

POSTER ABSTRACTS

The Effect of Probiotic Microorganism on the Microbial Production of Butyrate in the Microbial Gut

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Faculty Mentor: Daniel Clemens

Genes that control butyrate kinase and butyryl CoA CoA-transferase production level is strongly influenced by different gut microbial interaction. The presence and the absence of those genes detected using published PCR primers on DNA isolated from two Clostridia strains, and Eubacterium. The PCR gene product was purified and cloned into Escherichia Coli then sequenced. PCR results showed that Clostridium and Eubacterium have the gene for butyryl CoA CoA-transferase but not butyrate kinase. Cloning results showed that the genes are over expressed in Escherichia Coli. Sequenced genes are used to assess the abundance and identify similar genes in other microbiota species.

My Body, My Blog; Female Body Image and Sexuality in the Iranian Weblogestan

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Faculty Mentor: Afshin Marashi

The first Iranian blog launched in 2001; very soon it became a phenomenon where many among the young Iranian middle class could talk openly about their society and its political, cultural, and social issues. This paper analyzes an April 2008 debate in the Iranian blogosphere (or weblogestan) over female body image and sexuality. Considering gender and residence, this study suggests that despite what first looks liberating in many of these writings, the majority of women who contributed to this debate respected determined social norms. Avoiding writing about themselves, they tried to convince others of the necessity of such writings.

How Stereotypes of African American Women in Oscar Winning Roles Have Changed From 1939-2006

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Receiving the movie industry's highest honor, commonly known as the Oscar, comes with the gifts of fame and recognition. African American female Oscar winners also receive a special gift: awareness of their unique and sometimes controversial place in history, culture, and society. These Oscar winners accept their awards with an understanding of the stereotypes that lurk in the roles that lead to recognition. Since 1939, four African American women have won the Oscar; the present research examines their winning roles and the evolution of racial stereotypes within these celebrated films.

The Epidemic of HIV in African American Women

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Faculty Mentor: Michele Foss-Snowden

HIV has reached epidemic proportions in African Americans. Specifically, most women living with HIV are black, and HIV/AIDS is the leading cause of death for black women age 24"; 34. Previous research attributes this high incident rate to the lack of HIV testing, racial disparities and multiple sexual partners. Even after such research, and the application of found results, HIV seroprevalence in African American women is still increasing. Thus, the present research aims to uncover other social or economic factors that may be contributing to the high incident rate of HIV among black women.

Contribution of BK Virus MiniT Protein to Viral Oncogenic Activity

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Faculty Mentor: Richard Frisque

BK virus (BKV), a member of the Polyomaviridae family, is one of five pathogenic human viruses in the family. BKV is an oncogenic agent that induces tumors in rodents, and has been associated with human cancer. Recently, a third BKV T antigen protein was discovered in 2001, which is believed to influence oncogenic transformation; this protein is called miniT (Prins, Bam and Frisque, unpub. data). My project is designed to confirm the miniT protein's role in the transformation process. I am using a dense focus assay to assess the role miniT protein has on BK virus transformation ability.

Society's Affect on Student Achievement: An Ann Arbor to Detroit Study

Latasha Becker

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Faculty Mentor: Betty Brown-Chappell

This study focuses on finding if wealth has an effect on student achievement, and if the disparities in education in urban schools are caused by family income. I plan to find and discuss the correlation of low test scores and poverty. I have chosen Ann Arbor and Detroit Michigan because there is a limited amount of research at the city-to-city level. I will identify the nature of my project in a poster presentation because it is still in its beginning stages.

Veterans Are More Committed to Higher Education than Traditional Students

Bryan Bodrog

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Faculty Mentor: Travis Tubre

Veteran students are known to differ demographically from traditional college students. They may also place more emphasis on the value of their education. A Veteran Student Engagement Questionnaire was developed to assess differences between veterans and

traditional students with respect to demographic characteristics and attitudes about various aspects of their educational experience. Participants' responses to the questionnaire revealed significant differences between groups. Although veterans reported lower high-school GPAs, their college-GPAs were higher than those of traditional students. In addition to valuing their education more highly, veterans reported higher levels of involvement in professional activities and less satisfaction with peer relationships.

The Sensitivity of Methods in Measuring Conditioned Flavor Aversions and Conditioned Flavor Preferences

Jacinda Bunting

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Faculty Mentor: Kenneth Rusiniak

This project is designed to develop a multiple measurement procedure to assess conditioned flavor aversions (CFA) and conditioned flavor preferences (CFP). Volume consumed is currently the most common and often the sole method used. Further, most studies employ group designs. The present study uses a single subject design to compare behavior patterns and responses. Response measurement methods include: lick rate, lick pattern, orofacial gestures, volume consumed and other responses identified from video recording. The study is intended to provide normative data against which the effects of drugs on neurotransmitters that modulate CFA and CFP can be evaluated.

Quantifying The Immunoreactivity Of Polyclonal Igg And Igy

Tizazu Cheritu

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Faculty Mentor: Marilyn Hart

Actin, a filament found in the cytoplasm found in all eukaryotic cells, contributes to cell shape, cell mobility and the organization of certain tissues such as striated muscle. Actin is regulated by a variety of proteins, including actin capping protein (CP). CP is composed of two subunits, an alpha (α) and a beta (β) subunit. One goal of Dr. Hart's laboratory is to determine if the alpha subunits have similar or distinct functions in cells. The first step towards accomplishing this goal, we will determine the location of the alpha subunits in cells using antibodies specific for each alpha isoform.

Relation Duration/Type Effects on Maintenance Expectations

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Faculty Mentor: Steve Seidel

A rather depressing statistic in the realm of relationship science is the finding that marital satisfaction decreases over the duration of a marriage (Kurdek, 1999). Huston (Caughlin & Huston, 2006) suggested that the process of disillusionment was a reason for the downfall of marriages. In the present study, participants were asked to evaluate a set of relational maintenance strategies as they applied to a successful premarital relationship, a

1 year marriage, and a 10 year marriage. Results suggested that maintenance expectations were highest of a successful 1 year marriage and that these expectations decreased with the duration of a marriage.

Survival of Bifidobacterium Animalis ssp. lactis DSMZ 10140 and Bifidobacterium Animalis ssp. Animalis ATCC 25527 During Manufacture and Storage of Ice Cream

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Probiotic bacteria are defined as “live microorganisms which when administered in adequate amounts confer a health benefit on the host” (FAO/WHO 2002); thus in order to exert health benefits the organisms must be viable. In this experiment, survival of *Bifidobacterium animalis* ssp. *animalis* ATCC 25527 and *B. animalis* ssp. *lactis* DSMZ 10140 was studied in ice cream over time by measuring viable counts on MRS agar plates anaerobically incubated at 37°C. These organisms were chosen because of their close genetic similarity and reported differences in technological properties. Subspecies specific PCR will be used to verify the identity of colonies counted.

The Effects of Land and Light Availability on Microbial Populations in Three Ecological Areas

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Eastern Michigan University

Biofilm samples taken from sediments, rocks and bobbers floating on the surface of streams were collected from three tributaries of the Huron River. Microbial diversity of these biofilms was determined using pGEM-T ® and pGEM EASY ® and pUC19 vectors to clone and construct libraries of DNA isolated from these samples. The construction of such libraries provides access to the genetic information of aquatic biofilm microorganisms. Phylogenetic analysis of the 16SrRNA gene sequences from these organisms showed a wide diversity of microbial phyla. The biodiversity was substantially greater in biofilms taken from streams surrounded by undisturbed natural habitats than agricultural or urban surroundings.

Racial Disparities in Hypertension Awareness And Management: Are There Differences When African Americans And Whites Live In Similar Social And Healthcare Resource Environments?

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Several studies have concluded that African Americans are more likely to be aware of their hypertension and more likely to receive treatment than whites. However, African Americans continue to experience earlier onset, poorer control rates, and greater severity of hypertension and related complications. Although racial disparities in hypertension

awareness and management are well documented, the differing healthcare and social contexts between these groups is not accounted for. Therefore, we will examine the nature of disparities in hypertension awareness, treatment, and control within a sample of African Americans living in the same social context, with access to the same healthcare environment.

Mediators of Employment Status and Depression in Multiple Sclerosis

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The current study will examine possible reasons underlying the relationship between depression and job status in MS patients. Given that prior work has shown that stress, maladaptive coping strategies, and low levels of social support are associated with depression in MS, differences between work status groups on these variables will be explored. Participants for the proposed study will thus be divided into three groups: patients who work full-time, cut back on their work hours because of MS, and had to quit working due to MS symptoms. Differences between groups on measures of stress, coping, and social support will be explored.

In the Eye of the Beholder: Attachment Style Differences in Emotion Perception

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Research has shown that adult attachment is a significant predictor of relationship satisfaction and functioning. However, preoccupied and dismissing insecure attachment styles have been found to relate to two opposing ways of emotional processing in relationships. Preoccupied individuals maximize their emotional experience, but tend to become overwhelmed. Dismissing individuals minimize their emotional experience. The current study will examine attachment patterns in predicting emotional perception in an undergraduate sample. Attachment will be assessed using the Experiences in Close Relationships Inventory and emotional perception will be assessed using the Reading the Mind in the Eyes Task.

Effect of S2255A and S2300A Mutations on CK1 α Phosphorylation of HCV NS5A

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This project examines the effect of two mutations on the phosphorylation of the NS5A protein of the Hepatitis C Virus. NS5A is a non structural protein with various phosphorylation sites, many of which have not yet been determined. Some phosphorylation events are carried out by casein kinase 1 α (CK1 α). Replacing amino acids that can be phosphorylated with those that cannot is expected to alter NS5A phosphorylation and function. This project makes two serine-to-alanine mutations and

observes the effect on CK1 α phosphorylation. Successful engineering of the mutation results in a decrease in phosphorylation of NS5A at residue 2300.

Leadership Skills of Children With Hearing Impairments

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Faculty Mentor: Brenda Doster

Linda Polter

The purpose of this research is to develop a methodology relevant to children with Language and Hearing impairments that will help these children transition into effective communicators. Scholarly studies about children with a Hearing Impairment indicate negative reception of their spoken language. This research project involves observing children with Hearing Impairments; while interacting socially in a camp setting. A mixed methodology will be used to collect data quantitatively through surveys and descriptive statistics, and qualitatively through journal responses and observations. The objective of these studies is to identify and better understand any correlations between leadership opportunities and extracurricular activities.

Surviving the Blast: Stress, Coping and the Single Parent Family

Kellie Painter

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Faculty Mentor: Lisa Tavano-Hall

Over the last three decades the face of the American family had undergone radical change. From this radical change a family structure type has emerged called the single parent family. The single parent family lives with many new types of challenges, including elevated levels of stress that parents and children must battle on a daily basis. This study investigates the differences in how individuals from this family structure learn to process and cope with stress. The researcher surveyed 105 undergraduates from a California university, assessing their locus of control, assertiveness, and type of single parent family.

Are There Cultural and Gender Differences in the Relationship Between Emotion Regulation (Use of Cognitive Reappraisal and Expressive Suppression) and Well-Being?

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Faculty Mentor: Jose Soto

This study examined emotion regulation and well-being differences and the relationship between these two constructs among 182 European Americans and 266 Puerto Rican students. In this context, emotion regulation refers to expressive suppression (hiding emotions) and cognitive reappraisal (thinking about a situation differently). Prior research has shown that minorities in the U.S. are more likely than European Americans to suppress and that frequent use of suppression is linked to decreased well-being, while

frequent use of reappraisal is linked to increased well-being. These relationships have not previously been examined among Latinos who are in a majority context (i.e., Puerto Rico).

Cytochrome P450BS β : Oxygenase, Peroxygenase or Peroxidase?

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Faculty Mentor: Joseph Martin Bollinger

The cell pellet was thawed with stirring in 2 times the volume of Lysis buffer (50mM Tris pH 7.5, 300mM NaCl, 10mM imidazole) and 10 μ L/mL of the 10mM PMSF . The cell slurry was then french pressed at 10000 psi for two passes through the chamber. The cells were centrifugated at 50,000xg for 45 minutes. The supernatant was reserved and loaded onto a Ni-NTA column equilibrated with 2-3 bed volumes of Lysis Buffer. Once the supernatant was loaded, the column was washed with several bed volumes of Wash buffer (50mM Tris pH 7.5, 300mM NaCl, 30mM imidazole). The protein was eluted with Elution buffer (50mM Tris pH 7.5, 300mM NaCl, 200mM imidazole. Fractions containing red protein were collected and analyzed by UV-Visible spectrophotometry to determine which fractions had the best heme to protein ratio. The selected fractions were pooled for dialysis to remove the imidazole. Dialysis was carried out over night in 2L of Dialysis buffer (50mM Tris pH 7.5, 300mM NaCl) with two subsequent buffer exchanges. On completion of dialysis, 10-20% glycerol was added to the protein for cryoprotection on freezing. In a YM-30 centriprep concentrator, centrifuged at 1500xg, the protein was concentrated to 2-3mM. Once sufficiently concentrated, the protein was aliquoted into 1.5mL microcentrifuge tubes and at stored at -80°C.

Firearm Involvement Influences on the Recidivism of Gang Members

Daniel Scott

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Faculty Mentor: Beth Huebner, University of Missouri - St. Louis

Gangs and recidivism research has been prominent in the literature, but little research has examined the recidivism of gang members. This study contributes research by comparing recidivism patterns of gang members to non-gang members. The focus is gang firearm involvement and its influences on recidivism. The study analyzes how gun carrying intentions, firearm use, and gun victimization affect recidivism of gang members. The results suggest that firearm involvement has strong influences on the recidivism of gang members. Furthermore, the characteristics of gun ownership and having shot a gun in self-defense are significant influences on the recidivism timing of gang members.

Underlying Causes for Poor Health Among Minority Women in Inner-cities

Alisa Shockley

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Faculty Mentor: Melissa Wright

The purpose of this research is to address the health disparities that are prominent among minority populations, particularly African American and Hispanic/Latino American

women. Cardiovascular disease is the leading cause of death for Americans along with diabetes. This research addresses the underlying causes for poor health among minority women in inner-cities. Social factors such as residential segregation and racism have not been accounted for as causes for poor health among minorities. Understanding the importance of these factors can lead to improvement in health care through implementation of policy which can benefit every American citizen.

Optical Measurements in Nucleate Boiling in a High Pressure Refrigerant Flow

Keon Vereen

University of Central Florida

Faculty Mentor: Ranganathan Kumar

In order to design better cooling devices such as heat exchangers, the principles of flow boiling heat transfer need to be understood. The importance and relevance of flow boiling heat transfer, specifically nucleate boiling, are its application to electronic cooling, pressurized reactors and in any application where a heat exchanger is used. This research investigated the effect of flow rate, high pressure, and heat flux on bubble nucleation of refrigerant R-134a. The results showed that pressure and flow rate affect bubble nucleation and growth. Bubble frequency increased with increase in heat flux.

Contribution of Stress Hormone to the Pathogenicity of Neisseria Meningitidis

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Faculty Mentor: Lillian Waldbeser

Neisseria meningitidis causes disease by colonizing the oro-nasopharynx, an anaerobic environment, spreads person to person via respiratory droplets; infecting cells of the nervous system resulting in bacterial meningitis. However, the level of cortisol has been reported to correlate with the severity of bacterial meningitis. Cortisol allows the full expression of metabolic processes in the body and responds to elevated stress levels, acting as an immunosuppressant. This investigation aims to study the effects of cortisol, a major stress hormone, on the pathogenicity of *Neisseria meningitidis*. Its expression of *pilC* gene encodes a protein essential to host cell adhesion, the specific study.

Synthesis, Characterization and Utilization of Branched Amino Acid Based Surfactants as Pseudostationary Phases for the Enantiomeric Separation of Chiral Compounds with Capillary Electrophoresis

Oscar Villarreal

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Faculty Mentor: E. Billiot

The purpose of this research involves the synthesis and characterization of novel tripeptide based surfactants; some of the physical properties include critical micelle concentration, aggregation number, and optical rotation. In addition, various spectroscopic techniques were utilized to characterize the properties of the micellar core of these surfactants. Finally, the chiral selectivity of these surfactants were examined

using capillary electrophoresis. The synthesis creates several intermediate products before the final product. The steps in the process will be discussed, with a limited discussion of preliminary findings.

Emotional Regulation Beyond the Behavioral Constructs of Childhood

Chelsie White

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Faculty Mentor: Elizabeth Skowron

Physiological regulation in childhood is a topic of increasing interest among researchers. Yet thus far there has been little exploration of physiological regulation outside the confines of ordinary childhood. This project moves beyond these confines to explore the physiology of maltreated children by way of examining cardiac vagal tone. Fundamentally this project presents distinctions between the developmental contexts of maltreated children and non-maltreated children. Observed differences in RSA change scores between maltreated and non-maltreated children during a moderately frustrating task indicated that maltreated children produce smaller changes in vagal tone activity during a challenging task.