

BIOLOGY NEWSLETTER

Texas Southern University

Department of Biology

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TSU Alumnus Giveback To The Department Of Biology



Dr. Cleverick D. "CD" Johnson MS., DDS (right on the above picture), an alumnus of TSU volunteered his services to the Department of Biology BIOL 300 class during the 2008 Fall Semester. Dr. Johnson earned his degree in Biology in 1979 and his Master's in Biology in 1981. Following his masters he completed a Minority Fellowship at the University of Houston College of Pharmacy in 1982; taught in the Department of Biology as a Lecturer from 1980-1982 at Texas Southern University and also earned a dental degree from the University of Texas Health Science Center, at Houston Dental Branch in 1986; and he has a private practice in Houston, Texas in



General Dentistry. Dr. Cleverick is also an Associate Professor at the Dental Branch in the Department of Restorative Dentistry and Biomaterials where he is the Director of the Urgent Care Clinic. He has published extensively on oral diagnosis and substance abuse; received numerous awards and honors including the nationally recognized "Jefferson Award" for public and humanitarian service in 2002.

The persons that contributed to the class were Dr Judith Kelloway, Dean of Admission, University of Texas Medical School; Dr. Ray Taylor; Dr. Zhou; Dr. Charles Strefus; Dr. Anthony Sutton; Christopher Stevenson; a few dental students, and medical students.

Biology Students Shine As Valedictorian And Salutatorian At TSU Winter Commencement

TSU Winter Commencement was held on Saturday, December 13, 2008. Congressman Al Green, US Representative Congressional District 9 delivered the commencement address. The Department of Biology is proud to announce one candidate for Master of Science in Biology, Donnielle J. Ford, and 47 candidates for B.S. in Biology. They are: Ayesha Ahmad, Nina M. Alaniz, Emeliene Besemebot Ashu³, Fakiya Verne, Blade, Angela D. Cotton, Nicole A. Crane, Tracy Dang, Aaron D. Everett, Yasmin Abdi Farah, Shcommie Andreka Fletcher-Estell, Mercy A. Fultang, Shawndria Lachelle Grant, Erica Monique Guillory, Sedigheh F. Heydari³, Troy P. Hobbs, Kamil Afolami Ishola, Andrew Iychekepolo, Daveta M. Jones, Priya E. Joseph³, Nibin G. Kallukuzhy, Eric R. Kamgnia, Jennifer Y. Kirschstein¹ (Valedictorian), Katie A. Lee, Cuc K. Ly, James W. Maryland, LaBreia Sharmene Mosley², Johnny-Huy Khang Nguyen, Trinh T. Nguyen³, Olufunke A. Obisanya, Tiffany D. Owens, Kryslie Marie Pool, Leonard Roundtree, III, Elys Monette Salinas, Kimberly Nicole Smith, Katosha M. Staves, Leslie Allen Taylor, Tserha M. Tekeste³, Samrawit Tesfaselassie, Keigan E. Toney, Becky Thuy Hang Tran, Onyeoma J. Uyanwune¹ (Salutatorian), Sade S. Vallier, Richard A. Vo. ² Kristal T. Watson, Sycina Gail Williams, Tiffany Cherrell Williamss, and Patricia Ann Wood. (Pictures on page 3)



Jennifer Kirschstein (Valedictorian)



Onyeoma Uyanwune (Salutatorian)

¹ Suma Cum Laude – Gold Fillet, ² Magna Cum Laude- Maroon Fillet, ³ Cum Laude – Silver Gray Fillet

Undergraduate Microbiology Lab And Environmental Microbiology: Taken To New Heights - Jason A. Rosenzweig, Ph.D.



Jason A. Rosenzweig, Ph.D.

As part of the NASA CBER Space Microbiology thrust's overall objectives, a comparative genomics study between earthbound microbial isolates and their representative paired organisms isolated from the international space station (ISS) was initiated by our undergraduate microbiology students at TSU. This project will span several semesters and involve multiple microbiology lab sections exposing a large number of our undergraduate biology and pre-professional majors to cutting edge environmental microbiology techniques and experimental design.

The project can be characterized by its three major aims: 1.) isolate environmental fungal and bacterial specimens, 2.) using PCR and universal bacterial and fungal specific primers amplify either the 16 S or 18 S rDNA sequences from suspected bacterial and fungal organism respectively followed by sequencing of those PCR amplicons (sequence will then be BLASTED at the NCBI website for alignments and identification), and 3.) similar amplification and sequencing will be carried out on paired organisms isolated from the ISS to evaluate any genetic changes experienced in space (NB if a suitable paired organism was not isolated from our students home environments, then we will purchase strains from ATCC or similar entity).

The project's first aim was to isolate environmental specimens (bacterial and fungal) from their homes after exposing nutrient agar plates to bathroom, kitchen, or AC

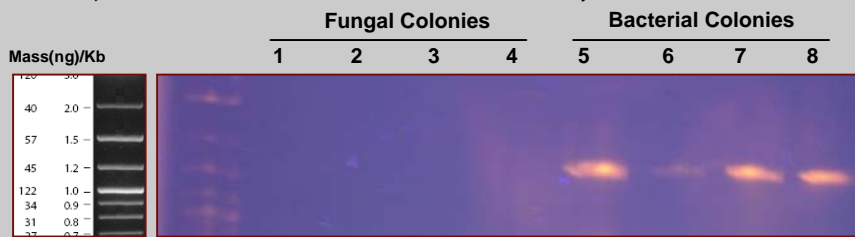
return environments. The students were both surprised and alarmed to witness the diverse growth they discovered on their nutrient agar plates after a one week period. This aspect of the project empowered our students with a sense of excitement and fascination as they were truly taking their TSU microbiology education beyond the classroom.

For the second aim, universal fungal primers were obtained from my colleague at Duke University, Dr. Vilgalys. These primers amplify regions of the fungal 18 S rDNA encoding the large subunit (LSU), the small subunit (SSU), internal transcribed spacer regions (ITS) as well as intergenic spacer regions (IGS). The regions amplified include conserved nucleotides as well as some divergent variable regions that serve as the basis for comparison and identification of various fungi. Bacterial universal primers were obtained from another colleague, Dr. Ferris, at the Children's Hospital of New Orleans. His primer set amplify about 1360 nucleotides of the ~1500 nucleotide rDNA sequence.

For the purpose of amplification, our students set up dirty PCR reactions in which a 2X Taq Master mix (New England Biolabs) was diluted as necessary and mixed with the appropriate primer set and spiked with a pipette tip that had been touched to either a bacterial or mold colony (which after lysis its DNA would serve as template material). As it turned

out, all four of the unique suspected bacterial colonies (based upon colony morphology) yielded the expected size PCR product (see Figure 1 last four lanes); however, no PCR products were generated using the universal fungal primers (Figure 1 first 4 lanes). I suspect there was a problem with extraction of mold DNA, and I have uncovered some new protocols to help in this regard (namely, boil the mold in Tris-EDTA SDS buffer for 1 hour). Next semester, I will continue the story as students will learn about practical sequencing as well as how to evaluate sequence data once it has been obtained.

Aim 3 will also be addressed the following year when students will begin working on ISS paired isolates obtained from our colleagues at NASA. Taken together, this story is unique in that undergraduate microbiology students at TSU are learning about environmental and space microbiology in the context of a required lab course that has traditionally been dominated by clinical microbiology and related experiments. Our NASA partnership is having an immediate impact on the type of education that our students are receiving which in turn will make our students better trained and prepared for whatever their futures may bring be it grad school, professional studies, or even the job market.



0.7% Ethidium stained Agarose gel resolving rDNA PCR amplicons from mold or bacterial colonies. Lanes 1-4 are individual and unique mold colonies picked for dirty PCR. Lanes 5-8 are unique individual bacterial colonies picked for dirty PCR. The product is very close to the expected 1.35 kb for the four bacterial products (see ladder as reference to the left).

PHOTO GALLERY

Winter Commencement



NINA ALANIZ



SADE S VALLIER



LABREIA MOSLEY



SHAWNDRIA GRANT



KATOSHA STAVES



KRISTAL WATSON



KIMBERLY SMITH



AARON EVERETT



KRYSTLE POOL



ASHU EMELIENE



JENNIFER KIRSCHSTEIN



ONYEOMA UYANWUNE



Mr. Prestin Johnson (4th from left)

My Summer Internship

By Prestin Johnson

I attended the University of Texas' Graduate School of Biomedical Sciences summer internship for ten weeks of the summer of 2008. The participants were introduced to the program when they attended a series of seminars given by various speakers from the UTGSBS. The participants were interviewed by Drs. Shishir Shishodia, Timothy McDonnell and Thomas Goka, and I was admitted and accepted into the program. As a summer intern, I reported to my respective assigned lab and given lab assignments according to my respective interests that I expressed during the interviews.

I was assigned to Dr. McDonnell in the department of hematopathology. I worked with a team of incredible post docs and graduate students, and I was given insight and instruction with regards to conducting prostate cancer related research. In addition to my daily hours spent in the lab, I was also afforded the opportunity to attend weekly seminars covering various aspects of cancer research beyond the parameters of what was studied in my lab. Dr. McDonnell and Dr. Goka also arranged a daily lunch for the summer interns to help immerse us into the many cultures present within the confines of the UTGSBS.

I am immensely appreciative of the many accommodations that were made for us which included but weren't limited to, weekly meetings with guest speakers, weekly meetings with the program coordinators, special surgeries and procedures that we were permitted to observe on, and even trips to restaurants and places beyond the graduate school. I cannot say enough positive things to effectively convey how much I learned, and how much of an incredible experience the summer internship program was for me personally. I would gladly do it again this summer if I could be accepted more than once.

(Mr. Prestin Johnson is an undergraduate student at the Department of Biology, TSU)

What is the chemical formula for water?

Little Johnny's teacher asks, "What is the chemical formula for water?"

Little Johnny replies, "HIJKLMNO"!!

The teacher, puzzled, asks, "What on Earth are you talking about?"

Little Johnny replies, "Yesterday you said it was H to O!"

Editorial

Dr. Olufisayo Jejelowo
Dr. Shishir Shishodia
Ms. Shirley Harris