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14. ABSTRACT The HBCU Summer Research Training Program accepted a total of 28 students from Lincoln University for the eight week session during the summers of 2007 through 2010. Fourteen of the students were supported by this grant and fourteen of the students were supported by other grants awarded in 2006 and 2009. Each student was assigned to a laboratory of a participating mentor and also paired with a member of the mentor's laboratory. This laboratory member assisted with day to day aspects of the research project. During the summer the students worked diligently on their research project, participated in meetings of the mentor's laboratory, attended workshops and seminars associated with our and other summer programs, and attended a special course in prostate cancer. We integrated the Lincoln students into social programs held throughout the campus for summer interns and they attended and participated in the CIC Conferences at Purdue University, Michigan State University, University of Michigan, and Ohio State University. At the end of the summer sessions the students presented a poster of the research results from the summer experience. They also presented their results of their research in the fall at Lincoln University and at the 2007 and 2011 IMPaCT conferences. Sixty eight percent of the students that graduated from Lincoln have participated in postgraduate programs.					
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Introduction:

The original grant, awarded in 2006, supports five students per summer and this second grant, awarded in 2007, supports three additional students to allow our program to train eight students each year. Although this award was for the second three students I am submitting the final report on the entire summer training program that includes both of the grant awards. For the period covered by the three year award plus the one year of no-cost extension we had the following faculty participants: David M. Lubaroff, PhD, Principal Investigator, Paul Heidger, PhD, University of Iowa Faculty Advisor, Derek Swinton, PhD, Lincoln University Faculty Advisor, and the following mentors: Jackie Bickenbach, PhD, Elizabeth Chrischilles, PhD; Michael Cohen, MD; Frederick Domann, PhD; Elizabeth Field, MD; Thomas Griffith, PhD; Michael Henry, PhD; Siegfried Janz, MD; David Lubaroff, PhD; Yi Luo, MD, PhD; Aliasger Salem, PhD; Michael Schultz, PhD; Douglas Spitz, PhD; George Weiner, MD; Michael Wright, MD; and Nicholas Zavazava, MD, PhD.

Body:

Recruitment and Admission:

Brochures, application forms, and posters were designed and printed and sent to Dr. Swinton at Lincoln. The PI traveled to Lincoln University in February of each of the years covered by this award. During these visits he met with Dr. Swinton, Dean of Mathematics and Natural Science, Dr. John Chikwem, and the Chairmen of the Department of Chemistry, Dr. Robert Langley, and the Department of Biology, Dr. David Royer. Presentations were made about the summer training program to groups of students at the beginning of their classes. In 2007 we received 11 applications; in 2008 we received 16 applications; in 2009 we received 14 applications; and in 2010 19 applications were received. All applications were reviewed by the Admissions Committee whose membership consisted of Dr. Lubaroff, Dr. Heidger, and Dr. Swinton, along with two other members. During the years of the award the following mentors participated in the admissions process: Dr. Domann, Dr. Henry, Dr. Griffith, and Dr. Zavazava. Admission was offered to 8 students for the summer of 2007, 8 students for 2008, 8 students for 2009, and 10 students for 2010. In 2007 and 2009 one of the students in the accepted students canceled at the last minute, thus only 7 students participated in the programs of those two years. In 2008 all 8 accepted students participated. During the summer of 2010 8 students were supported by two DOD PCRFP training grants and two extra students were supported by the no cost extension to this award.

Students Participating in the 2007 Program

Bisola Awoyemi
Semé Diallo
Caroline Dias
Titilope Idowu
Patrick Ndungu
Elizabeth Okyne
Katrina Proberherbs

Students Participating in the 2008 Program:

Bukola Fatunmbi
Katherine Foster
Theon Francis
Michelle Gray
Julia Greenfield

Gladys Murage
Brittany Stokes
Stacy-Ann Wright

Students Accepted for the 2009 Program

Kaylene Baugh
Christina Chisolm
Seme Diallo
Elizabeth Okyne
Stephen Sangster
Keyana Tyree
Neja White

Students Participating in the 2010 Program

Theresa Akede
Christina Awoyemi
Kaylene Baugh
Nakita Brown
Chalwe Diallo
Danielle Holsey
Jhanelle Brown
Danielle McKnight
Stephanie Rand
Stephen Sangster

Advance Preparation and Information Distribution:

Following acceptance of the students into the program we assigned each student a mentor based upon his/her choices listed in their applications. Each mentor then assigned a member of the lab as a “big brother/big sister,” a person that partners with the student during the 8 week summer session. The mentor also prepared a portfolio of articles covering the area of research the student would be working on, including published papers by the mentor. These materials were sent to the students in advance of their arrival at the University of Iowa.

A six week course on Prostate Cancer was organized with six faculty assigned to deliver lectures. The following represents the course schedules with lecturers for years 2007 through 2010:

**Iowa-Lincoln Summer Research Training Program – 2007
Prostate Cancer Course**

Lecture	Date	Subject	Lecturer
Week 1	12-Jun	Introduction to cancer	Spitz
Week 2	19-Jun	Basic aspects of prostate cancer	Cohen
Week 3	26-Jun	Clinical treatment of prostate cancer	Vaena
Week 4	3-Jul	Genetics of prostate cancer	Domann
Week 5	10-Jul	Immunotherapy of prostate cancer	Lubaroff
Week 6	17-Jul	Epidemiology of prostate cancer	Dennis

**Iowa-Lincoln Summer Research Training Program – 2008
Prostate Cancer Course**

Lecture	Date	Subject	Lecturer
Week 1	June 26	Introduction to cancer	Spitz
Week 2	July 1	Basic aspects of prostate cancer	Dahmouh
Week 3	July 8	Genetics of prostate cancer	Domann
Week 4	July 15	Epidemiology of prostate cancer	Dennis
Week 5	July 22	Clinical Treatment of prostate cancer	Vaena
Week 6	July 28	Immunotherapy of prostate cancer	Lubaroff

**Iowa-Lincoln Summer Research Training Program - 2009
Prostate Cancer Course**

Lecture	Date	Subject	Lecturer
Week 1	June 16	Epidemiology of prostate cancer	Dennis
Week 2	June 23	Introduction to cancer	Dahmouh
Week 3	June 30	Genetics of prostate cancer	Henry
Week 4	July 7	Clinical treatment of prostate cancer	Williams
Week 5	July 14	Basic aspects of prostate cancer	Spitz
Week 6	July 21	Immunotherapy of prostate cancer	Lubaroff

**Iowa-Lincoln Summer Research Training Program - 2010
Prostate Cancer Course**

Lecture	Date	Subject	Lecturer
Week 1	June 15	Epidemiology of prostate cancer	Dennis
Week 2	June 22	Introduction to cancer	Spitz
Week 3	June 29	Basic aspects of prostate cancer	Dahmouh
Week 4	July 6	Genetics of prostate cancer	Domann
Week 5	July 13	Clinical treatment of prostate cancer	Vaena
Week 6	July 20	Immunotherapy of prostate cancer	Lubaroff

Housing and meal plans were arranged in collaboration with the Iowa Biosciences Advantage Program (IBA). Lincoln students were paired with IBA students in the dormitory. Plans were also formulated to integrate workshops, lectures, and social events with other programs dedicated to the training of minority students, such as the Iowa Alliance for Graduate Education and Professoriate (AGEP), CIC Iowa Summer Research Opportunities Program (SROP), and Iowa Biosciences Advantage (IBA) Program.

Program web sites:

IBA: <http://www.uiowa.edu/iba>

AGEP: <http://www.agep.iastate.edu>

SROP: <http://www.grad.uiowa.edu/students/SROP>

The Summer Program:

A welcoming summer picnic was held on the day of the student's arrival in Iowa City in conjunction with the other summer programs at the University of Iowa. The following day the students met with the PI, administrator, mentors, and big brothers/sisters for an orientation and then taken to the laboratory of their mentors to begin the summer research training program.

During the 8 week session each student worked diligently with his/her mentor and lab partner on the assigned research project. Each student had an independent project. They attended seminars, workshops, lab meetings, journal clubs and the weekly lectures in the program's prostate cancer course (see schedule above). During the seventh week the PI met individually with each student to evaluate his/her summer experience. The unanimous opinion was that the program was a success. The students indicated that they learned much about research, about prostate cancer, and about the advantages of a research career. At the end of the summer session each student presented their research as part of a poster session held during an afternoon of the last week. In addition to the poster presentations each student gave an oral summary of their research project to the mentors, big brothers/sisters, and other summer students. In addition to the mentoring the students received from their research lab and the PI, they received career counseling. We discussed the options for each of them based upon their experience and their desire for the type of future they envisioned for themselves. Among the topics discussed was graduate school versus medical school, their ultimate goals of research, patient care, and/or teaching.

All of the students attended the CIC Conferences held at Purdue University in 2007, Michigan State University in 2008, University of Michigan in 2009, and Ohio State University in 2010. Each student presented a poster of his/her research and participated in roundtable discussions with students from other CIC-associated institutions. Dr. Heidger accompanied the students on the trip.

Follow-Up:

We made frequent contact with all of the students after their departure from the University of Iowa. The mentors, faculty advisors (Heidger and Swinton), and mentors, all had contact with the students since the end of the 2006 summer session. Many of the mentors were asked to write letters of reference for the students' applications to graduate schools. The following table reports on the current status of the summer students that participated in the programs from their inception, covering 2006 through 2010.

Name	Year	Lab	School	Program or Current Year at Lincoln
Oluwaseun Adekanye	2006	Griffith	Penn State	medical school
Shaynah Browne	2006	Lubaroff	U. Mass	graduate school
Nikeshia Haynes	2006	Henry	U. Rochester	graduate school
Shivaughn Johnson	2006	Field	Ross University Medical School	medical school; left and working
Briquel Sherman	2006	Zavazava	University of West Indies	medical school
Shaan Spence	2006	Domann	U. South Florida	graduate school
Bisola Awoyemi	2007	Henry	Univ. of the District of Columbia	obtained MS degree, currently working in lab at Harvard.
Seme Diallo	2007	Zavazava	Drexel University	graduate
Caroline Dias	2007	Chrischilles	none at this time	working & applying to grad schools
Titilope Idowu	2007	Domann	Morehouse College	graduate school (public health)
Patrick Ndungu	2007	Lubaroff	University of Iowa	graduate school
Elizabeth Okyne	2007	Spitz	U. Iowa	will enter MPH program at Iowa
Katrina Proberherbs	2007	Lutgendorf	Adelphi University	graduate school
Bukola Fatunmbi	2008	Salem	U. Mass	graduate school
Katherine Foster	2008	Spitz	Fox Chase Cancer Center	working
Theon Francis	2008	Field	none at this time	teaching science
Michelle Gray	2008	Lubaroff	Johns Hopkins	working in laboratory
Julia Greenfield	2008	Henry	U. Maryland	graduate school
Gladys Murage	2008	Domann	U. Mass	graduate school
Brittany Stokes	2008	Griffith	none at this time	plans are for Americorp then med school
Stacy-Ann Wright	2008	Bickenbach	Lincoln	senior
Kaylene Baugh	2009	Janz	U. Pennsylvania	research internship
Christina Chisolm	2009	Weiner	U. Mass	graduate school
Seme Diallo	2009	Bickenbach	see 2007	see 2007
Elizabeth Okyne	2009	Spitz	see 2007	see 2007
Stephen Sangster	2009	Domann	none at this time	working; will apply to graduate school for 2012
Keyana Tyree	2009	Salem	U. Mass	graduate school
Neja White	2009	Schultz	none at this time	working at local hospital and apply for medical school for 2012
Akede, Theresa	2010	Luo	Lincoln	senior
Awoyemi, Christiana	2010	Henry	Cameron	junior
Sangster, Stephen	2010	Janz	none at this time	working; will apply to graduate school for 2012
Rand, Stephanie	2010	Weiner	Thomas Jefferson	medical school
McKnight, Danielle	2010	Spitz	Lincoln	senior
Markes, Jhanelle	2010	Schultz	Lincoln	senior
Holsey, Danielle	2010	Salem/Lubaroff	Lincoln	senior
Diallo, Chalwe	2010	Wright	Lincoln	sophomore
Brown, Nakita	2010	Spitz	U. Pittsburgh	postbaccalaureate program
Baugh, Kaylene	2010	Lubaroff	see 2009	see 2009

As is evident from the table, of the 28 students that have graduated from Lincoln, 19 (68%) are participating in postgraduate programs, either postbaccalaureate programs, graduate or medical schools. Five additional students plan to apply for admission to postgraduate programs in the next year. This is an excellent statistic.

Key Research Accomplishments

Each of the students worked on research projects that were part of an overall program within the laboratory of their mentors. As such, it is difficult to identify key research accomplishments for each student research project. Continuation of the research program by each mentor will certainly produce important research findings, aided in part by the summer research of the Lincoln University students. What is key is the mentoring and counseling of the students to aid in their future as scientists in the area of prostate cancer research. The high percentage of the students that are graduate programs or medical schools is an outstanding accomplishment as these future scientists will most certainly provide key research accomplishments in the years to come.

Reportable Outcomes:

Although the students have not produced any publications from their 8 week research program, they have reported their findings to the University of Iowa faculty, to the faculty and students at Lincoln University, at national competitions and conferences, and the 2007 and 2011 IMPaCT conferences.

Conclusion

The four years of this award (original three plus one year of no cost extension) were highly successful as evidenced by the amount of work accomplished by each student and by their motivation to continue in a science career. The PI applied, and received funding, for additional HBCU training grants that will enable us to accept additional students through 2013, and has recently applied for another grant which, if funded will continue the program through 2015 thus increasing the number of African American scientists in the area of prostate cancer.