January 2010

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"The program funded by the NIGMS was created in August of 2001 to provide..."

Letter from the Director

We are pleased to offer the WFUSM Post-baccalaureate Research Education (PREP) Scholars Newsletter to inform you about the program and the current group of scholars, and to provide helpful links and updates on the program. The program funded by the NIGMS was created in August of 2001 to provide 1-2 years of research, coursework and GRE preparation to students underrepresented in seeking the PhD for careers in research in the biomedical sciences. The program received renewal funding in March 2009 for 9 positions. The program is primarily to provide intensive research experiences, but is also designed to enhance acceptance into graduate programs by providing a chance to remedy academic deficiencies and to provide assistance with the GRE. Students must be less than 3 years post-bachelors degree and interested in obtaining a Ph.D. in the biomedical sciences. The positions are funded at a salary of \$21,000 from the grant and the grant also provides for tuition for ~2 undergraduate or graduate level courses per year. Trainees accepted into the program select research mentors from a wide range of topic areas for their research intensive experience. There are journal clubs and other enrichment activities provided throughout the year.

We welcome our 2009-2010 Scholars and provide a bit of background and highlights of their research activities since joining the program in July of 2009 in this first edition of the newsletter. A summary of the outcomes from the previous years of the program is provided below. Questions about the program should be directed to Dr. Debra Diz (ddiz@wfubmc.edu) or Ms. Nobi Sarver (nsarver@wfubmc.edu). Please send suggestions for the Newsletter to Ms. Rachel Reynolds (rreynold@wfubmc.edu).

Summary of PREP outcomes from 2001-present:

Thirty-six trainees participated in the program between 2001 and the present, and nine additional trainees started the program in July 2009. Thirty-one of the 36 participants entered graduate programs (21 PhD, 10 masters). Another 8 entered professional schools either directly or after obtaining their PhD. Fifteen students were offered positions and eleven entered programs at WFUSM (8 PhD, 1 MD and 2 Master's), ten entered PhD programs elsewhere. To

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Letter from the Director con't

summarize the success, 21 trainees entered PhD graduate programs with an 87% retention rate, 8 entered professional schools, 2 are technicians and 4 are teaching math or science. The majority of these participants were African American (78%). Eleven students have already completed the PhD (7 from WFUSM), 8 have completed the Master's, and 2 have obtained their teaching certificates.

Felicia Amaechi

Felicia Amaechi was born in Huntsville, Alabama. Before the age of two, her and her family migrated to Jersey City, NJ where her father found a job opportunity in New York. As Felicia grew up she believed that everything happens for a reason. A change in ones life occurs to teach a lesson and make a person stronger for the future. This philosophy was questioned when Felicia was not granted acceptance to graduate schools to which she applied, specifically Wake Forest University. However, her future of grad school would change for the better when Dr. Sparks, assistant professor of Biomedical Engineering Department, and mentor to Felicia, saw how enthusiastic she was about research and obtaining a graduate degree. Felicia was connected with Dr. Diz, program director of the WFUSM PREP, and everything fell into place to help her improve her academic credentials. Now in the PREP Felicia is enjoying her research under the advisement of Dr. Sparks and she knows she will achieve her goals. Felicia's research involves studying the fluid properties of muscle and how that influences mechanical changes that occur in muscle when subjected to load. Felicia is already a co-author of a journal article in her lab group. She hopes to achieve a first authorship abstract and paper during the program and that after her graduate studies she'll find a job opportunity that will utilize and translate her degree in other fields of study.



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Kristina Cherry

Kristina Cherry was born and raised in Winston-Salem, NC. Very rarely do we meet someone with these credentials. She attended Winston-Salem State University and graduated in 2006. She worked at Forsyth Technical Community College while in school and after she graduated. She was offered a Lab Technician position at Winston Salem State University and maintained that position for 2 years. Kristina has 2 sisters and 3 brothers. She chose PREP because she thought it would be good for her since she's been out of school for a while. Her project involves generating new cell lines that permanently expresse channelrhodopsin-2. She wants to stay here and go into Neuroscience or Physiology & Pharmacology. Kristina bought a house in Rural Hall last September. She has a lot of goals. She wants to grow in knowledge and wisdom so that she can teach her two children, ages 11 and 3.



Jeremy O'Neal

Jeremy O'Neal was born and raised in Asheville, NC. He went to NC A&T University in Greensboro. He has a half sister on his father's side. Jeremy's father was in the science field, influencing him a lot. Jeremy chose PREP to improve his research credentials, so that he would have the necessary tools to help him to develop as a scientist and as a person. He plans to obtain his PhD. His goals are to achieve a research position at a university or CDC, establish his own laboratory research business, and start a science magazine. His first lab experience work was with Dr. Barb Yoza and Dr. Charles McCall. He was studying sepsis and how it influences the mitochondrial DNA methylation. His current lab experience is with Drs. Caroline Bass and Allyn Howlett where he is researching the effects of cannabinoids on feeding behaviors.

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Troy Pellom

Troy Pellom was born and raised in Atlanta, GA. His mom and dad come from large families in North Carolina, and met in Atlanta where his dad played for the Atlanta Hawks. He went to Wake Forest University and did undergraduate work here at the school of medicine. Karl Pendergrass, a former PREP Scholar, who obtained his PhD in Physiology and Pharmacology at WFUSM, notified Troy about the PREP program. Troy is currently conducting research with Dr. Jason Grayson in the Microbiology and Immunology Department. Dr. Grayson's lab focuses on determining the mechanisms that control antigen-specific CD8+ T cell responses. These cells are critical in providing protection from intracellular pathogens such as viruses and certain bacteria, and also play a key role in antitumor immunity. Manipulation of these responses is critical to improve vaccines, enhance tumor therapies, and cure chronic infections such as HIV, HCV and tuberculosis. At present, Troy is investigating surface free thiols (the functional group of the amino acid cysteine) and determining their role in T cell activation, proliferation, and differentiation. He will be applying for a PhD in Microbiology and Immunology and would like to be an investigator for CDC or work for a pharmaceutical company.



Ricquita Pollard

Ricquita Pollard was born and raised in Hephzibah, GA, just outside of Augusta. She attended Tuskegee University in Tuskegee, Alabama and graduated in May 2009 with a Bachelor of Science degree in Biology. Her mom and dad helped to mold her into what she is today. She has always wanted to be in the scientific field. Choosing PREP gives Ricquita research experience to compliment her outstanding academic credentials in order to apply for admission into graduate school to obtain a PhD. She has plans to apply for a PhD in a Molecular Medicine Program. Currently, her research studies involve the creation of a tissue engineered heart valve by endothelialization using endothelial progenitor/ endothelial cells. In addition to a doctorate degree, Ricauita plans to pursue a medical degree in the near future. She participated in a MD preparation program in the past which consisted of clinical shadowing and scientific coursework. She is molding herself to become a scientist as well as a physician.



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Shanawa Richardson

Shanawa Richardson was born and raised in Goldsboro, NC and she has several step-siblings. Shanawa attended Davidson College and graduated in May 2008. She worked her way through college. Shanawa was in Dr. Reid's lab when she first started the program and discovered she did not like bench research but wanted to convey the excitement and importance of biomedical research. She is now exploring science writing, where she is converting an article to everyday language for Dr. Steve Mizel. She is also working with Mr. Justin Catanoso on the Reynolda campus, an expert in science technology and business reporting and writing. She hopes to take his editing class in the spring. Shanawa plans to obtain a graduate degree in science writing and report on science and hopes to combine that with teaching English and/or scientific writing.



Tiffany Turner

Tiffany Turner was born and raised in Burlington, NC. Tiffany attended Winston-Salem State University and graduated in 2007 with a major in Molecular Biology and minor in Chemistry and outstanding academic credentials. She then worked at Lab Corp prior to entering WFUSM PREP. As a PREP Scholar, Tiffany is gaining hands on research experience while also increasing her knowledge through graduate level courses. Tiffany believes that by participating in PREP, she can continue to stay abreast of scientific advancements and innovations around the world. Currently, Tiffany is doing research in the lab of Dr. Alexander-Miller. Tiffany examines the immune response of non-human primates, specifically African Green monkeys, to determine if there are inherent biases in proliferation or function of T cells in neonates vs. adults. Tiffany plans to earn her PhD and has a lot of things she wants to achieve; however, ultimately her goal is to prepare herself academically so that she can be of service to mankind.



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Bryan Wilson

Bryan Wilson was born and raised in New Orleans, Louisiana. His mother is an amazing woman, being a single parent raising the family. Bryan attended Louisiana State University, Baton Rouge, LA, working his way through college. He graduated in 2008 with a BS in Biology and Nutrition. Bryan was in the EICS program in summer 2007 at WFUSM and enjoyed the program very much. He attended the Experimental Biology meeting in April 2009 and saw many people from the WFUSM lab and later learned that the PREP program was funded. Bryan's research explores intracellular mechanisms of reactive oxygen species (ROS) formation and regulation by the renin angiotensin system (RAS). This work demonstrates the significance of an intracellular RAS in cell signaling and oxidative stress. Bryan wants to earn his PhD in Nutritional Sciences or Physiology and Biochemistry. His goal in PREP is to increase his credentials so that he can have choices of where he goes. He said, "everyone needs choices." Bryan has high hopes to achieve a level of science knowledge that will help him advance the field and also impact his community in a positive and effective way.



Helpful Links

National Science Foundation Graduate Research Fellowship http://www.nsfgrfp.org/

Ford Foundation Predoctoral Fellowship
http://sites.nationalacademies.org/PGA/FordFellowships/index.htm

GEM Consortium Predoctoral Fellowship http://www.gemfellowship.org/gem-fellowship/overview

GRE Practice Website www.number2.com

GRE Extensive Word List
http://www.wordhacker.com/en/article/Barron_gre_list_a.htm

ETS GRE Sample Questions

http://www.ets.org/portal/site/ets/menuitem.1488512ecfd5b8849a77b13bc3921509/?vgnextoid=ef852d3631df4010VgnVCM10000022f95190RCRD&vgnextchannel=06a7e3b5f64f4010VgnVCM10000022f95190RCRD#verbal

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Journal Club

| Dr. Jonathan Cohen | 12/07/09 |
|--------------------------------------|----------|
| Troy Pellom | 01/11/10 |
| Ricquita Pollard | 01/25/10 |
| Shanawa Richardson | 02/08/10 |
| Tiffany Turner | 02/22/10 |
| Bryan Wilson | 03/08/20 |
| Dr. Gilliam, Dr. Strawn | 03/22/10 |
| Felicia Amaechi, Kristina Terry | 04/12/10 |
| Jeremy O'Neal, Troy Pellom | 04/26/10 |
| Ricquita Pollard, Shanawa Richardson | 05/03/10 |
| Tiffany Turner | 05/17/10 |
| Bryan Wilson | 05/31/10 |

Upcoming Events

| Holiday | 01/01/10 |
|----------------|----------|
| Holiday | 01/18/10 |
| Holiday | 04/02/10 |
| Holiday | 05/31/10 |
| PREP Symposium | 06/07/10 |

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