

# THE ASBMB PRESENTS A HISTORY OF BLACK SCIENTISTS

1864



**Rebecca Lee Crumpler** becomes the first black woman to graduate from medical school in the U.S. She practiced medicine, with a focus on women and children, despite facing intense racism and sexism. She also worked with the Freedmen's Bureau and provided medical care to freed slaves.

1876



**Edward Alexander Bouchet** earns a doctorate in physics from Yale University, becoming the first black person to receive a doctoral degree, in any subject, from an American university. Though ranked sixth in his class at Yale, he encountered race-based hiring discrimination.

1889



**George Washington Carver**, botanist and inventor, publishes the first of 44 practical bulletins to help poor farmers grow alternatives to cotton and prevent soil depletion. His most popular bulletin had dozens of recipes using peanuts to improve nutrition in the South.

1889



**Alfred Oscar Coffin** becomes the first black person to obtain a doctorate in biological sciences. A Mississippi native, Coffin taught at Alcorn Agricultural and Mechanical College in his home state and then became a professor of mathematics at Wiley University in Texas.

1893



**Daniel Hale Williams** performs the first successful open heart surgery. Two years prior, he founded the Provident Hospital in Chicago and a training school for nurses to increase black residents' accessibility to health care.

1914



**Saint Elmo Brady** becomes the first black person admitted to the chemical honor society Phi Lambda Upsilon. He went on to be the first black man to earn a doctorate in chemistry in 1916. He later founded the first graduate program at a black college or university.

1920



**Alice Ball** is hired as the first female chemistry professor at the University of Hawaii. Ball developed the most effective leprosy treatment at the time using chaulmoogra oil.

1925



**Lloyd Augustus Hall** develops a preservation process known as flash-drying, which is still used today to preserve food and medical supplies. Hall had 59 patents in the United States by the end of his career.

1932



**Hildrus Augustus Poindexter** becomes the first black person to earn both an M.D. and a Ph.D. (He earned them at Harvard University and Columbia University, respectively.) His expertise in tropical diseases led him to the Public Health Service.

1933



**Ruth Ella Moore** becomes the first black woman in the U.S. to earn a Ph.D. in a natural science by getting a degree in bacteriology. She went on to publish work on tuberculosis, dental caries and blood typing.

1935



**Percy Lavon Julian** completes the synthesis of physostigmine, a drug now used both as a treatment for glaucoma and as an antidote to several plant toxins.

1935



**William Warrick Cardozo** demonstrates that sickle cell anemia is inherited and that not all people with sickle-shaped red blood cells have symptoms.

1937



**Ernest Everett Just** publishes *The Biology of the Cell Surface*, an influential textbook on the role of the cell surface in embryology and development.

1941



**Charles Richard Drew** opens the first blood bank in the U.S. Drew's innovations included mobile blood donation stations, later known as "bloodmobiles."

1947



**Marie Maynard Daly** becomes the first black woman to earn a doctorate in chemistry. Daly developed fractionation methods for nuclear material and studied the chemistry of histones, protein synthesis, the relationships between cholesterol and hypertension, and creatine uptake.

1951



**Jane C. Wright**, a surgeon, demonstrates that the folic acid antagonist methotrexate kills tumor cells. This formed the basis for modern chemotherapy and reduced the use of radiation. Two decades later, she became the first female president of the New York Cancer Society.

1961



**Katherine Johnson, Dorothy Vaughan, and Mary Jackson** work as computers at NASA and make important calculations for Project Mercury, the first human spaceflight program of the United States.

1965



**David Harold Blackwell**, a mathematician who made important contributions to the fields of applied mathematics and statistics, becomes the first black person to be inducted into the National Academy of Sciences.

1972



**Roland B. Scott**, sometimes called the father of sickle cell research, founds the Howard University Center for Sickle Cell Disease.

“Courage is like — it's a habitus, a habit, a virtue: you get it by courageous acts, it's like you learn to swim by swimming. You learn courage by couraging.”

Marie Maynard Daly

1974



**Jewel Plummer Cobb**, a cell biologist, is elected to the Institute of Medicine in recognition of her research on melanoma and other cancers, including the finding that methotrexate could be used to treat certain skin cancers.

1977



**Emmett Chapelle** is the first person to identify the chemical composition of bioluminescence. This discovery enabled Chapelle to then develop a technique for identifying adenosine triphosphate.

1979



**LaSalle D. Leffall Jr.**, a surgeon and oncologist known for his dedication to educating the public and medical community about cancer risks for minorities, becomes the first black president of the American Cancer Society. He later became the first black president of the American College of Surgeons.

1981



**Alexa Irene Canady** becomes the first black female neurosurgeon with specialization in pediatric neurosurgery. Three years later, she became the first black woman to be a board-certified neurosurgeon.

1987



**Benjamin S. Carson** leads the first medical team that successfully separates twins conjoined at the back of the head.

1988



**Patricia Era Bath** receives a patent for the cataract laser probe, a device that painlessly removes cataracts, becoming the first black woman doctor to receive a patent for a medical purpose.

1991



**Kenneth Olden**, a cell biologist and biochemist, becomes director of the National Institute of Environmental Health Sciences and the National Toxicology Program. He was the first black person to head an institute of the National Institutes of Health.

1992



**Mae Jemison**, physician and chemical engineer by training, becomes the first black woman in space. She orbited the Earth 127 times aboard the Space Shuttle Endeavour. She later started a medical device company, BioSentient Corp., based on space technology.

1993



**M. Joycelyn Elders**, a pediatric endocrinologist, becomes the first black U.S. surgeon general. During her tenure as head of Arkansas' health department, teen pregnancy fell, HIV testing expanded, breast cancer screenings increased, and hospice care improved.

1994



**Keith L. Black** patents a therapy for treating brain tumors using a synthetic version of the peptide bradykinin, which allowed targeting of brain tumors without affecting healthy tissue.

1998



**Bertram Fraser-Reid**, a Jamaican synthetic organic chemist, was reported to have been nominated for the Nobel Prize in chemistry for his work on oligosaccharides and immune responses.

2003



**Shirley M. Malcom** receives the Public Welfare Medal, the highest award presented by the National Academy of Sciences, for her efforts to diversify the scientific workforce.

2004



**Stephen L. Mayo** is elected to the National Academy of Sciences in recognition of his work on protein engineering.

2010



**Emery N. Brown** provides the first systems neuroscience analysis of how anesthetics act at specific receptors, providing an essential missing link between research on the molecular pharmacology of anesthetic action and the behavior responses seen in patients.

2011



**William G. Coleman Jr.** becomes scientific director of the National Institute of Minority Health and Health Disparities, making him the first black scientific director in the history of the National Institutes of Health Intramural Research Program. Coleman studied *Helicobacter pylori*, a bacteria that infects millions of Americans.

2012



**Gary H. Gibbons** becomes director of the National Heart, Lung, and Blood Institute. Gibbons, a clinician-scientist who specializes in cardiology, has made significant contributions to the fields of vascular biology and genomic medicine.

2013



**Joseph Francisco** is elected to the National Academy of Sciences in recognition of his work on atmospheric chemistry. President Barack Obama, a few years prior, appointed him to serve on the President's Committee on the National Medal of Science.

2015



**Shirley A. Jackson** receives the National Medal of Science from President Barack Obama for her contributions in science and engineering. Jackson, a physicist, had been appointed by President Bill Clinton a decade before to lead the U.S. Nuclear Regulatory Commission.

2016



**Paula Johnson**, a cardiologist and an advocate for women's health, serves as the 14th president of Wellesley College and first black woman to serve in this role.

2019



**Clarice Phelps** is featured on the International Union of Pure and Applied Chemistry's Periodic Table of Younger Chemists for her involvement with the discovery of the element tennessine. She is the first black woman credited with helping to discover an element.

“A diverse workforce is critical to ensuring that the U.S. remains at the forefront of the disciplines of science, technology, engineering and math.”

Marion B. Sewer, former deputy chair of ASBMB Minority Affairs Committee

# EARLY SUPPORT GOES A LONG WAY

BY AUSTIN MADUKA

While growing up in Prince George's County in Maryland, I had many peers who aspired to careers in either sports or entertainment. For young black males in my community, these were our stereotypes: We were expected to become professional football players, basketball players or rappers. I played football in high school. For a short time, I too was convinced that I had a future as a professional football player. My peers and I weren't expected to have other aspirations; that expectation was difficult to overcome without role models or mentors to say otherwise.

I eventually found my aspiration to become a physician-scientist and can attribute much of my development to this point to my two incredible mentors — my mother and my older brother. My mother always shares stories of her trials of coming from Nigeria to the U.S. in the 1980s. She attended Gallaudet University to study mathematics as an undergraduate student and achieved success as a deaf woman despite the doubts of others. She now is a business professor who teaches accounting at the university. She raised my brother and me on her own and instilled strong values in us and inspired us through her commitment to education.

My conversations with my brother, who is a medical student at the University of Pennsylvania, often were centered on science and medicine and their implications for human health. Combined with my innate curiosity about how the human body works, my discussions with my brother ignited my passion for research and medicine, which steered me to pursue my own path in the field. The examples set by my mother and my brother paved the way for me to set high and clear goals and helped me understand that any adversity I faced provided opportunity for growth.

<http://www.asbmb.org/asbmbtoday/201705/Education/>

Having my mother and brother as a support system gave me the confidence to challenge the stereotypes. The stereotypes are perpetuated in many avenues throughout a young black man's development, whether it be through the media or the school system. During my school years, I encountered different types of teachers. Some were encouraging and inspiring, telling me that I was more than just a misbehaving kid. However, others were demeaning of my abilities.

When it came time to matriculate into high school, I applied to a competitive science program at the Eleanor Roosevelt High School. The process required a standardized test and a review of a school transcript. As I was a bit doubtful of my chances, I was elated when I received admission! My confidence was boosted; however, others were skeptical. A teacher told me, "I guess they don't choose students as selectively as they used to." Another teacher asked me, "Did you cheat on the exam to get into that program?"

Initially, these comments caused more doubt within myself, causing a feeling of imposter's syndrome. However, down the line, I viewed this opportunity and others like it as a way to success. Throughout the years, comments like these motivated me to dispel the stereotypes of young black males and prove that students from any background have the capability to succeed.



## RESOURCES

### IMAGE GRANT WRITING WORKSHOP

The ASBMB Interactive Mentoring Activities for Grantsmanship Enhancement, or IMAGE, grant-writing workshop is designed to help early-career scientists and senior postdoctoral fellows write winning proposals for federal research funding.

### RESEARCH SPOTLIGHT

The American Society for Biochemistry and Molecular Biology's Research Spotlight, published in ASBMB Today, highlights distinguished biomolecular and biomedical scientists from diverse backgrounds as a way to inspire up-and-coming scientists to pursue careers in the molecular life sciences.

### MARION B. SEWER DISTINGUISHED SCHOLARSHIP FOR UNDERGRADUATES

The Marion B. Sewer Distinguished Scholarship for Undergraduates offers financial support to students who demonstrate an interest in the fields of biochemistry and molecular biology and enhance the diversity of science.

### PARTNERSHIP FOR DIVERSITY

The Partnership for Diversity registry has been developed by the ASBMB Minority Affairs Committee, or MAC, to promote diversity within the society and the scientific community at large.

### RUTH KIRSCHSTEIN DIVERSITY IN SCIENCE AWARD

The Ruth Kirschstein Diversity in Science Award was established to honor an outstanding scientist who has shown a strong commitment to the encouragement of underrepresented minorities to enter the scientific enterprise and/or to the effective mentorship of those within it.

### GRADUATE STUDENT TRAVEL AWARD

The Graduate Student Travel Award, supported by the ASBMB Minority Affairs Committee, is awarded competitively to assist underrepresented graduate-student members presenting research at the ASBMB annual meeting, held in conjunction with Experimental Biology.



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## A HISTORY OF BLACK SCIENTISTS

The American Society for Biochemistry and Molecular Biology celebrates important contributions and achievements in science and technology made by black scientists.

