

SEVENTH SC LIFE COLLOQUIUM OF UNDERGRADUATE RESEARCH

*Morris College
Sumter, South Carolina
April 4, 2009*



Benedict College
Claflin University
Clemson University
Morris College

*Funded by an award from the Howard Hughes Medical Institute
Undergraduate Science Education Program to Clemson University*

AGENDA

Saturday, April 4

- 9:30-10:00am **Registration & Breakfast**
foyer of W. H. Neal-Iola Jones Center
- 10:00-10:20am **Opening Remarks**
W. H. Neal-Iola Jones Center Auditorium
Dr. Leroy Staggers, Dean, Division of Natural Sciences and
Mathematics and Dr. Radman Ali, Chair, Division Natural Sciences and
Mathematics at Morris College
- 10:30am - 12:15 pm **Oral Presentations**
Six Concurrent Sessions:
Wilson Booker Science Building
Room 101-Session A
Room 102- Session B
Room 103- Session C
Room 104-Session D
Room 105-Session E
Room 207- Session F
- 12:15- 1:30pm **Lunch**
Cafeteria
- 1:30 - 3:00pm **Oral Presentations**
Five Concurrent Sessions:
Building name
Room 101- Session G
Room 102- Session H
Room 103- Session I
Room 104- Session J
Room 107- Session K
- 3:15 - 4:15 pm **Poster Presentations & Refreshments**
Wilson Booker Science Building
Two 30 minute sessions - students with odd numbered posters should be at their posters from 3:15-3:45pm. Students with even numbered posters should be at their posters from 3:45-4:15pm.

ORAL PRESENTATIONS

TIME	SESSION A Room 101 Chair - Jiro Nagatomi	SESSION B Room 102 Chair - Randall Harris
10:30	Shweta Kailasan -Directed evolution to study temperature adaptation in a/b barrels: luciferase enzyme from psychrophilic <i>Vibrio harveyi</i> and b-galactosidase from thermophilic <i>Geobacillus stearothermophilus</i>	Emily Waggoner - The Effects of <i>In Vivo</i> Derived Trophoblastic Vesicles on Corpus Luteum Lifespan and Serum Progesterone Concentrations in Dairy Cattle
10:42	K. Rebecca Clark - Development of a Method for the Isolation of Plastids from Soybean Somatic Embryo	Leigh Anne Busbee - Ovulation Synchronization in Transitional and Post-Partum Ewes
10:54	Kara Kopf - Biological Production of Hydrogen by <i>Thermotoga neapolitana</i> : Investigation of Hydrogen Inhibition	Andrew LePorte - The role of Drosophila Innexin proteins in immunity
11:06	Jason Crumpler and Nicholas Crossland - Proliferative effects from rG3 on cancerous tumors carried by mice	Ashley MacCheyne - Magnesium Transport in <i>Francisella tularensis</i>
11:18	Laura Wiles -Effects of metallic particles on cells	Steven Vensko - Molecular Evolution in Amaranthus Species
11:30	Sean Battle -Parthenolide Alters DNA Methylation of the BRCA1 Promoter in the Human Colon HT-29 Cell Line	Megan Monsanto - Mutational Study of a DNA Repair Enzyme (Rv3297) from DNA Glycosylase Fpg/EndoVIII Superfamily in <i>Mycobacterium tuberculosis</i>
11:42	Antonia Perez -Improving influenza viral release by cloning in a human protease gene into Chinese hamster ovary cells	Justin Surratt - Genetic Engineering of High Vitamin C Content in Turfgrass for Enhanced Stress Tolerance
11:54	Perrin Collins - Development of environmentally safe transgenic turfgrass with enhanced drought and salt tolerance	
12:15	LUNCH	LUNCH

ORAL PRESENTATIONS

TIME	SESSION C Room 103 Chair - Yuqing Dong	SESSION D Room 104 Chair - Harry Kurtz, Jr.
10:30	Michelle Warren -EDU Proliferation Rates in Ear-forming Region of Early Chick Embryos	Ayla Norris - Overexpression of the rice E3 SUMO ligase for enhanced drought tolerance in turfgrass and rice
10:42	Elizabeth Winquist -Cloning and Expression of functional domains of longevity protein CeHCF	Amber Cooley -Cloning and characterizing an allene oxide synthase gene in hybrid poplar
10:54	Jamele R. Little -Correlation of <i>Cehcf</i> and <i>sir-2.1</i> in life span regulation	Don Mackay - Classification of a DNA Repair Enzyme, Human Endonuclease V
11:06	Victoria Desormeaux -Gamma-aminobutyric acid subtype A receptor in human colon cancer	Maurissa Charles -Assessment of the anti-microbial and anti-viral activity of <i>Vernonia amygdalina</i> and <i>Ocimum gratissimum</i>
11:18	Viran Ranasinghe - Cloning and Expression of an important <i>Listeria monocytogenes</i> virulence protein ActA from strain EGD-e	Thomas Niemeier - Alpha proteobacterial diversity changes occurring during an extreme drought in southeastern Utah
11:30	Troy A. Black - Trial of chaperone proteins in DAF-16 protein folding	Eric Knapp - Biochemical characterization of Human Glucokinase
11:42	Whitney Rountree -Innate Immunity and flight muscle histolysis	Ashley Hill - Identification of <i>Listeria monocytogenes</i> factors involved in biofilm formation by transposon mutagenesis
11:54	Shekelia Baccus -Synthesis of an Imidazole Inhibitor of α P2: A New Approach for Diabetes Treatment	Laura Datko -Mechanical properties of human teeth subjected to common clinical whitening agents and etchants
12:15	LUNCH	LUNCH

ORAL PRESENTATIONS

TIME	SESSION E Room 105 Chair - Haiying Liang	SESSION F Room 207 Chair -James Morris
10:30	Okwudinanka Igwe - Mechanism of microRNA transport from cell to cell	Jahmar Brown - Molecular recognition in immune response during flight muscle histolysis
10:42	Lauren Hayes - The Affect of Growth Conditions on the Production of jensenin P by <i>Propionibacterium jensenii</i>	Rodney Bostic -Effects of microgravity on ubiquitin systems in muscles of the house cricket
10:54	Kalu Iroha -Understanding Protein to Thermostabilty; Fold Exploration using Temperature Adaptation of a Psychrophylic Protein	Will McAllister -Depositing Hydroxyapatite to Create Synthetic Dental Tissue
11:06	Joseph Hill - Development of Structure-Function Relationships in the <i>Arabidopsis thaliana</i> ATEM6 Protein	Matthew Cupelli - Growth and Differentiation of Dental Stem Cells
11:18	Jesse Long - Baculovirus expression of recombinant polydnavirus gap junction proteins	Dan Ebner - Isolation of histones from <i>T. brucei</i> for use in discovery of true role of Histone Acetyl Transferase (HAT)
11:30	Kate Laws - The biochemical and kinetic characterization of <i>P. ramorum</i> acetate kinase and phosphotransacetylase	Michael Inyangetor -Effects of simulated microgravity on lactate dehydrogenase (LDH) in muscles of the house cricket
11:42	Kelly McCormick - Trial of chaperone proteins in CeHCF protein folding	Christian Reinholz - Investigation of Phosphoryl Donor Specificity in the Acetate Kinase from <i>Methanosarcina thermophila</i> via Site-directed Mutagenesis and Kinetic Analysis
11:54	Morgan Taylor - Lysosomal activation and autophagy in flight muscle histolysis in the house cricket	Amy Phillip - Infection rate of Hemocytes during Baculovirus Infection of Lepidopterans
12:15	LUNCH	LUNCH

ORAL PRESENTATIONS

TIME	SESSION G Room 101 Chair - Matt Turnbull	SESSION H Room 102 Chair - Caye Drapcho
1:30	Tochukwu Onyekwelu -Tissue Culture and Transformation of carrot	Richard Sopko - Optimization of Paraquat Concentration in Oxidative Stress Assay
1:42	Sheena Henry -Biochemical and Kinetic Characterization of Fungal and Archaeal Acetate Kinase	Roya Habibi -Effects of Zinc in <i>C. elegans</i> ' development and aging
1:54	Daniella Triebwasser -Secondary metabolite mediated invasiveness in an exotic plant species- <i>Centaurea maculosa</i>	Caitlyn Ellerbe - Measurement of Botanical Knowledge in Higher Education Populations
2:06	Ryan Mullane - Analyzing the Sufficiency of UBX Binding Sites to Alter the Patterning of Vestigial Gene Expression	Paul Griffith -Localization of Pex7 in <i>T. brucei</i>
2:18	Bradley Heminger - Function of <i>Arabidopsis</i> CPK32 in Plant Response to Abiotic Stress	Samantha McGill - Involvement of the CKS1 ubiquitin ligase in cell cycle progression of MDA-MB-231 triple negative breast cancer cells
2:30	Rush Neighbor - Functional characterization of a rice gene encoding microRNA156d and its application in plant genetic improvement	Vicky Gutierrez - The antimicrobial effect of vinegar and bacteriophage treatment against <i>Salmonella</i> spp. on spinach leaves
2:42		Robert Johnson - A Mutation Study of Human Endonuclease V

ORAL PRESENTATIONS

TIME	SESSION I Room 103 Chair - Xi Wang	SESSION J Room 104 Chair - John Desjardins
1:30	Rhett McKnight - Antimicrobial Efficacy of Photocatalytic TiO ₂	Tim Warrick - Design of an Ankle Motion System for an Ankle-Foot-Orthosis Testing Apparatus
1:42	Kristen Publicover -Expression of Stress Response Genes in <i>Escherichia coli</i> During Inclusion Body Formation	Shelby Skoog - Design of a Foot Fixation Interface for an Ankle-Foot-Orthosis Testing Apparatus
1:54	Emily McCollum - Characterization of Methanosaeta Acetyl-CoA Synthetase 1 and Acetyl-CoA Synthetase 4	Laura Reese - Design of a Shin Fixation Interface for an Ankle-Foot-Orthosis Testing Apparatus
2:06	Sian Ramlal - Identification of LL-37 resistance genes in <i>Moraxella catarrhalis</i>	Laila Roudsari - Design of a Load Measurement Interface for an Ankle-Foot-Orthosis Testing Apparatus
2:18	Cheryl Howell -Characterization of Muscadine Seed/Skin Extract and Pharmacokinetics after Human Consumption	Shea Bielby - Design of a Range of Motion Measurement Interface for an Ankle-Foot-Orthosis Testing Apparatus
2:30	Ben Fleishman -Phenotypic Shifts in Bladder Smooth Muscle Cells Subjected to Tensile Stress	Matt Manning - Design of a Graphic User Interface for an Ankle-Foot-Orthosis Testing Apparatus
2:42	Spencer Waldrop -Characterization of the metabolites after human consumption of muscadine products	Jocelyn Holden -Identification and characterization of HSP70 in flight muscle histolysis

ORAL PRESENTATIONS

TIME	SESSION K Room 107 Chair - Hong Luo
1:30	Julien Nunes - The purification of the <i>Moraxella catarrhalis</i> transcriptional regulator protein OxyR
1:42	Ryan Pruitt -The Assembly of Recombinant Major Ampullate Spidroin 1 Mini-silk Genes and Introduction into Tobacco
1:54	Don Mackay -Comparing Malaria Responses between BL/6 and MPL Mouse Strains
2:06	Allison Cason -Genetic engineering of rice and turfgrass with two antimicrobial peptides for enhanced disease resistance
2:18	Morgan Perry Davis, Jr. - Synthesis of an Oxazole Inhibitor of α P2: A New Approach for Diabetes Treatment
2:30	Hans Waldenmaier - Expression Analysis of a Rice Gene Involved in Plant Stature
2:42	Matthew Chung -The Inhibitory Growth Effects of Probiotic Kefir solution and Grapefruit-seed extract upon <i>Helicobacter Pylori</i>

POSTER PRESENTATIONS

3:15 - 4:15pm - Wilson Booker Science Building

The poster presentations are divided into two 30-minute sessions. Students with odd numbered posters should be at their posters from 3:15-3:45pm. Students with even numbered posters should be at their posters from 3:45-4:15pm.

Your poster number is also your abstract number.

<u>Poster #</u>	<u>Student Name</u>	<u>Poster #</u>	<u>Student Name</u>	<u>Poster #</u>	<u>Student Name</u>
1.	Shekelia Baccus	29.	Ashley Hill	57.	Ayla Norris
2.	Sean Battle	30.	Joseph Hill	58.	Julien Nunes
3.	Shea Bielby	31.	Jocelyn Holden	59.	Tochukwu Onyekwelu
4.	Troy Black	32.	Cheryl Howell	60.	Antonia Perez
5.	Rodney Bostic	33.	Okwudinanka Igwe	61.	Morgan Perry Davis, Jr.
6.	Jahmar Brown	34.	Michael Inyangetor	62.	Amy Phillips
7.	LeighAnne Busbee	35.	Kalu Iroha	63.	Ryan Pruitt
8.	Allison Cason	36.	Robert Johnson	64.	Kristen Publicover
9.	Maurissa Charles	37.	Shweta Kailasan	65.	Sian Ramlal
10.	Matthew Chung	38.	Eric Knapp	66.	Viran Ranasinghe
11.	K. Rebecca Clark	39.	Kara Kopf	67.	Laura Reese
12.	James Collins	40.	Kate Laws	68.	Christian Reinholz
13.	Amber Cooley	41.	Andrew LePorte	69.	Laila Roudsari
14.	Nick Crossland	42.	Jamele Little	70.	Whitney Rountree
14.	Jason Crumpler	43.	Jesse Long	71.	Shelby Skoog
15.	Matt Cupelli	44.	Ashley MacCheyne	72.	Richard Sopko
16.	Laura Datko	45.	Don Mackay	73.	Justin Surratt
17.	Angela Dennard	46.	Don Mackay (International)	74.	Morgan Taylor
18.	Victoria Desormeaux	47.	Matt Manning	75.	Daniella Triebwasser
19.	Daniel Ebner	48.	Will McAllister	76.	Steven Vensko
20.	Caitlyn Ellerbe	49.	Emily McCollum	77.	Emily Waggoner
21.	Benjamin Fleishman	50.	Kelly McCormick	78.	Hans Waldenmaier
22.	Paul Griffith	51.	Samantha McGill	79.	Spencer Waldrop
23.	Vicky Gutierrez	52.	Rhett McKnight	80.	Michelle Warren
24.	Roya Habibi	53.	Megan Monsanto	81.	Tim Warrick
25.	Sean Halloran	54.	Ryan Mullane	82.	Laura Wiles
26.	Lauren Hayes	55.	Rush Neighbor	83.	Elizbeth Winquist
27.	Bradley Heminger	56.	Thomas Niemeier		
28.	Sheena Henry				

2008-2009 SC LIFE UNDERGRADUATE RESEARCH PROGRAM PARTICIPANTS

FACULTY MENTOR	SCHOOL/DEPARTMENT	STUDENT	MAJOR	CLASS
Jeffrey Adelberg	Clemson University, Horticulture	Sean Halloran	Horticulture	Senior
Florence Anorou	Claflin University - Biology	Maurissa Charles	Environmental Science	Senior
Omar Bagasra	Claflin University - Biology	Okwudinanka Igwe	Biology	Junior
Heather Borick	Clemson University - Biological Sciences	Jason Crumpler	Health Science	Senior
		Nick Crossland	Biological Sciences	Junior
Min Cao	Clemson University - Biological Sciences	Ashley Hill	Microbiology	Senior
		Viran Ransinghe	Microbiology	Junior
Weiguo Cao	Clemson University - Genetics and Biochemistry	Robert Johnson	Genetics	Senior
		Don Mackay	Biological Sciences	Senior
		Megan Monsanto	Genetics	Senior
Susan Chapman	Clemson University - Biological Sciences	Michelle Warren	Biological Sciences	Senior
Chin-Fu Chen	Clemson University - Genetics and Biochemistry	Sean Battle	Genetics	Senior
Kamal Chowdhury	Claflin University - Biology	Tochukwu Onyekwelu	Biotechnology	Sophomore
Delphine Dean	Clemson University, Bioengineering	Matt Cupelli	Bioengineering	Sophomore
		Laura Datko	Bioengineering	Senior
		Laura Wiles	General Engineering	Freshman
John DesJardins	Clemson University, Bioengineering	Shea Bielby	Bioengineering	Sophomore
		Matt Manning	Bioengineering	Junior
		Laura Reese	Bioengineering	Sophomore
		Laila Roudsari	Bioengineering	Sophomore
		Shelby Skoog	Bioengineering	Junior
		Tim Warrick	Mechanical Engineering	Sophomore
Yuqing Dong	Clemson University - Biological Sciences	Troy Black	Biological Sciences	Senior
		Roya Habibi	Biological Sciences	Senior
		Jamele Little	Microbiology	Senior
		Kelly McCormick	Microbiology	Junior
		Richard Sopko	Biological Sciences	Junior
		Elizabeth Winquist	Biological Sciences	Junior
Caye Drapcho	Clemson University - Agricultural and Biological Engineering	Kara Kopf	Biosystems Engineering	Junior
Jillian Fain	Clemson University, Animal and Veterinary Science	Emily Waggoner	Animal and Veterinary Science	Senior
John Gibbons	Clemson University, Animal and Veterinary Science	LeighAnne Busbee	Animal and Veterinary Science	Senior
Karen Hall	Clemson University - Forestry & Natural Resources/Biological Sciences	Caitlyn Ellerbe	Biological Sciences	Senior
Sarah Harcum	Clemson University, Bioengineering	Antonia Perez	Genetics	Senior
		Kristen Publicover	Microbiology	Senior
Randall Harris	Claflin University - Biology	Julien Nunes	Biochemistry	Senior
		Sian Ramlal	Biotechnology	Senior
Bradley Hersh	Clemson University - Biological Sciences	Andrew LePorte	Biological Sciences	Junior
		Ryan Mullane	Biological Sciences	Senior
Naseema Hoosein	Claflin University - Biology	Victoria Desormeaux	Biology	Sophomore
Xiuping Jiang	Clemson University - Food Science & Human Nutrition	Matthew Chung	Microbiology	Junior
		Vicky Gutierrez	Microbiology	Junior
Marian Kennedy	Clemson University, Material Science and Engineering	Will McAllister	Bioengineering	Senior
Harry D. Kurtz, Jr.	Clemson University - Genetics and Biochemistry	Thomas Niemeier	Microbiology	Senior
Amy Lawton-Rauh	Clemson University - Genetics & Biochemistry	Steven Vensko	Genetics	Senior
Haiying Liang	Clemson University - Genetics and Biochemistry	Amber Cooley	Biochemistry	Senior

2008-2009 SC LIFE UNDERGRADUATE RESEARCH PROGRAM PARTICIPANTS

FACULTY MENTOR	SCHOOL/DEPARTMENT	STUDENT	MAJOR	CLASS
Hong Luo	Clemson University - Genetics and Biochemistry	Allison L Cason	Genetics	Senior
		James Perrin Collins	Genetics	Senior
		Carrol Rush Neighbor	Genetics	Senior
		Ayla M Norris	Genetics	Senior
		Justin H Surratt	Genetics	Senior
David Magnin	Morris College - Natural Sciences & Mathematics	Hans Waldenmaier	Genetics	Senior
		Shekelia Baccus	Biology	Junior
William Marcotte	Clemson University - Genetics and Biochemistry	Morgan Perry Davis, Jr.	Engineering	Junior
		Joseph L Hill	Biochemistry	Senior
Tamara McNealy	Clemson University - Biological Sciences	Ryan Pruitt	Biochemistry	Senior
		Ashley MacCheyne	Microbiology	Junior
Brandon Moore	Clemson University - Genetics and Biochemistry	Bradley Heminger	Biochemistry	Senior
James Morris	Clemson University - Genetics and Biochemistry	Paul Griffith	Genetics and Microbiology	Senior
		Eric Knapp	Biological Sciences	Senior
Meredith Morris	Clemson University - Genetics and Biochemistry	Daniel Ebner	Genetics and Biochemistry	Senior
Jiro Nagatomi	Clemson University, Bioengineering	Benjamin Fleishman	Bioengineering	Senior
Rush Oliver	Benedict College - Biology, Chemistry & Environmental Health Sciences	Rodney Bostic	Biology	Junior
		Jahmar Brown	Biology	Sophomore
		Angela Dennard	Biology	Sophomore
		Jocelyn Holden	Biology	Junior
		Michael Inyangetor	Biology	Senior
		Samantha McGill	Biology	Senior
		Whitney Rountree	Biology	Senior
Nick Panasik	Claflin University - Biology & Chemistry	Morgan Taylor	Biology	Senior
		Shweta Kailasan	Biotechnology	Senior
Kerry Smith	Clemson University - Genetics and Biochemistry	Kalu Iroha	Biology	Sophomore
		Sheena Henry	Biochemistry	Senior
		Kate Laws	Biochemistry	Senior
		Emily McCollum	Biochemistry	Senior
Sam Sparace	Clemson University, Biological Sciences/Genetics & Biochemistry	Christian Reinholz	Biochemistry	Senior
		K. Rebecca Clark	Biochemistry	Senior
Nishanth Tharayil	Clemson University, Entomology, Soils and Plant Sciences	Daniella J Triebwasser	Environmental & Natural Resources	Sophomore
Matt Turnbull	Clemson University - Entomology, Soils, and Plant Sciences	Jesse Long	Biological Sciences	Senior
		Amy Phillips	Genetics	Senior
Jeremy Tzeng	Clemson University - Biological Sciences	Lauren Hayes	Microbiology	Junior
		Rhett McKnight	Microbiology	Junior
Xi Wang	Clemson University - Genetics & Biochemistry	Cheryl Howell	Genetics & Biochemistry	Senior
		Spencer Waldrop	Genetics & Biochemistry	Senior

SC LIFE: Education & Outreach

Clemson University's SC LIFE Project, supported since 1998 by \$5.4 million from the Howard Hughes Medical Institute (HHMI) Undergraduate Science Education Program and additional leveraged funding, provides life sciences education and outreach programs to middle and high school students and teachers throughout South Carolina and supports undergraduate research at four institutions. Our programs support middle school and high school curricula through virtual field trips (www.knowitall.org), loans of equipment footlockers to certified teachers, workshops and graduate-level science courses for in-service teachers, and community-based research.

SC LIFE also supports students' participation in enrichment and research activities such as the Summer Program for Research Interns, Biology Merit Exam, laboratory field trips to the South Carolina DNA Learning Center and our Undergraduate Research Program.

The SC LIFE International Undergraduate Research Program sends 1-2 students to work in the laboratories of HHMI International Scholars or other foreign researchers. In the summers of 2007 and 2008, Clemson students completed research projects in Croatia and Tasmania. In 2009, the program will send two students abroad – one to Portugal, the other to South Africa.

In Summer 2009, SC LIFE will also have its first HHMI EXRO undergraduate researcher.

Project Directors

Dr. Barbara J. Speziale, Associate Dean, Academic Outreach and Summer Academic Programs and Professor, Biological Sciences

Faculty & Staff

Ms. Ginger Foulk, Project Manager

Ms. Cora M. Allard, Lecturer, Biological Sciences and SPRI Coordinator

Dr. Robert E. Ballard, Professor, Biological Sciences and Director of the SC DNA Learning Center

Dr. Joseph D. Culin, Professor, Entomology, Soils and Plant Sciences

Mr. John Cummings, Lecturer, Biological Sciences

Dr. Alix G. Darden, Professor of Biology, The Citadel

Dr. Julia Frugoli, Associate Professor, Genetics and Biochemistry

Dr. Vincent S. Gallicchio, Associate VP for Research and Professor, Biological Sciences

Dr. Karen C. Hall, Extension Assistant Professor, Forestry & Natural Resources-Master Naturalist Program

Dr. John Hains, Associate Professor, Biological Sciences

Dr. K. Dale Layfield, Associate Professor, Biological Sciences

Dr. Edward B. Pivorun, Professor, Biological Sciences (emeritus)

Dr. Margaret Ptacek, Associate Professor, Biological Sciences

Dr. Timothy P. Spira, Professor, Biological Sciences

Ms. Stephanie D. Stocks, Lecturer, Biological Sciences

Dr. John R. Wagner, Professor, Geological Sciences

Dr. Jerry A. Waldvogel, Associate Professor, Biological Sciences

Dr. Greg K. Yarrow, Associate Professor, Forestry and Natural Resources

Student Assistants: Tullen Burns, Cathi Collar and George Howell, IV

SC LIFE - Clemson University

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