragmentation can be eliminated so that the linked list of active nodes and the non-linked stack of empty nodes are not intermingled. The non-fragmented array based linked list has many advantages over the fragmented array based linked list including the capability of traversing the linked list of active nodes by means of the links or by traversing the nodes sequentially as is done in an array of non-linked data.

Maspardin Effects on BMP Signaling Molecules

Lauren E. Bailey

Advisor: Dr. Lani Lyman-Henley

Department: Biological & Environmental Sciences

College: Science, Engineering, & Agriculture

Category: Graduate

The hereditary spastic paraplegias are a group of upper motor neuron disorders characterized by continuous degradation of motor neurons trailing through the motor cortex, down the spinal cord, and out to the periphery. Mast syndrome (SPG21) is an autosomal-recessive complicated form of HSP that originates from a mutation of the ACP33/maspardin gene.

Bone Morphogenetic Proteins (BMPs) are a group of multifunctional growth factors that, along with forming bone and cartilage, influence axonal synaptic growth and function. Upon activation by BMP ligand, type II BMP receptors phosphorylate type I receptors. This activates intracellular signaling molecules Smad 1, 5 and 8. These bind Smad 4 and the Smad complex enters the cell nucleus to drive gene transcription.

Previous studies have shown multiple HSP-associated proteins to be inhibitors of BMP signaling. Therefore, we propose that maspardin is an additional BMP inhibitor. Veritabily, maspardin-depleted neurons have exhibited increased axonal branching.

Preliminary results have demonstrated increases in BMP signaling in knockout neurons over a one hour period as compared to wildtype. BMP4 ligand stimulation will be done in triplicate for a more accurate comparison. Additionally, stimulated samples will be compared to unstimulated controls to examine base levels of BMP4. Phosphorylated Smad 1/5 levels will be examined via western blot and compared to total Smad levels in stimulated and unstimulated samples.

GFP-maspardin will be overexpressed in wildtype MEFS and compared against knockout MEFs to determine whether overexpression of maspardin changes BMP signaling levels and/or restores knockout levels to those found in wildtype. GFP-maspardin will also be overexpressed in Cos-7 cells and compared to control. Comparable experiments will be done using primary neuron cultures from wildtype and knockout mice.

Inferring Nuclear Matter Properties from Observations of Dynamical Neutron Star Phenomena

William Newton

Department: Physics and Astronomy

College: Science, Engineering, & Agriculture

Category: Faculty

Recent years have seen an increasing consensus among analyses of nuclear experiments and observational measurements of neutron star masses and radii on a narrowing range of the nuclear symmetry energy as a function of density around the nuclear saturation point. Inferring the symmetry energy from dynamical phenomena that neutron stars are expected to exhibit presents a more complex challenge because of the increased complexity of modeling at both the microphysical and hydrodynamical scales, as well as the uncertainties in the interpretation of observations. Nevertheless, such inferences can provide valuable support for other experimental and observational results, and/or for the interpretation of the observations. I will give some examples of possible symmetry energy constraints drawn from our work on modeling phenomena such as glitches and a variety of oscillation modes with special attention paid to consistent nuclear physics models of the crust and core. I will also discuss how such work might help delineate different interpretations of observations.

Examination of Aptitude Assessment in Relation to Global Competency

Natalia Assis

Advisor: Dr. Shonda Gibson

Department: Institutional Research

Category: Graduate

We examined the ability of the Global Competence Aptitude Assessment (GCAA) to measure learning outcomes in relation to a university's Quality Enhancement Plan (QEP). Hunter (2004) has defined *global competency* as "having an open mind while actively seeking to understand cultural norms and expectations of others, and leveraging this gained knowledge to interact, communicate and work effectively in diverse environments". Our increasingly interconnected and interdependent global society requires that individuals demonstrate the ability to fit and function into a global marketplace. Based on over ten years of rigorous research, the GCAA asserts the ability to capture an individual's capacities of global knowledge, skills, attitudes, and experiences (Hunter, 2006). The instrument has been tested in 40 countries over six continents through a series of research studies involving business professionals, government and military, and both students and educators. We contend that the GCAA is a reliable and valid instrument capable of measuring latent constructs related to global competency, including internal and external readiness.

Music Education Majors' Preparation in Special Education

Corrinne Hermann

Advisor: Dr. Harvetta Henry and Dr. Brittany Hott

Department: Psychology, Counseling, & Special Education

College: Education & Human Services

Category: Undergraduate

This two part mixed method study evaluated pre-service music educators' special education knowledge. The first study used a Likert type scale to assess educators' comfort working with students with disabilities. Results were utilized to create a staff development presentation. The second study evaluated the effectiveness of a staff development presentation. Participants included 29 pre-service music educators enrolled in a northeast Texas University. Results indicated that participants perceived themselves to be unprepared to teach students with disabilities and that participants felt most prepared in promoting students' performance. Additionally, participants felt least prepared in their knowledge and understanding of assistive technology and assessment. Limitations and areas of future research are presented.

**Knowledge-Base Framework for Building Concept Map-Based
Personal Health Information System**

Pramukh Reddy Karla

Advisor: Dr. Varadraj Prabhu Gurupur

Department: Computer Science & Information System

College: Science, Engineering, and Agriculture

Category: Graduate

Development of personal health information systems that can provide medical advice to individuals has always been a challenging task. Though there are many tools in the cloud which serve individuals in finding health related information, they fail in facilitating a friendly platform for clinicians and medical researchers to develop the required knowledge base for providing the required medical advice. In order to meet this challenge there is a critical need to provide an information capturing system that helps domain experts in developing a graphical representation of the aforementioned knowledge base which can then be converted to a machine actable form of information. In this thesis we present a framework for developing personal health information systems. This framework uses concept maps to develop machine actable form of knowledge. A demonstration of the development of this framework using the existing semantic web technologies and tools to develop personal health information systems is provided. Additionally, a comparison of the tool developed using this framework with a few other health information systems is described.

Habitat Suitability Model for the Bell's Vireo in Northeast Texas

Amanda Turley

Advisor: Dr. Jeffrey Kopachena

Department: Biological & Environmental Sciences

College: Science, Engineering, & Agriculture.

Category: Graduate

Bell's vireo (*Vireo bellii*) is a shrub land species that has been listed as near endangered by the IUCN. Most research/conservation efforts have focused on the subspecies *Vireo bellii pulsilis* since it was listed as endangered in 1986. But very little research has been done on the near endangered subspecies *Vireo bellii bellii*, whose habitat range includes parts of north east Texas. This study focuses on the development of a habitat suitability model for *V. b. bellii*, utilizing Geographic Information Systems (GIS) for spatial analysis of habitat variables. The model will allow for identification of potential nest sites and habitat for this species allowing for more focused conservation and habitat preservation efforts.

Equine Assisted Activities and Therapies

Katherine Mead

Advisor: Dr. Derek Lester

Department: Educational Leadership

College: Education and Human Services

Category: Graduate

This presentation focuses on detailing the history of Equine Assisted Activities and Therapies (EAAT) in the United States, as well as the current status of EAAT. The governing organization, Professional Association of International Horsemanship, International (PATH International) provides safety standards, as well as perks for member centers. Also highlighted are the services offered in EAAT, and the population served.

Is It Truly Happily Ever After?: Marital Commitment Belief Difference Between Sex, Gender Roles, and Relationship Status

Claudia N. Smithart

Advisor: Dr. Lacy E. Krueger

Department: Psychology, Counseling, & Special Education

College: Education Human Services

Category: Undergraduate

Past studies have investigated various factors associated with marital commitment beliefs (e.g., Hui et al., 2007) and future marital unions (e.g., Raley et al., 2007). The purpose of the current study is to understand marital commitment beliefs for unmarried college students based on their sex, gender role beliefs, and relationships status (i.e., existence of a romantic relationship and length of relationship). Participants will complete a relationships commitment inventory (Adams & Jones, 1997), a gender role inventory, and a demographic questionnaire. It is hypothesized that the existence of a long-term relationship will result in higher marital commitment beliefs than in shorter relationships or no relationship at all, especially for women who follow a more traditional gender role script. The results will put into perspective the difference in marital commitment beliefs among different genders and whether romantic relationships affect these beliefs for this age group.

Chiral Bis-Porphyrin Hosts: Chiral Corners

Elvis Boateng

Advisor: Dr. Stephen D. Starnes

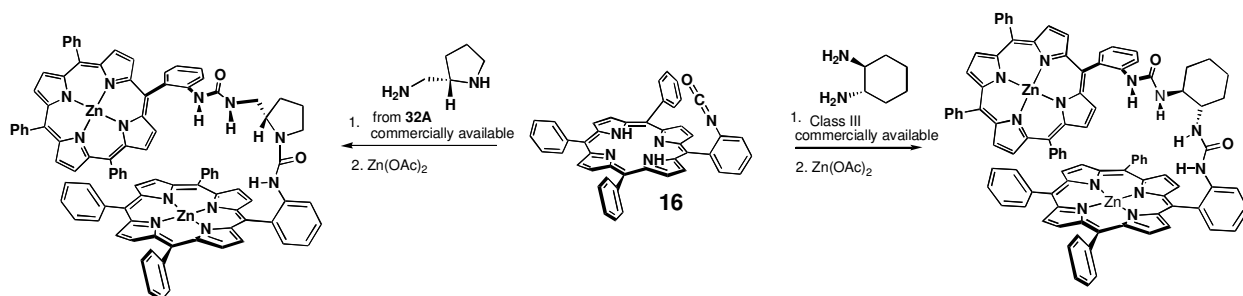
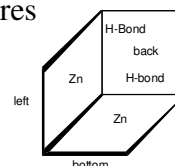
Co-Authors: MingHsun Yang and Caramy Spencer

Department: Chemistry

College: Science, Engineering, & Agriculture

Category: Graduate

We report here the synthesis of chiral bis-porphyrins that have structural features similar to that of the corner of a box. Molecular models suggest the two porphyrin rings should be perpendicular to each other. Thus, the two porphyrins represent two walls of a corner and the pyrrolidine/cyclohexane ring system represents the third wall of a chiral corner. We will examine the guest recognition properties of these hosts using non-chiral and chiral dicarboxylate-containing species as well as with chiral guests that have three coordinating sites such as amino acids with polar side chains. These types of guests will complement the three recognition sites of the hosts (two metal centers and urea hydrogen bond donors). An initial study with non-chiral dicarboxylates of varying chain length ($\text{HO}_2\text{C}-(\text{CH}_2)_n-\text{CO}_2\text{H}$, $n = 0-10$) to determine the optimal distance for simultaneous binding to both metallo centers will be conducted. The hosts will then be screened for chiral guest recognition properties. Variations of these types of hosts will be prepared using different chiral diamines.



Humor Analysis in Natural Dyad Conversation

Shigehito Menjo

Advisor: Dr. Lucy Pickering

Co-Authors: Christian F. Hempelmann and Salvatore Attardo

Department: Literature and Languages

College: Humanities, Social Sciences, & Arts

Category: Graduate

This study qualitatively and quantitatively reexamines folk theories of humor in natural conversation, such as Jefferson's innovative humor theory (1979). Based on the results of quantitative analyses in Attardo and Pickering (2011) and Attardo, Pickering, and Baker (2011), this study argues that folk theories may not capture the relevant aspects of humor in natural conversations and that, in addition to qualitative analysis, more empirical quantitative analyses of humor in natural conversations are necessary.

The study focuses on the intensity of smiles and laughs, their sequence, response-times to punch lines, and their relation to states of mind, using the annotation software EUDICO Linguistic Annotator (ELAN). With a new rating scale, the study found that smiles and laughs do not always occur together with nor are they a linear function of the vicinity to the humorous event. In this study, neither a hearer nor a speaker was found to produce a big smile or laugh at the time of a jab or punch line, and laughter of a hearer occurred several seconds after a jab or a punch line. The findings of the study support previous studies that reject some of the folk theories of humor. The findings of the study contribute not only to a more thorough understanding of the relationship of smiles and laughs to humor, but also to the design of future implementations of embodied conversational agents.

1D and 2D-NMR Spectroscopy at A&M-Commerce and Chiral Capped-Zn-Tetraphenylporphyrin: Proline Derivatives

Paul Battles

Advisor: Dr. Stephen D. Starnes

Department: Chemistry

College: College of Science, Engineering, & Agriculture

Category: Undergraduate

The development of synthetic hosts for chiral species is an emerging area of supramolecular chemistry. We report here the progress that we have made towards the synthesis of two chiral porphyrin receptors for chiral guests. The key structural feature of the synthetic receptors center on the functionalization of one meso position with a chiral anion recognition motif that is positioned directly above the porphyrin surface where it is positioned to work in tune with the zinc metal center in guest binding. These hosts will be utilized for the recognition of chiral guests such as amino acid derivatives, ibuprofen, ephedrine, nicotine, and chiral carboxylates such as tetrabutylammonium malate and lactate. Binding constants of the chiral porphyrin hosts with guests will be determined by UV/Vis titration studies and structural insight into the host-guest complexes will be obtained from ^1H -NMR studies. We also report here advances that we have made in determining how to utilize the 400 MHz NMR at TAMU-C for correlation NMR spectroscopy such as COSY and other advanced NMR experiments such as ^{13}C -DEPT and APT.

The Evaluation of the Effects of Prescribed Fire, Tillage, and Herbicide Applications to Decrease Exotic Vegetation and to Reestablish Native Blackland Tallgrass Prairie Vegetation on Old Cotton Fields in Hunt County, Texas.

Audrey M. Whaley

Advisor: Dr. Jeffrey G. Kopachena

Department: Biological & Environmental Sciences

College: Science, Engineering, & Agriculture

Category: Graduate

The tallgrass prairie was a component of the largest ecosystem in North America. Due to agricultural practices and urban development, only 4% of tallgrass prairie remains in North America. The objective of this research is to determine the effectiveness of the implementation of prescribed fire and tillage in addition to herbicides as restoration methods for aiding in the reestablishment of native tallgrass prairie vegetation. In June of 2013, and prior to any treatments, the cover and frequency for all existing vegetation will be estimated using a quadrat sampling method. Once this is done, a split plot randomized block design will be used to expose different plots to fire, herbicide, and tillage. In December 2013, after these treatments are completed, a native seed mix containing side-oats grama, upland switch grass, yellow Indian grass, Engelmann's daisy, and purple prairie clover will be broadcast on all plots. In June 2014, the cover and frequency for all vegetation will be measured again. The data will be examined for the extent to which pre-existing vegetation recovered from the treatments and the extent to which native species have become established. The results of this study will be used to develop management recommendations for re-establishment of native species on tame pastures.

**G1P3, an Immuno-Endocrine Induced Survival Factor Interacts
with Bcl-2 and Inhibits Apoptosis**

Ashjan Khalel

Advisor: Dr. Venu Cheriya

Department: Biological & Environmental Sciences

College: Science, Engineering, & Agriculture

Category: Graduate

Recently we reported G1P3, an immuno-endocrine induced antiapoptotic protein as a contributor of resistance to antiestrogens in breast cancer. However, anti-apoptotic mechanisms of G1P3 remain unclear. In apoptotic cells, G1P3 stabilized the expression of Bcl-2, a mitochondrial localized antiapoptotic protein and attenuated the induction of Bim, a proapoptotic member of Bcl-2 family. Therefore, we hypothesized that G1P3 inhibits apoptosis by augmenting the antiapoptotic activity of mitochondrial localized Bcl-2 family members. Consistent with this hypothesis, in cell fractionation studies, G1P3 was localized into the inner mitochondrial membrane and to mitochondrial matrix. This is in agreement with the results of primary structure analysis, which predicted its localization into inner mitochondrial chambers. Since Bcl-2 is also localized into the inner mitochondrial chambers, we tested the interaction between G1P3 and Bcl-2. In interaction studies, Bcl-2 co-precipitated with both N- and C-terminal tagged G1P3 but not with vector control, suggesting direct interaction between G1P3 and Bcl-2. While Bcl-2 is known to interact with proteins containing Bcl-2 homology (BH) domain, the primary structure analysis of G1P3 suggested that it is a non-BH containing protein. In summary, the localization of G1P3 and Bcl-2 into the inner mitochondrial chamber and the interaction between them suggests antiapoptotic complex formation between a non-BH containing protein G1P3 with Bcl-2. Interrupting this interaction may sensitize breast cancer cells to antiestrogens by inducing apoptosis.

HIS Bound: Enhanced TRIO Tutoring Program

Veronica Jimenez

Advisor: Dr. Maria Hinojosa

Co-Author: Maria Hinojosa

Department: Educational Leadership

College: Education & Human Services

Category: Undergraduate

Over the course of the past nine months, the TRIO programs have gainfully employed five student tutors to help with the Upward Bound program. An additional employee was added in order to enhance the diversity at Texas A & M University at Commerce with an emphasis on the Hispanic community. In efforts to accomplish the goals and duties of this position, it entailed conducting after-school tutorial sessions, one-on-one family counseling with parents and/or students, mentored senior students in college preparations, assisted during Upward Bound's Saturday Academy and served as a liaison between the Upward Bound program and the Hispanic community around the Hunt County and surrounding school districts. As a result, 50% of the senior students in the Upward Bound program have successfully applied and have been accepted to Texas A&M University – Commerce. In addition, the remainder of the senior students who have not applied are still in progress of their college preparations, thus, could potentially increase the percentage of applications and acceptances to TAMU-C by the end of the academic year.

Chiral Capped-Porphyrins: Chiral Anion Recognition

Maha Alqurafi

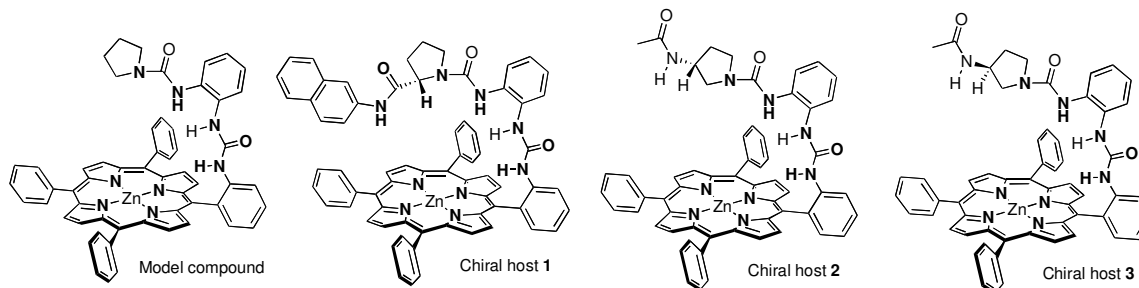
Advisor: Dr. Stephen D. Starnes

Department: Chemistry

College: Science, Engineering, & Agriculture

Category: Graduate

This project centers on the synthesis and chiral recognition studies of chiral porphyrins characterized by the spatial positioning of asymmetric centers above the porphyrin surface which effectively serve to cap the porphyrin. Thus, these hosts have asymmetric centers positioned directly above the metal center. These hosts are fairly rigid and should magnify complementary guest binding interactions (such as hydrogen bonding, π - π interactions, metal coordination) for one enantiomer of a guest while minimizing steric interactions. The hosts are available from functionalized pyrrolidines. The synthetic strategy is a modular approach that will lend to easy modification of these types of hosts to improve on stereoselective guest binding. Our progress towards the synthesis of these hosts and the general concept will be reported here.



Students' Knowledge and Beliefs about the Testing Effect

Lacy E. Krueger¹

Co-Authors: Jennifer Schroeder¹ & Jennifer Sennette²

Department: ¹Psychology, Counseling, & Special Education, ²Curriculum & Instruction

College: Education & Human Services

Category: Faculty

The testing effect is a phenomenon that occurs when repeated retrieval practice of information leads to better long-term retention of information compared to repeated re-studying of material¹, but students tend to prefer repeated studying such as re-reading material over testing themselves². The testing effect is potentially a valuable study strategy for students, but they may be unaware of it. The aim of this study was to assess students' awareness of the testing effect and to determine who they believed should create the testing effect. Undergraduate students ($n = 177$) completed an online survey assessing their knowledge and beliefs about the testing effect. Our results indicated that very few students were aware of the testing effect, and after learning about it the majority of respondents felt that instructors should be responsible for creating this effect.

Maspardin as a Potential Mediator of EGF in Cortical Neuronal Cells

Hunter Joyce

Advisor: Dr. Venugopalan Cheriya

Co-Author: Anne Davenport

Department: Biological & Environmental Sciences

College: Science, Engineering, & Agriculture

Category: Undergraduate

Mast syndrome is an autosomal-recessive, progressive form of Hereditary Spastic Paraplegia (HSP). This disease is characterized by weakness of the lower limbs and dementia. While HSPs afflict ~18 out of every 100,000 people world-wide, currently there is no treatment for Mast syndrome. Recently, a mutation in a ubiquitously expressed protein with 33kDa, called maspardin (ACP33), have been linked to the pathophysiology of Mast syndrome. However, the role of normal functioning maspardin remains unclear. In maspardin deficient (knock-out) mice cortical neuron development and differentiation are altered. Besides maspardin, several growth factors, including epidermal growth factor (EGF), regulate neuronal survival and differentiation. Thus, *we hypothesized that maspardin mediates EGF-induced cortical neuron differentiation and survival*. To test this hypothesis, EGF-induced cortical neuron differentiation was compared in wild-type and maspardin knock-out mice. While EGF induced the differentiation of wild type neuronal cells, maspardin deficient cortical neurons failed to respond to EGF stimulation. More importantly, maspardin deficient cortical neuronal cells have a significantly lower survival rate (p-value < 0.001) when compared to wild-type neurons at 48 hours of EGF treatment.

A Pragmatic Study of Cartoon Comprehension

Elisa Gironzetti

Advisor: Dr. Salvatore Attardo

Department: Literature and Languages

College: Humanities, Social Sciences, & Arts

Category: Graduate

This paper addresses the process of humor comprehension in a corpus of 200 cartoons published in Spain and Italy between 2008 and 2012. It aims at describing the mediated communication that happens between the humorist and the person reading the cartoon. The theoretical tools used to conduct the analysis of the corpus belong to pragmatic theories (Grice, 1975; Levinson, 2000), schema theories (Rumelhart, 1975; Shank, 1975; Abelson, 1975) and humor linguistic theories (Zhao, 1988, Attardo 1994 and 1997). The pragmatic analysis shows that cartoons can have up to three comprehension stages depending on their *absurd* or *critical* type, each of which requires the reader to put into use different types of knowledge and cognitive processes. At the first stage, the paratextual clues (Genette, 2001; Padilla and Gironzetti, 2009) and the caricature play a significant role allowing the reader to recognize the type of text; at the second stage, the caption and the image are fully processed and understood at the light of the reader's previous encyclopedic knowledge; at the third stage, only certain readers will be able to see the critical message hidden behind the funny facade of the cartoon. In particular, the third stage, only present in *critical cartoons*, is where the transmission of the BF content (Zhao, 1988) takes place. Reading time has been measured for both *critical* and *absurd cartoons* and the data support the pragmatic study conclusions.

**Synthesis of Water Soluble Catalysts for the Enantioselective
Organocatalytic Aldol Reaction**

Juana Rivas

Advisor: Dr. Allan D. Headley

Co-author: Yupu Qiao

Department: Chemistry

College: Science, Engineering, & Agriculture

Category: Graduate

In this research, different catalysts that contribute to green chemistry by being water soluble and effective for the asymmetric catalytic aldol reaction were synthesized. For the synthesis of these pyrrolidine-based catalysts, moderate to excellent yields were obtained. The synthesized catalysts were used in the reaction involving acetone and isatin. For this reaction, low catalyst loading and minimum solvent usage were needed to achieve a moderate yield. The enantioselectivity of the reaction, effect of temperature change, and catalyst recyclability are being determined. The compounds synthesized using these catalysts are known to be of pharmaceutical importance.

Identification of Human Heart RNA Responsible for Rescuing Mutant Axolotl Hearts

William Lian

Advisor: Dr. Larry Lemanski

Co-Authors: Andrei Kochegarov, Ashley Moses, Jessica Meyer, & Larry F. Lemanski

Department: Biological & Environmental Sciences

College: Science, Engineering, & Agriculture

Category: Undergraduate

The axolotl, *Ambystoma mexicanum*, carries an autosomal, lethal cardiac mutation in which homozygous recessive embryos fail to form a heartbeat. Previous research has shown that there is a lack of tropomyosin and organized myofibrils in the mutant hearts and that a specific myofibril-inducing RNA (MIR), isolated from the anterior endoderm of the normal axolotl embryo, has the ability to rescue mutant hearts when transfected into hearts. As confirmed through confocal microscopy, MIR promotes tropomyosin synthesis and helps form organized sarcomeres, thus allowing the heart to contract and initiate normal heartbeats. The MIR has been found to be a non-coding RNA which operates at the translation or post-translation levels through its unique secondary structure. Previous experiments have shown that total adult human heart RNA can also rescue mutant axolotl embryos, suggesting the presence of an RNA which has secondary structure homology to MIR. This present study confirms, through various biological and molecular techniques, the ability of total adult and fetal human RNA to rescue mutant axolotl hearts. This study is continued with the intent to isolate the specific human rescuing RNA, which will have many implications regarding the potential applications of this human MIR functional homologue in human cardiac tissue regeneration and repair. Future goals would include the regeneration of damaged or scarred human cardiac tissue, such as is present in myocardial infarction patients.

(Supported by NIH Grant HL061246 and AHA Grant 10GRNT4530001 to LFL)

The Distribution of Humor in Novels: A Statistical Analysis using the GTVH

Hilal Ergul

Advisor: Dr. Salvatore Attardo

Department: Literature and Languages

College: Humanities & Social Sciences

Category: Graduate

This study presents statistical evidence that the distribution of humor in long narratives may be random. The results of the time series analysis conducted in this study reveal that there is no meaningful autocorrelation between the jab lines in *Hababam Sınıfı*. The distribution of humor is not completely random, but there is little autocorrelation, which makes it insignificant. In order to carry out a statistical analysis on narrative texts, Corduas, Attardo and Eggleston used the number of words between the final words of jab lines as “wait times”. It is hence possible to form a time series $z_t, t = 2, 3, \dots, n$ where t denotes the occurrence time of each jab line, and the distribution of humor in a given text can be mapped. The findings achieved through this methodology indicated that the distribution of humor in *Lord Arthur Saville's Crime* by Oscar Wilde and *The Hitchhiker's Guide to the Galaxy* by Douglas Adams is not random. To test the thesis and findings cross-linguistically; *Hababam Sınıfı*, a classic Turkish novel by author Rıfat Ilgaz is analyzed in this paper in an attempt to replicate the aforementioned study.

Highly Enantioselective Catalysis Of Michael Addition Of Oxyaldehydes to Nitroolefins

Sripragna Burugupalli

Advisor: Dr. Allan D. Headley

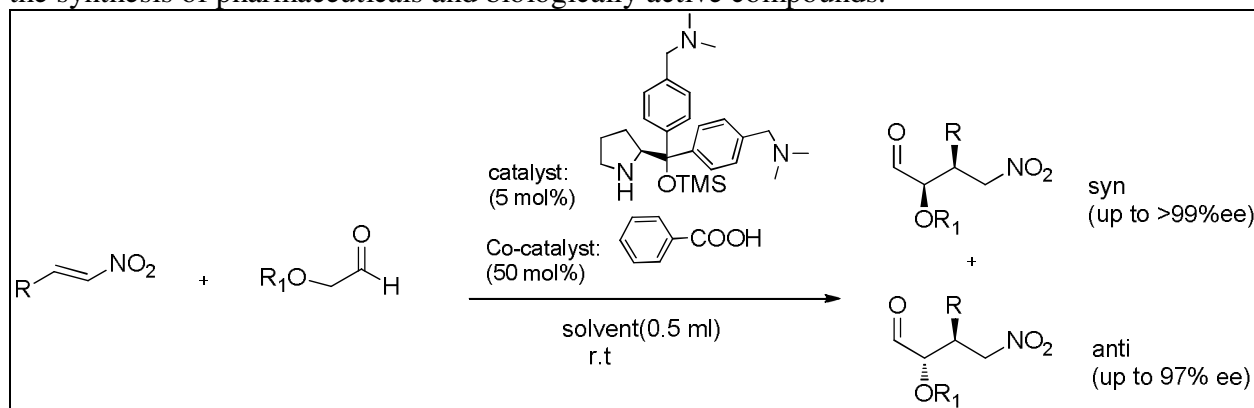
Co-Author: Yupu Qiao

Department: Chemistry

College: Science, Engineering, & Agriculture

Category: Graduate

A novel catalytic system has been developed and used for the asymmetric Michael addition of oxyaldehydes to nitroolefins. This catalytic system consists of diaryl prolinol silylether catalyst in combination with benzoic acid. For the reactions studied, faster reaction times (7h) with excellent enantioselectivities (up to >99%) were observed, compared to similar reactions in which a different catalytic system was used. These type reactions are the key steps in the synthesis of pharmaceuticals and biologically active compounds.



Strategy Choice as a Factor in Study Time Allocation

Nancy Lamphere

Advisor: Dr. Lacy E. Krueger

Co-Author: Andrea Rosales

Department: Psychology, Counseling, & Special Education

College: Education & Human Services

Category: Graduate

There are conflicting findings regarding the relationship between study time allocation and memory performance. Some researchers have found a labor-in-vain effect (e.g., Nelson & Leonesio, 1988), where more time spent studying does not lead to better recall, while others have found a labor-and-gain effect (e.g., Mazzoni & Cornoldi, 1993), where more study time is associated with better recall. An additional factor not yet considered is study strategy. To investigate the relationship between strategy use and study time, 31 English-fluent undergraduates completed three study-test trials containing 36 unrelated word pairs. During the study trials, participants self-regulated how long they viewed each word pair and reported their strategy choice before completing a cued-recall test. Several findings replicated past research, including improved performance across trials, study time effectiveness (STE; more study time allocated to items that were previously unrecalled relative to those that were previously recalled), and study time predictiveness (STP; longer study times allocated to items that were subsequently recalled relative to those that were not subsequently recalled, i.e., a labor-and-gain). In addition, proportionately higher use of interactive imagery was related to higher recall rates, while proportionately higher use of rote repetition or no strategy was related to lower recall rates. STE was associated with proportionately higher use of the imagery strategy, while STP was associated with proportionately higher use of rote repetition. These results suggest that the choice of study strategy is an additional variable that should be considered when exploring the relationship between study time allocation and memory performance.

Mathematics Achievement in the Middle Grades: Predictors of Success

Maria Carlson & Brittany Hott

Department: Psychology, Counseling, and Special Education

College: Education & Human Services

Category: Faculty

Mathematics instruction is a dynamic and challenging aspect of public education, particularly within the middle grades. Results of high-stakes testing initiatives indicate that students with and without disabilities are experiencing significant difficulties that are compounded over time. The purpose of this study was to evaluate the factors that impact mathematics success. Demographic data and mathematics test scores were collected from 1,570 students enrolled in suburban middle schools in the southeast. Results indicate that traditionally marginalized populations including students with disabilities, students receiving free and reduced lunch, and students from military backgrounds are not achieving at rates comparable to their peers. Implications for practice and future research are provided.

Trimethylation of Histone H3K27 Confers Metastatic Phenotype in Breast Cancer

Megan Miller

Advisor: Dr. Venu CheriyaCo-Authors: Casey Murphy and Ashjan KhalelDepartment: Biological & Environmental SciencesCollege: Science, Engineering, & AgricultureCategory: Undergraduate

Metastasis remains the leading cause of >90% mortalities in breast cancer. Although transition of epithelial tumor cells to secretory phenotype (EST) is critical for metastasis, molecular mechanisms of EST are unclear. Since ectopic expression of UTX, a histone demethylase, several genes of secretory phenotype were significantly induced (>2 fold, $p \leq 0.05$), we hypothesized that epigenetic changes mediated by histone methylation regulates epithelial-to-secretory phenotype transition. MCF-7, a non-metastatic breast cancer cell line was treated with Phorbol-12-myristate-13-acetate (PMA), and assessed phenotypic changes, cytoskeletal modifications, cell migration and histone methylation. PMA altered F-actin organization of MCF-cells by 4 hours, and phenotypic changes by 24 hrs. PMA markedly increased the migration of MCF-7 cells in wound healing assays. PMA increased trimethylation of histone (H3K27me3) at 2 hours suggesting epigenetic changes prior to phenotypic changes. Our results suggest that histone trimethylation associated chromatin reorganization may modulate EST to promote metastasis of breast cancer cells.

Comparative Metal Binding Studies of Methanobactin and Zinc Finger-like Peptide with Cu(II) and Zn(II) Metal Ions

Ramakrishna Sesham

Advisor: Dr. Laurence A. Angel

Co-Author: Mahesh Nasani

Department: Chemistry

College: Science, Engineering, & Agriculture

Category: Graduate

Methanobactins are a class of molecules with high affinity to Cu(II), Zn(II) and other metal ions, and are hypothesized to mediate copper acquisition from the environment for methane oxidizing bacteria called methanotrophs. Zinc fingers are short peptide sequence motifs stabilized by the specific coordination of Zn(II) and are involved in DNA transcription. In this study, we determine the affinity constants of methanobactin and the zinc finger-like peptide ac-His-Cys-Gly-Pro-His-Cys for Cu(II) and Zn(II), using mass spectrometry for gas phase analysis and ultraviolet-visible spectrophotometry for solution phase analysis, by employing the method of continuous variations.

Strength Focused Behavioral Interventions for Social Work Clients

Gavin Randall Cone

Advisor: Dr. Benjamin May LCSW

Department: School of Social Work

College: Humanities, Social Sciences, & Arts

Category: Graduate

Research regarding single-focused treatment approaches for people experiencing mental health problems is plentiful. Due to the high incidence of dual-diagnosis, and managed care companies limiting practitioner visits, single method interventions are lacking. The five comprehensive coping skills (FCCS) model, developed by Benjamin May LCSW PHD, is comprehensive and empowering for people experiencing a variety of mental health concerns. This approach presents with it, years of casework application offering promising results. The FCCS model is comprised of strength-focused strategies which increases self-esteem, restores balance and control, while offering healing and clarity. Coping skills are offered by social workers worldwide, usually in a single, problem-solving approach. This model presents a more complete method which bolsters a person's entire life, leading to enhanced mental health. FCCS does this by teaching a person how to engage differently; with their own thoughts, body, feelings and connectedness to the world around them. Currently there are neither reviews of FCCS, nor studies of the manner in which their application addresses cognitive patterns and metacognition. It is our proposal that FCCS contributes positively to all interventions.

Cow Age Effects on Body Weight, Condition, and Reproductive Performance

John Garrett

Advisor: Dr. Aaron Cooper

Co-Authors: J .S. Garrett, A.J. Cooper, J.L. Wahrmund, K.N. Gates,
F.R.B. Ribeiro, J.A. Carter, C.A. Hughes, and L.L. Ramsey

Department: Agriculture

College: Science, Engineering, & Agriculture

Category: Graduate

Data (n=210) were collected on crossbred beef cattle to determine how cow age affects cow body weight, body condition score and ultrasound back fat thickness in the TAMUC teaching herd. Real-time ultrasound (**RTU**) was performed by an experienced technician to measure back fat thickness. Palpation was estimated by a licensed veterinarian mid gestation via rectal palpation. Cow breed influences included Angus, Hereford, Limousin, Beefmaster, and Simmental. Preliminary phenotypic correlation of calving rate with cow body condition score was 0.06. Cow body condition score was not a significant source of variation for calving rate.

**Induction of p21 (WAF1/CIP1) Dependent Cell Cycle Arrest in
Pancreatic Cancer Cells by IFN- β**

Rudy Castillo

Advisor: Dr. Venu Cheriya

Co-Authors: Meng Sun

Department: Biological & Environmental Sciences

College: Science, Engineering, & Agriculture

Category: Undergraduate

Despite incremental progress in therapies, pancreatic cancer (PC) remains one of the most aggressive cancers with poor prognosis and no means of early diagnosis. Although interferons (IFNs) suppressed the growth of PC in clinical studies, its antitumor effects are unclear. In viability assays, IFN- β reduced viability of the PC cell line BxPC-3 by >78% with an IC₅₀ of 144.5 IU/ml. Since apoptosis were not induced under these conditions, we hypothesized that antiviability effects of IFNs in PC cells are resulting in from cell cycle arrest. In agreement with this postulates IFN- β (100IU/ml) abrogated the expression of proliferating cell nuclear antigen (PCNA), a marker for cell proliferation. Moreover, IFN- β robustly induced the expression of p21 protein, an inhibitor of cyclin dependent kinase suggesting a reduction of S-phase and cell cycle arrest. Overall our data demonstrates that IFN- β manifests its antitumor effects in PC cells primarily through induction of p21 and reduction of PCNA, mediating cell cycle arrest.

G1P3 Interaction with Cytoskeletal ACTIN Mediates ANOIKIS Resistance in Breast Cancer

Lalitha Gaddipati

Advisor: Dr. Venugopalan Cheriya

Department: Biological & Environmental sciences

College: Science Engineering & Agriculture

Category: Graduate

Anoikis resistance or survival in the absence attachment to extra cellular matrix (ECM) is a prerequisite for the development and metastasis of breast cancer. Therefore, re-sensitization of breast cancer cells to undergo anoikis can be a strategy to eliminate breast cancer cells. Recently we reported that G1P3, a survival protein induced by interferons (IFNs), is an inducer of anoikis resistance in breast cancer cells. However, molecular mechanism by which G1P3 suppresses anoikis is unclear. Multiple proteins including extracellular matrix- and cytoskeletal -proteins such as actin regulate Anoikis. Since G1P3 is localizes into mitochondrial and cytoskeletal fractions, we hypothesized that G1P3 mediated actin dynamics confer anoikis resistance in epithelial cells. To test this hypothesis, the effects of ectopically expressed G1P3 in the actin polymerization was assessed by differential centrifugation. Compared to vector transduced cells, levels of F-actin (polymerized actin) were marked higher in G1P3 overexpressing cells. In agreement with this, *in vivo* studies by phalloidin staining of actin in intact cells identified polymerized actin bundles, in areas of cell-cell contacts in breast cancer cells. Moreover, in interaction studies, α -actin co-precipitated with G1P3 suggesting a direct interaction between G1P3 and actin. Summarizing our results suggests that overexpressed G1P3 inhibits anoikis in breast cancer cells by augmenting microfilament dynamics towards polymerization of monomeric G-actin to F-actin. A better understanding of structural information of G1P3-actin interacting domain may help to design strategies to restore anoikis sensitivity in breast cancer cells, which not only reinstates normal growth of mammary epithelial cells but may also sensitize them to the immune surveillance actions of IFNs.

Artificial Intelligence Based Student Learning Evaluation Tool

Gyanchand Pankaj Jain

Advisor: Dr. Varadraj Prabhu Gurupur

Co-Author: Eileen Faulkenberry

Department: Computer Science & Information System

College: Science, Engineering, & Agriculture

Category: Graduate

Concept Maps are the graphical tools which organize and represent knowledge in form of graphs. When used in the evaluation process, the concept map provides an access for learning and it has benefits since it allows students and instructors to grasp ideas more quickly than by reading. The general problem when handling the concept maps is evaluation. We describe a tool coined as Artificial Intelligence Based Student Learning Evaluation Tool (AISLE). The main purpose of this tool is to improve the use of artificial intelligence techniques in evaluating a student's understanding of a particular topic of study using concept maps. Here we calculate the probability distribution of each concept in the concept maps which is developed by student and instructor by taking reference of the concept map developed by the instructor. The evaluation of a student's understanding of the topic is assessed by analyzing the curve of the graph generated by this tool.

**Cross Battery Testing: Best Practices for Identifying Students with
Emotional and Behavioral Disabilities**

Ambre Fairfield

Advisor: Dr. Brittany L. Hott

Co-Authors: Brittany Hott and Tammy Willis

Department: Psychology, Counseling, & Special Education

College: Education & Human Services

Category: Graduate

The special education eligibility process for determining the presence of emotional or behavioral disability (EBD) is controversial at best. The purpose of this literature review is to provide a summary of cross battery testing practices that assist teams with identifying students in need of special education and related services. Limitations, implications for practice, and future research directions are provided.

Maspardin: Possible BMP Inhibitor?

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Poster Presentation

Mast syndrome (SPG 21), an autosomal recessive and slowly progressive type of hereditary spastic paraplegia (HSP), results from a frame shift mutation within ACP 33. This HSP is demonstrated in the Old Order Amish people due to development from an ancestral mutation. A shift within the ACP 33 gene causes a premature termination of an encoded protein known as maspardin – resulting in seizures, white matter abnormalities, thinning of the corpus collosum and dementia in extreme cases. Though, the main feature of this disorder is degeneration of motor neurons within the motor cortex.

Our focus is the study of the effects of maspardin on Bone Morphogenetic Proteins (BMPs) – contrasting its effects on BMP signaling in a variety of tissues. BMPs are a group of proteins known for their functionality within the growth of bone, cartilage, and their influence on axonal synaptic growth and function.

Cell types studied in this experiment include embryonic neurons and mouse embryonic fibroblasts (MEFs). Embryonic neurons are harvested between E15-E18 days of gestation and grown in neurobasal media, while MEFs are harvested at E14 and grown in MEF media (DMEM, 1x, FBS, L-Glutamine, 1x non-essential amino acids, and 0.1X penicillin-streptomycin). Wildtype and knockout cultures of neurons and MEFs are stimulated for one hour with BMP4 ligand and compared to control. Immunoblotting is conducted, and protein interactions are revealed through Renaissance Enhanced Chemiluminescence. Signal intensities of pSmad 1/5 and Smad will be compared between wildtype and knockout cultures of neurons and MEFs. If maspardin is an inhibitor on BMP signaling, pSMAD 1/5 pixel densities visualized with Quantity One software should show an increase in knockout cell types compared to control. Preliminary results already seem to suggest maspardin is, indeed, an inhibitor of BMP signaling when visualized in knockout neurons. Similar experiments will be carried out in MEFs. Additionally, knockout neurons and MEFs will be transfected with GFP-maspardin as a rescue experiment after initial analysis. If variable or minimal effects on BMP signaling are found, our focus will shift to downstream BMP transcriptional responses.

**Effect of Task/Condition-Related Signal Variance on Functional Connectivity:
An fMRI Simulation Study**

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Category: Graduate

In fMRI, temporal blood-oxygenation dynamics of different brain regions, which is an indirect measure of collective neural activity, are captured while the subjects rest, engage different tasks and/or undergo different stimulus conditions. Interaction between the dynamics of different brain regions are commonly quantified by correlation-based techniques, which are simply referred to as functional connectivity (FC) analyses. If the two time signals from two different brain regions are significantly correlated, these brain regions are considered to exhibit significant FC. This can also be probed under different tasks or conditions to see how FC is modulated by task. In these studies, if a particular task or condition is found to be associated with greater FC between certain brain regions when compared with another task, then the study concludes that these brain regions are engaged more under this particular task or condition. However, certain tasks, conditions or stimuli can simply cause the fMRI signal to fluctuate more, thereby causing greater signal variance. In these analyses, the possible effect of task/condition-related variance differences to FC differences has been often ignored or understudied. In this work, we studied the effects of task/condition-related signal variance to FC using simulated fMRI signals. We found that correlation between the condition-related FC difference and the condition-related fMRI signal standard deviation difference shows that FC differences are associated with systematic differences in the variance of the fMRI signal in the different experimental tasks/conditions. This result highlights the need for caution in interpreting task/condition-dependent differences in functional connectivity analyses; one cannot rule out the possibility that the observed differences were merely a consequence of differences in the variance of the respective signal time-courses.

Texas Faculty Senates Website

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Category: Graduate

This Project is to design and implementation of website for Texas faculty senates organization. This website has been designed using Joomla tool and it is a dynamic website. I along with Dr. Maria Hinojosa gathered information to build this website.

Role of IFIT1 in P-body Formation in Breast Cancer Cells

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Category: Graduate

Despite recent advances in breast cancer therapies, prognosis of breast cancer patients remains poor. In our metaanalysis, we identified a strong association between the increased expression of IFIT1, an interferon (IFN) induced gene with unknown function and poor outcomes in breast cancer patients. IFIT1 associates with the 5' end of capless mRNAs and several capless mRNAs are recruited into subcellular structures called P-bodies to silence their expression. Therefore, we hypothesize that aberrant expression of IFIT1 augments the formation of P-bodies that may silence the expression of tumor suppressors to confer survival advantages to breast cancer cells. To test this hypothesis, constitutive and IFN-induced expression of IFIT1 and the formation of P-bodies were assessed in breast cancer cells. While IFN- β induced the expression of IFIT1 in both nontumorigenic (normal) and cancerous breast cell lines, constitutive expression of IFIT1 was observed in triple negative breast cancer cells. Additionally, IFN- β markedly increased the formation of P-bodies in all cancer cell lines at 24, 48 and 72 hr after treatment. In agreement with the increased formation P-bodies, IFN- β downregulated the expression of multiple proteins at 24 hr after treatment. Identification and further characterization of proteins downregulated by IFNs demonstrates the role of IFIT1 in breast cancer progression.

Habitat Stratification of Syntopic Nesting Barn Swallows (*Hirundo rustica*), Cave Swallows (*Petrochelidon fulva*), and Cliff Swallows (*Petrochelidon pyrrhonota*) in Northeast Texas

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Historically, Barn Swallows (*Hirundo rustica*), Cave Swallows (*Petrochelidon fulva*), and Cliff Swallows (*Petrochelidon pyrrhonota*) nested on different substrates in natural environments. However, Barn Swallows and, later, Cliff Swallows adopted buildings, bridges, and culverts as their primary nesting sites during American industrialization. Very recently, the Cave Swallow, whose range was limited by the distribution of nesting sites in caves, has also adopted bridges and culverts as nesting sites. This has resulted in the rapid expansion of Cave Swallows into northeast Texas. Concurrent to this range expansion, Barn Swallow populations in culverts and under bridges seem to have dropped dramatically. The purpose of this study is to determine if the species are stratifying their habitat in order to avoid interspecific competition and the extent to which Cave Swallows might be excluding Barn Swallows from particular types of culverts or bridges. The data collected in the study will also be used to determine population trends for the three species of swallow in northeast Texas.

School Based Bullying Interventions: A Meta-Synthesis

Jennifer Goodman

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Bullying is a prevalent problem in school systems across the United States and is continuing to grow. Consequently, teachers and students are overwhelmed by the increasing demands to maintain a safe and conducive learning environment. This meta-synthesis reviewed school-based, elementary level bullying interventions published between 2005 and 2012. The search resulted in 10 quasi-experimental studies evaluating 8 interventions. Results indicated that social skills instruction, parent teacher support, and virtual simulations were more effective than teacher mediated and modeling interventions. Additionally, interventions that included extensive staff training and whole school involvement were more effective than individual classroom interventions. Implications for practice and future research are presented.

Effects of Injectable Trace Mineral Supplementation on Beef Cow Reproduction and Calf Performance

Hana Huff

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This study will investigate the effects of injectable mineral supplementation on cow reproductive and calf performance. Crossbred cows (n=50) will be randomly assigned into one of two groups. The control group will receive physiological saline injections while the treatment group will receive an injection of trace minerals Cu, Mn, Se and Zn. Treatments will be administered 30 days pre-partum and 60 days post-partum. Cattle will have ad libitum access to mineral supplement and native pasture. Both groups will be a mixture of fall and spring calving cows. Cow pregnancy rate, cow body condition score, and calf birth and weaning weights will be recorded for each cow and calf pair.

