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Nurturing the Next Generation of Researchers The Research Methodology Training Laboratory

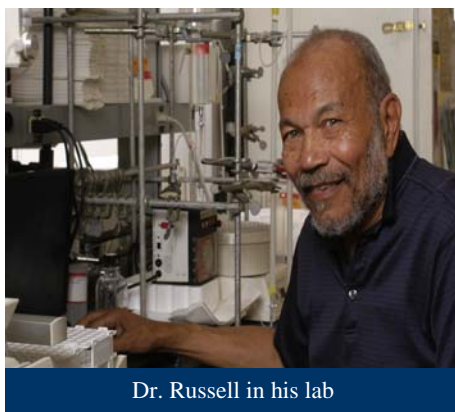
Dr. Percy Russell, Professor Emeritus in the biological sciences at the University of California, San Diego has a longstanding career in higher education and the development of minority careers in the health sciences.

A Harlem native, Dr. Russell graduated from City College of New York in 1950, having majored in Organic Chemistry. He then went on to obtain a Master's degree in Physico-Organic Chemistry from Brooklyn College, and a PhD in Biochemistry from Case-Western Reserve Graduate School, after which he was a Harvard Research Fellow in the Department of Bacteriology.

Dr. Russell joined the UC San Diego Biology faculty in 1969 and spent the next 22 years teaching undergraduate and medical students. He retired from the Biology Department in 1991, but was, and continues to be, an active part of the UC San Diego Community.

As a founding member of the Faculty Advisory Committee for the President's Postdoctoral Fellowship Program, Dr. Russell has made a vital contribution to enhancing the diversity of the academic community at UC San Diego. To this day, he remains active on the committee, continuing to be a strong voice for women

and underrepresented minorities, not just on the San Diego campus, but throughout the University of California system.



Dr. Russell in his lab

Dr. Russell served as the Associate Dean of Student Outreach until 1996, and was the Director of the Health Careers Opportunity Program (HCOP) at the UC San Diego School of Medicine for over 20 years. He was also the founder of the Hispanic Center of Excellence (HCOE), which began in 1992, and has grown into a group of programs that support the development of scientific knowledge and research skills in Hispanic and underrepresented minority students and junior faculty-programs. HCOE not only promotes student and faculty success at the university, but also seeks to increase the number of minority health professionals serving San Diego communities and the

number of minority faculty in health professions schools.

Dr. Russell's work with underrepresented and minority youth now spans close to 20 years. And today, you will still find him directing students at his training laboratory located in the UC San Diego School of Medicine, known to all as the Russell Lab. The numbers point to over 300 students that have been trained in his laboratory, with over 80% being underrepresented minorities, but the stories of Dr. Russell that are circulated tell a different story-he has been a mentor, counselor, teacher, and friend to countless students and faculty throughout the years.

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Your Pipeline

The UC San Diego School of Medicine (SOM) Pipeline consists of programs at different levels of the educational pathway to provide you with the tools you need to successfully address disparities affecting at-risk groups.

You may transfer from one program to the next as you advance academically, thereby going through your own "Pipeline" of academic enrichment programs. Below is an illustration of the pipeline.

In this issue we are highlighting the Research Methodology Training Lab (RMTL). For more information on a particular program, please refer to the contact and information listed below each program name.

Post-Baccalaureate

*(TCE & UCOP)

Cognitive Strategies

SOM Support Program

Contact: Dr. Rosalind Streichler

rstreichler@ucsd.edu

(858) 534-3958

Post-Baccalaureate

Medical School Preparation

Contact: Sandra Kirk

sjkirk@ucsd.edu

(858) 534-4171

Conditional Acceptance Program (CAP)

Medical School Preparation

Contact: Dr. Christine Moutier

cmoutier@ucsd.edu

(858) 534-3701

University Undergraduate

UCSD Health Sciences Institute

Community College

ULMSP

UniversityLink Medical Science Program

Contact: Mohammad Shahin

ulmsp@ucsd.edu

(619) 955-1042

RMTL

Research Methodology Training Laboratory

*Training in Basic and Advanced Biology Laboratory Skills

*Test Prep Courses (High School Students)

*Placement in other UC San Diego Labs

Serving:

High School Juniors and Seniors

Community College Students

UC San Diego & SDSU Undergraduates

Contact: Anita K. Williams

akwilliams@ucsd.edu

(858) 534-0127

Middle & High School

COPC

Science Enrichment Program

Locations:

National City Middle School

Sweetwater High School

Contact: Carmela Arstill

carmela@ucsd.edu

(760) 815-1432

* Programs in the pipeline are funded by the following organizations: The California Endowment (TCE), The National Center for Minority Health and Health Disparities (NCMHD), the University of California's Office of the President (UCOP), and the UC San Diego School of Medicine (UCSD-SOM).

The Russell Lab



Advancing in the Lab and in Life

The following edited article was written by UC San Diego student Janice Lobo Sapigao, who was an intern with the UC San Diego Comprehensive Research Center in Health Disparities (CRCHD). The CRCHD is a partnership of organizations focusing on community minority health and health disparities research.

The Research Methodology Training Lab (RMTL), also known as the Russell Lab, is geared towards rising high school juniors and seniors, who may or may not be receiving an extensive science education at their schools, but who are interested in pursuing careers in the sciences. The lab encourages students to enter a university environment and do research in the biomedical sciences. After proving to be a major stepping-stone for underrepresented students and those from underserved communities, the Russell Lab became an integral part of UC San Diego's efforts in high school and community college outreach in 1991.

Instructor Anita Williams has been working as the Laboratory Manager at the Russell Lab for over 20 years. She graduated from UC San Diego with a Bachelor of Science in Biochemistry in 1988. Williams knows Dr. Russell for his drive and passion for helping underrepresented students interested in the sciences achieve their goals.

Dr. Percy Russell, the founder of the Russell Lab, studies enzymes in Vitamin C inhibition and glycolysis, a process that breaks down sugar. Under the mentorship of Dr. Russell, Anita Williams and other lab

associates, high school students study similar concepts. A typical day includes a lecture by Williams, during which the students are given directions for the work they will be performing. Then, students volunteer to perform specific tasks, and after the tasks are divided among the students, the work begins. Students are involved in detailed lab procedures, including the purification of enzymes from muscle tissues using different kinds of lab equipment.

Yet, the Russell Lab is more than a



RMTL Class of 2010

place to cultivate individual scientific interests. Students interact with each other, discuss their diverse backgrounds, and make friends from different high schools throughout San Diego County. When group projects are completed, students usually present their findings and prepare written papers, which may be submitted for publication. "Students from Russell Lab (also) go on to enter their lab projects in school science fairs and are usually selected to compete in the greater San Diego community, as well as statewide," Williams said in an interview at the lab.

Opportunities like working at the Russell Lab require hard work and dedication, not just in the lab but in life. Russell Lab's high school students are encouraged not only to develop research interests early, but also to excel in school and increase their GPA. Students are encouraged to obtain more research experience, consider new careers, achieve goals, and serve their communities. This unique environment provides students with the opportunity to perform research, become competitive candidates when applying to undergraduate, graduate or medical school programs, and achieve their life goals.

- Only 28% of underrepresented minority (URM) students who enter postsecondary institutions nationally choose a major in the biomedical field.
- In contrast, 76% of RMTL students are retained in the biomedical sciences. Additionally, RMTL students have a 100% graduation rate from high school and university.

Voices from the Pipeline



Lisandro Maya Ramos

was born in Oaxaca, Mexico and at the age of 8 he and his family moved to Tijuana, Mexico. After graduating from high school his family moved to San Diego where he at-

tended San Diego City College. Faced with this difficult transition, a new education system, and a foreign environment Lisandro reevaluated his desire to attend medical school.

However, during his last semester at San Diego City College he heard about ULMSP in a biology class. He applied and was accepted in 2006 and successfully transitioned to UCSD. He majored in Human Biology and became involved in two pre-medical clubs, Chicano and Latino for Community Medicine (CCM) and Project Nicaragua. During this time he sought out and began working with Dr. Andres Sciolla in his research clinic at UCSD. His work allowed him the opportunity to present his research conducted with Dr. Sciolla at two conferences: the National McNair Conference and SACNAS 2007 National Conference.

As a result of his participation and excellence in the Exceptional Research Opportunities Program (EXROP) of the Howard Hughes Medical Institute (HHMI), Lisandro was recently awarded the HHMI's prestigious Gilliam Fellowship for Advanced Study. This fellowship will provide Lisandro full support for up to five years of study towards a PhD program. Lisandro graduated with a Bachelor of Science degree in Human Biology from UCSD and has been admitted to the MD/PhD program at UC San Francisco.

Another Successful Year for COPC Students

One of COPC's program objectives is to increase the number of students participating in the San Diego Science Fair. During the 2009-2010 school year, 120 students from National City Middle School (NCMS) participated in Advanced and Honors Science classes, and 98 students completed their science fair projects. Of these 98 NCMS student projects, 50 were accepted to compete at the District level



(representing 55% of the total accepted for the entire county). From this group, thirteen NCMS students were accepted to compete at the Greater San Diego Science and Engineering Fair (GSDSEF). Two NCMS students won the sweepstake award at the GSDSEF. Similarly at the high school level, Sweetwater High School students represented 50% of entries at his year's GSDSEF.

In this year's graduating class, **twenty-six of the forty-two (62%) scholarships awarded to graduating seniors were awarded to COPC students.** Both the valedictorian and Salutatorian were former COPC student participants. A big applause and congratulations to the COPC students and Carmela Arstill, the COPC Program Director, on all their hard work and accomplishments!

ULMSP Summer 2010

Under the direction of ULMSP alumnus Zana Ahmad, the UniversityLink Medical Science Program received in 2010 one of the largest pools of applicants in the program's history. Recruitment efforts during early 2010 at community college campuses resulted in applications representing every Community College in San Diego County. Thanks to the hard work of the UHSI Staff and volunteer ULMSP alumni, **14 students were selected as the ULMSP class of 2010.**



The summer residential program was under the leadership of ULMSP alumnus and former Associate Director, Milan Dang-Vu. After four full weeks of lectures, activities, workshops, and shadowing, ULMSP culminated in a celebration banquet on July 17, 2010. During 2001-2009 ULMSP has worked with 86 students, of which **96% transferred to a 4 year university and 90% successfully completed their undergraduate degree (81% in the biomedical sciences).** The 2010 ULMSP group brings our total to 100 alumni and we look forward to reporting on their future success.

Get Ready...

Preparing for a Career in Research

There are many career options available in research. Whether you are a high school, undergraduate, or graduate student there are many resources available to prepare, support, and advance your academic and professional career.

1. Start preparing for a research and science career in high school. Take advanced science and math classes, and enter science fairs, math fairs and other academic competitions to hone your research and development skills.
2. Complete your undergraduate degree in a science, math, or related subject. Your undergraduate degree is going to give you the base of knowledge that you can use later in your science and research career. Select an undergraduate degree that makes sense for the research and science field you are interested in.
3. Complete an internship. Internships are key in helping you enter a graduate program or find the job you want once you graduate. These internships can provide you with practical experience that schools and companies appreciate and value. To find an internship, work with your school academic or career adviser, or you can set one up yourself by applying for internships with local programs that interest you.
4. Make sure you obtain administrative skills as well as technical skills while in college. Administrative skills like



report writing, basic accounting, computer operation and public speaking are all important to people in research and health careers. You can use these skills to communicate your results and to keep track of your research activities.

Students at work in the Russell Lab



RMTL Staff: Anita Williams, Ami Abbott, and Dr. Russell

Helpful links and websites

adMISSION POSSIBLE offers free college admissions advice. <http://admissionpossible.com/>

The California State Summer School for Mathematics and Science (COSMOS) is a 4-week residential summer program for high school students. <http://www.jacobsschool.ucsd.edu/cosmos/>

Academic Enrichment Programs (AEP) offers UCSD undergraduates the opportunity to obtain valuable research-oriented academic preparation in virtually any academic major. <http://aep.ucsd.edu/>

The Initiative for Maximizing Student Diversity (IMSD) is a program directed at motivating UCSD undergraduate students toward a career in science. <http://ogsrweb2.ucsd.edu/imsd/Default.aspx>

Exceptional Research Opportunities Program (EXROP) provides talented undergraduates from disadvantaged backgrounds with summer research experiences. <http://www.hhmi.org/grants/office/undergrad/#undergrad>

San Diego Foundation has scholarship information for students. <http://www.sdfoundation.org/scholarships/>

The MANA de San Diego Scholarship Program supports higher education for Latinas. <http://www.manasd.org/scholarships>

UCSD, local, state and national resources on issues for diversity and underrepresented groups in the sciences. <http://diversity.ucsd.edu/resources.html>

HCOP/HCOE/CRCHD

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Keep in Touch

It is important that we maintain a network of dedicated people, like you, to share our ideas and help us all meet our goals. If you need to update your contact information, please contact:

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