



OOCYTE MITOCHONDRIAL ATP GENERATION
LYNAE M. BRAYBOY

Dr. Lynae Brayboy is a reproductive endocrinologist and infertility physician, Chief Medical Officer at Clue by Biowink, and grant-funded oocyte biologist. She obtained her undergraduate Biology degree at Florida Agricultural & Mechanical University in Tallahassee, Florida, USA. She was then awarded a Fulbright Fellowship in the Republic of Mali to study placental malaria. She then matriculated into medical school at Temple University School of Medicine. After medical school, Lynae Brayboy trained as an obstetrician and gynecologist, followed by subspecialization in reproductive endocrinology and infertility. Her work focuses on the role of cellular pumps called multidrug resistance transporters in oocyte mitochondria and on poor oocyte quality as a marker of overall health. – Address: Charité – Universitätsmedizin Berlin, Klinik für Pädiatrie mit Schwerpunkt Neurologie / AG Schülke, Charitéplatz 1, 10117 Berlin, Germany. E-mail: lynae@helloclue.com; lynae.brayboy@charite.de.

My time at the Wissenschaftskolleg zu Berlin as a Fellow of the College for Life Sciences was literally transformative for my career as a reproductive physician-scientist. During my five-and-a-half-month tenure, I was able to foster important connections with leaders in my field. Unbeknownst to me, I connected directly with three scientists who were on a selection committee for a substantial grant (500,000 USD over two years) that I received through the Global Consortium for Reproductive Longevity and Equality administered by the Buck Institute. The grant is attached to the Junior Faculty Award that will also permit me to use the resources and core facilities at the Buck Institute. Furthermore, it ushers me into the highly specialized group of reproductive aging scientists. I applied for

this also with the encouragement of the other physician-scientist Co-Fellow who wanted to make sure that I had heard of the request for applications. This grant will permit me to continue the work that I started at Wiko. It will specifically involve understanding the physiology and ATP production of oocyte mitochondria *in vivo*. The other “big” event that occurred was that I was able to speak with another leader in my field who recommended me to be an invited speaker at the Multidrug Resistance Transporter Gordon Conference in Galveston, TX in 2021. This is a very elite group of individuals who sit on study sections for National Institutes of Health grants. Therefore, the invitation to speak is a platform for me to apply for future funding resources and to network with potential collaborators.

During my time in Berlin, I was able to collaborate with another physician-scientist at the Charité Universitätsmedizin. The collaboration allowed me to have a place to conduct my mitochondrial research during my time at the Wissenschaftskolleg zu Berlin. Specifically, I used a virus to label the ATP produced by mitochondria, so that ATP production could be quantified from a single cell, such as an oocyte. I have now returned to continue my career in reproductive basic science at the Charité. I am also continuing my work in reproductive endocrinology and infertility as the Chief Medical Officer at the Berlin-based FemTech company called Clue by Biowink. Clue is a science-based company with 14 million users that provides period tracking and education about reproduction.

During my time at Wiko, I was also able to give several scientific talks to disseminate my research data. I gave one informal talk to all of the College for Life Science Fellows and one talk at the IRI Life Sciences at Humboldt-Universität zu Berlin. Simone Reber, Ph.D., a former Fellow at Wiko, hosted me virtually at Spain IVI in Barcelona and of course my Thursday Colloquium at the Wissenschaftskolleg, which was very well received. The questions and encouragement after the talks were extremely helpful and sparked new directions in my thinking, and they were a source of education for many who had never had any formal education about reproduction.

In terms of my productivity at Wissenschaftskolleg, I was able to publish three papers in peer-reviewed journals. The time also allowed me to prepare another manuscript that is currently in revision and a review that has been submitted for peer review but was conceptualized during my time in the College for Life Sciences Fellowship. The time away from my former job freed my mind to outline, write, and submit three grant proposals and one fellowship application and to really contemplate my future career trajectory. I was also interviewed by the author of a book called “Vulnerable Brains: The Neuropolitics

of Divided Societies”, given my lifelong experience with institutional and direct racism in the United States. I have also decided to write a book about my life as an African-American woman pursuing a career that is traditionally occupied by white males. The book will focus on racism and sexism in obstetrics and gynecology and my decision to move abroad during the Trump presidency – a phenomenon known as “Blaxit”.

I am not sure what my life would be right now without Wiko. My Co-Fellows were encouraging and some, like Dr. Giovanni Galizia, read my grant proposals and gave me suggestions. Dr. Ulrike Pannasch made sure to help me network with the Berlin Institutes of Health, the Einstein Foundation, and the Humboldt Fellowship so that I could take advantage of every possible scientific opportunity. Dr. Alastair Buchan made sure that I was introduced to every medical connection in the city and beyond. Eva von Kugelgen made sure that I was appropriately moved up to A2 level German so that I could improve my reading and writing comprehension, which has been instrumental in my smooth transition back to Germany. Wiko helped me open my bank account so I could rent an apartment and establish all the things I needed to pay for in preparation for my return. All of my career dreams have come true because of Wiko. I am forever grateful for this once-in-a-lifetime experience, and I look forward to the Berliner Abend and future Fellows’ Club announcements.