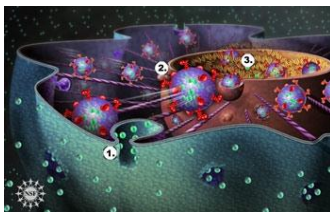




The SDS Biotechnology PAGE

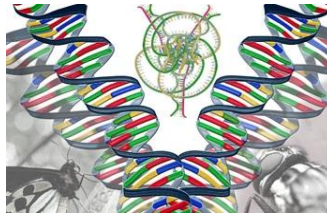
FALL 2011

Welcome to the Fall 2011 newsletter for the Tulsa Community College Biotechnology Program and past participants in the Stimulating Enthusiasm, Exploration and Discovery in Biotechnology Education (SEEDBED) NSF-ATE Grant, and Medicines, Explorations, and Discoveries in Biotechnology Education (MEDBED), the NIH supplemental grant! This newsletter is an excellent way to communicate with all who support and participate in our programs.



Milestones this Summer and Fall Include:

- Sheri Toal, Annette Achterhof, and Ian Schalo had successful INBRE Summer Student Internships during the summer of 2011. Brandon Denton and Sarrah Malas completed the first TABERC Summer Student Internship.
- Students from the Molecular Biology and Techniques classes Spring 2011 and Fall 2011 were able to present two posters on phylogenetic studies of the COI gene. These investigations involved PCR, DNA extraction, sequencing and multiple sequence alignments. The students traveled to Cameron University in Lawton, Oklahoma for the Oklahoma Research Day. The students were also able to hear a talk regarding NSF fellowships for graduate school during the day on Friday, November 4, 2011.
- The NSF Scholarship in Science, Technology, Engineering, and Mathematics (S-STEM) Preparing for Innovation Producing Educated STEMS Scholars (**PIPESTEMS**) grant accepted the second set of applications during the spring of 2011. Annette Achterhof and Amie Francis, successful biotech students, were awarded the scholarships. Nice work biotechies!
- This fall we completed the outreach workshops through the \$.5M NIH INBRE grant as part of the National Center for Research Resources through the American Recovery and Reinvestment Act. The grant Medicines, Explorations, and Discoveries in Biotechnology Education (MEDBED) enhanced work begun with the SEEDBED project. The grant included 134 workshop presentation hours with 70 teachers receiving training and the potential of 8,261 science students receiving instruction each year.
- Associate Dean of Science and Mathematics of the Southeast Campus, Lyn Kent, and Diana Spencer attended the Dean's Council on October 25-26 at the Presbyterian Health Foundation.
- We have four graduates in biotechnology this fall! We are immensely proud!
- This summer Diana Spencer participated as an advisor with the BIO-Rad Explorer Advisory Board in San Francisco, and she was able to present a poster at the Broadening Impact: NSF-Funded Projects at Two-Year Colleges Conference on June 16-17, 2011 in Washington, D.C.



Sticky Ends (Biotechnology Student Progress):

On Friday, July 22, 2011, three biotechnology students who were awarded the IDeA Network of Biomedical Research Excellence (INBRE) Summer Student Internships presented their work at the OU Health Sciences Center Bird Library Foyer with lunch provided at the OUHSC Student Union. The projects included:

Exploring Probiotic Characteristics of Lactobacillus Strains from the Prairie Vole

Student Annette Achterhof with mentor Gerwald Kohler OSU/CHS

Effect of Chitosan Hydrogels on the Plasticity of Fibroblasts into Chondrocytes

Student Ian Schalo with mentor Sundararajan Madihally OSU Stillwater

Testosterone Taken with a Grain of Salt: Effects of a High Salt Diet on Urinary Sodium Excretion by Male Mice

Student Sheri Toal with mentor Kathleen Curtis OSU/CHS

After initial work with Dr. Dave Wallace at OSU/CHS, TCC Biotechnology was able to place two students in internships at OSU/CHS during the Spring 2011 Semester. Sheri Toal worked with Dr. Champlain and Kim Orr worked in the lab of Dr. Dave Wallace. Sheri's poster was entitled: ***Effect of Nutritional Modification on Extracellular Polysaccharide Expression by Burkholderia multivorans***. Kim Orr created a poster entitled ***Effects of Heavy Metals on Murine N2A Cells***.

On November 9, 2011, two Molecular Biology and Techniques students were able to travel to the Henry Bellmon Research Center which houses the OSU Protein/DNA and Microarray Core Labs! Dr. Steve Hartson and Dr. Peter Hoyt were able to host the students with career advice and explanations of the new instruments.

On Thursday, August 11, 2011 the first students in the Tulsa Area Bioscience Education and Researchers Consortium internship program presented at the OU-Tulsa Learning Center. Brandon Denton presented ***Characterization of Drill Cytomegalovirus (OCOM6-2) pBluescript sk II(+)*** *NotI* Clones with mentor Earl Blewett at OSU/CHS. Sarrah Malas presented ***Morgellons: Real or Delusional?*** with mentor Randy Wymore at OSU/CHS.

The students continue to produce novel research in the Molecular Biology and Techniques Course. The following posters were presented.

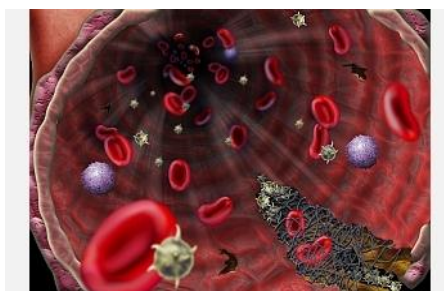
Brandon D. Denton, Sarrah A. Malas, Diana Spencer Ph.D. ***Identification of the Evolutionary History of Arthropods Through DNA Barcoding and Endosymbiont Identification***. Poster presented at Oklahoma Research Day, 2011 Nov 4; Cameron/ Lawton, Oklahoma.

Annette Achterhof, Victoria Beauregard, Michael Dixon, Kim Orr, Ian Schalo, Sheri Toal, Diana Spencer. ***The Application of Cytochrome c Oxidase Subunit I as a Foundation for Molecular Phylogenetics in Aquatic Metazoans***. Poster presented at Oklahoma Research Day, 2011 Nov 4; Cameron/ Lawton, Oklahoma.

In Molecular Biology and Techniques. Dr. Heith Crosby, OU PhD candidate and previous TCC Biotechnology student, along with Dr. Ken Miller, Ph.D. Professor and Chair of Anatomy & Cell Biology at OSU/CHS, shared background and scope of research they are conducting on chronic pain and glutaminase

production. Heith then led the students through a Real Time Reverse Transcriptase Polymerase Chain Reaction protocol. The data looked promising and all enjoyed the prospect of continued research collaborations.

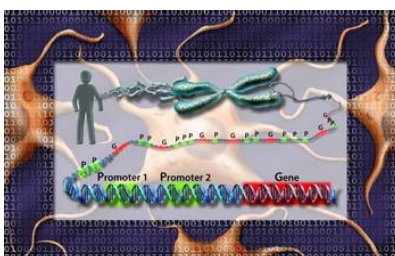
This fall we will have four biotechnology graduates. Annette Achterhof, Sheri Toal, Sarrah Malas, and Brandon Denton all expect to graduate in December with Associate in Science degrees in Biotechnology and Biotechnology Certificates! We congratulate these fine students and wish them the best of biotechnology futures!



Making Solutions (Secondary Outreach):

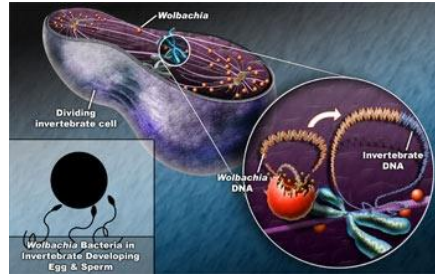
During the MEDBED NIH ARRA outreach grant, Diana Spencer presented *Enzyme-Linked Immunosorbent Assays and Column Chromatography* five times; *Precut Lambda and Gel Electrophoresis* five times; *Proteomics, Spectrophotometer: Wavelength Absorbance Technology (SWAT!), PV92 PCR, Oklahoma High School Students with DNA Extraction, Amplification, Sequencing and Exploration (OH! DNA EASE)*. The MEDBED team also hosted BioQUEST presenters to investigate *Global Health with C3 Cyberlearning at Community Colleges*. Workshops were presented to high school faculty, community college faculty and high school students. Donita Gray and Donna Kline were hired full time to see that all portions of the project were positively conducted. MEDBED workshops included 134 presentation hours with 70 teachers receiving training representing 49 high schools and 8,261 science students. \$308,245 in equipment and reagents were provided in Oklahoma secondary schools.

The OSTA Fall Conference, “The Branches of STEM are Rooted in Science” was held on Saturday, October 1st at the University of Central Oklahoma. Diana presented *Using Models to Investigate Reading Frames, Shotgun Library Assembly, Protein Folding and Recombinant Plasmids*. Donna Kline and Donita Gray presented *Kitchen Biotechnology*. Diana Spencer was awarded 2011 OSTA Outstanding College/ University Teacher!



Translations (Community Outreach- Presentations and Workshops):

The TCC Biotechnology department was awarded a \$33, 867 grant within the Oklahoma INBRE system. The goal of the grant, Sustaining Outreach of Learning Experiences in Biotechnology Education (SOLEBED), is to continue reaching out to Oklahoma students and teachers to educate them on how biotechnology can feed, fuel, and heal the world. Community College and high school students and teachers informed of the capability of biotechnology, coupled with the opportunity to manipulate the tools of science and hear presentations of active experts in the field can develop motivation for further learning in biotech.



The Sequence (Our Web Site):

<http://www.TCCBiotech.org>

The opening page of this web site allows you to click on the SEEDBED icon, the MEDBED icon, or the Biotechnology icon. The biotechnology link leads you into the TCC web site of the biotechnology curriculum. Both links are constantly updated. For the latest news and information on TCC Biotechnology, travel to our TCC Biotechnology facebook page.

The Howard Hughes medical Institute has built an outstanding reputation for supporting and advancing education with the Holiday lectures spotlight on molecular biology and human health. The videos can be viewed by online streaming and are designed with a search engine that is indexed to every word spoken. Travel to www.hhmi.org/biointeractive/hl to be WOWED by the opportunity!

ARTWORK COURTESY OF NSF