

THE YEMAACHI BULLETIN

A Quarterly Newsletter from Yemaachi Biotech

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Yemaachi at One

BY YAW BEDIAKO, PHD

The idea that would eventually manifest itself as Yemaachi, began to form in my mind at the end of 2018. I had never really considered myself as an entrepreneur and was more inclined to pursue a purely academic path. But I was becoming increasingly frustrated with the fact that scientific capacity-building efforts in Africa were almost exclusively focused on training, with no real attention given to job creation. Without job creation African countries will not retain the talent they have trained; the brain drain will continue, but at an even higher cost.

In the US and Europe, commercial scientific activities (biotech) have created a self-sustaining ecosystem that not only serves as a pipeline for translating academic discoveries into tangible products, but also provides attractive and challenging career opportunities for the talent produced by academia. Without such development, Africa's research output (currently only 2% of global scientific output) will continue to be low.

The Wonder Women: All-Female Lab Team

By pure coincidence, the highest scoring candidates in Yemaachi Biotech's comprehensive recruitment assessments for research technicians were all female. After their second week on the job, they were dubbed "the Wonder Women", and the accurate moniker stuck with the group to date. Indeed, Yemaachi's newest recruits turned out to be a force of nature, diving willingly and steadfastly into the whirlwind world of a new start-up, embracing new roles and responsibilities, expanding their knowledge and skill set, all while bearing infectious enthusiastic dispositions.

"I am interested in understanding the mechanisms involved in host responses to pathogens and cancer cells. Yemaachi's use of immunogenomics and artificial intelligence to explore cancer therapeutics fits perfectly with my goal. Working here has challenged, stimulated and increased my productivity, and my experiences here have made me an improved version of myself," says Barikisu, who is often referred to by her middle name "Anna", when there is simply no time for more than two syllables.

Samira is also excited about Yemaachi's use of immunogenomics in host-pathogen responses. "Therapeutic strategies put in place to completely eliminate cancer and other dangerous genetic variations are within my career trajectory," the youngest team member adds.

Adelaide, who shares a birthday with Yemaachi said she was quick to "grasp the opportunity handed to me. It's been a remarkable journey so far. I love the team spirit and the overall positive work environment. I know Yemaachi would have a great impact on my evolution as a researcher, and I'm glad I made the count!

Evelyn, a Master's degree graduate who was intrigued enough by Yemaachi to delay pursuit of a PhD, has interests that parallel Yemaachi's vision: "I want to use my knowledge in molecular and cell biology to change the dynamics of cancer treatment in Ghana and Africa as a whole"

Erica, a seasoned diagnostic laboratory scientist was saddened by all the "terrible test results of cancer patients," often a result of late diagnoses and ineffective therapeutics. "I was excited to learn that there is a private cancer research laboratory by African scientists for Africans. Yemaachi has a worthwhile vision, and it is an honor to share my skills with this awesome team,"

These brilliant women have their work cut out for them, but there is no doubt that they will rise to the challenge.



L to R: Evelyn Quansah, Samira Saiid, Barikisu Ibrahim, Adelaide Sromani, Erica Buadii

Bridging the Gap: Childhood Cancer in Ghana

Cancer presents a growing threat to people in Africa and children are not left out. To most people, the term childhood cancer may come as a surprise. However, these cancers exist and are seen in children of African descent as well.

In Ghana, it is estimated that about a thousand children will be diagnosed with cancers every year. Sadly, only about a third of these children are seen in the cancer treatment facilities across the country. This means most cases of childhood cancer in Ghana are not diagnosed appropriately and are left to die.

The exact causes of childhood cancers remain unknown, but a few things have been implicated. Exposure to ionizing radiation, some infections such as Hepatitis B and HIV and some chemicals such as pesticides have been shown to increase the risk of childhood cancers. About 5% of childhood cancers can be inherited; an example is the cancer of the eye - retinoblastoma.

Because their cause is largely unknown, very little can be done to prevent these cancers from occurring. However, when detected early, childhood cancer patients have up to an 80% chance of survival and can go on to live normal lives.

Unfortunately, in Ghana and most African countries, these children tend to present late when the disease has already spread around their body, leading to poor outcomes and low survival rates. Survival rates in a majority of African countries remain as low as 30%. The molecular basis of cancers has not been studied well in Africa, as most clinical trials and novel therapies are tested in mostly people of Caucasians.

Yemaachi hopes to bridge this gap in childhood cancers by providing early, affordable and novel diagnostic tools for these children. Yemaachi also aims to understand clearly, the genetic variations that exist in children who suffer from cancer in Africa and liaise with pharmaceutical companies in the future to provide specific therapy for these children.



Yemaachi Biotech Featured in *The Scientist*

The July 2021 Issue of *The Scientist* magazine, Linda Nordling writes about African biomedical scientists that have turned to private investors to bankroll their dreams of autonomy in the lab, majorly featuring Yemaachi CEO Dr. Yaw Bediako. Read the full article at <https://www.the-scientist.com/bio-business/quest-for-research-freedom-fuels-african-biotech-boom-68878>

Yemaachi at One (cont'd from p. 1)

In June 2020, Yemaachi was officially launched to contribute towards building a more sustainable scientific ecosystem in Africa. We aim to provide cutting edge but contextually relevant solutions to some of the most serious health threats facing the continent, while promoting the development of a self-sustaining scientific and technological ecosystem.

As I look back over the past 12 months, though aware that the hardest work remains to be done, I am very proud of what we have achieved so far. Our core leadership team is comprised of 9 highly accomplished African professionals, with combined expertise in molecular biology, genetics, immunology, computational biology, oncology, clinical trials and project management, software development and finance. Additionally, we have employed 7 young Ghanaians in our laboratory and engineering teams, with more hires anticipated in the coming months. We have leveraged this dynamic team to contribute towards the COVID-19 response in Ghana, partnering with WACCBIP at the University of Ghana to support viral sequencing efforts in the country (<https://insights.yemaachi.com>), in addition to providing COVID-19 testing services at our newly established 1100 sq ft molecular biology lab.

Beyond Ghana, we have begun to establish partnerships with research institutions and cancer care facilities in 4 African countries and have signed a research collaborative agreement with a US-based diagnostic maker. Over the coming months, I expect us to continue to ramp up our activities both locally and across the continent. We look forward to beginning a number of pilot research projects that we hope will set the foundation for detailed work aimed at better understanding of how to better detect and treat cancer among African populations.

Overall, I am thankful for what we have achieved over the past year and hopeful for what I believe we will achieve going forward, but most importantly, I hope that Yemaachi will serve as an example to other innovators and hopefully inspire others to think about ways to expand the technological and scientific ecosystem on the continent. Africa's lack of scientific capacity has been underscored by the pandemic and it is imperative that we take matters into our own hands, providing African solutions for African problems.

"Don't pick the easy route, go for the most challenging and impactful thing you can do"

A project of South African non-Profit CodeMakers, "Super Scientists" inspires young people to see themselves in the faces and stories of real African scientists making impactful changes around the world. The scientists are turned into exciting superheroes, as rich information on their fields is shared with the readers in a fun, hands-on way. Yemaachi CEO Dr. Bediako was the first Ghanaian scientist to be featured in this series.

