

THE YEMAACHI BULLETIN

A Quarterly Newsletter from Yemaachi Biotech Ltd

A PROMISING BEGINNING IN CHALLENGING TIMES



The year 2020 will be a hard one to forget. Most notable of course is the global pandemic that has completely disrupted life as we know it around the world. It is my hope however, that 2020 will also be remembered as the year YEMAACHI was born.

The past 6 months since we began fundraising have been trying, however I am very proud of how far we have come in such a short time, especially considering the unprecedented challenges being faced across the globe. Over the last 3 months, we have secured and successfully fitted-out a space that will house our advanced molecular laboratory and company office, and have begun to build key relationships with clinical stakeholders across Ghana. I am particularly proud that we are also already making a significant contribution to the COVID-19 response in the country through a collaboration with the University of Ghana, where we are providing support for nationwide sequencing and transmission modelling of SARS-CoV2.

As we enter 2021, I would like to express my appreciation to the angel investors who have supported us to this point, and provide every assurance that the whole Yemaachi team is fully committed towards raising the remaining funds required to fully operationalize our first phase of projects. We have begun an exciting journey and the best is yet to come!

Yaw Bediako, PhD
CEO - Yemaachi Biotechnology

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YEMAACHI'S NEW SPACE

BY AIDA MANU & JOYCE NGOI

We recently took on the challenge of converting an outdated 85 square-meter commercial space in the busy Abelemkpe sub-district of Accra, into a modern, dual-purpose advanced molecular lab and administrative office. From the glass fabrication for our partitions, to the carpentry, plumbing, electrical work, flooring and finishing touches, we were intentional about employing 100% indigenous African companies and small business owners, and about using locally-sourced materials.

Our main lab has been cleverly designed to fit several processing stations in one space, while maintaining a unidirectional workflow: work proceeds in one direction, restricting samples and materials from being moved to a previous work area. Contamination is further avoided by supplying each bench with dedicated consumables and equipment. The benches have an abundance of built-in power sockets and ethernet connection points, to provide maximum flexibility for equipment placement and to reduce clutter.

100% INDIGENOUS AFRICAN COMPANIES & LOCALLY SOURCED MATERIALS

The lab encompasses a dedicated **Reagent Preparation Area**, for storing and preparing reagents for PCR work, free of any biological material, a **PCR Setup Bench** for processing samples in order to isolate nucleic acid from specimens, an adjacent **Pre-PCR Area** for preparing the isolated nucleic acid for testing, and a **Post-PCR Bench** that houses all the thermal cyclers for amplification. It is also designated for handling PCR products if any further modification of the amplified products is required before analysis.

At the back end of the lab is a semi-enclosed space to house several -80°C freezers for banking samples, a dedicated sequencing room, and a data entry station. Outside of the lab enclosure, an open office workspace, small meeting room and kitchenette complete the new space.





Left: Product Analysis Area, set to handle post-PCR analysis of the PCR products e.g gel electrophoresis.

Below: Next Generation Sequencing (NGS) room, where a wide array of genomics analysis and sequence data generation will take place.

Bottom: View of lab from open office area, and meeting room (far right)



GOOGLE TIDES COVID PROJECT

BY EMMANUELLA AMOAKO, MD

Since the 12th of March when the first cases were reported in Ghana, over 51,000 people have tested positive for COVID-19. Though the case fatality rates appear to be relatively low, socio-economic realities have made blanket lockdown (shelter-in-place) policies difficult to enforce, and the infection continues to spread. In line with this, a recent seroprevalence study performed by the University of Ghana suggests that as many as 20% of residents in Accra have been infected.

Despite the continued spread of the virus, most COVID-19 related restrictions have been relaxed and many activities in Ghana have gone back to normal. While these decisions were at least partly due to economic considerations, they underscore the **need for continued surveillance and deeper understanding of the virus' dynamic in the local Ghanaian context**. Such data is crucial if the government is to implement effective strategies to bring the pandemic under control.

In response to these challenges, Yemaachi, in collaboration with the West African Centre for Cell Biology of Infectious Pathogens (WACCBIP) of the University of Ghana, secured a grant from Google to leverage our expertise in Next Generation Sequencing (NGS) and bioinformatics to provide detailed characterization of SARS-CoV-2 in Ghana.



Study staff in full PPE collecting a throat swab from a nurse at Greater Accra Regional Hospital

The project will develop an **intuitive, publicly accessible data platform to provide insights into the transmission dynamics and patterns** of the SARS-CoV-2 epidemic in Ghana and help direct national public health strategy.

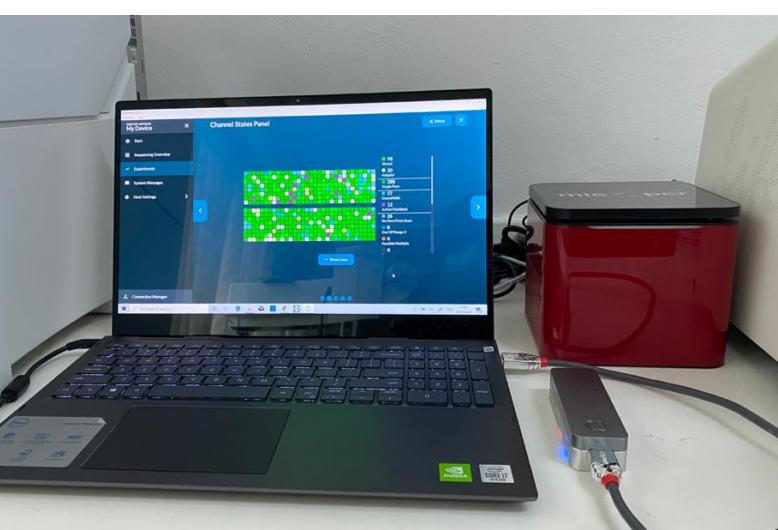
So far, SeqCOM-GH has **collected over 250 COVID positive samples from across Ghana, of which 94 have already been sequenced** and are being analyzed. Additionally, 200 healthcare workers in two public hospitals; the Greater Accra Regional Hospital and the Cape Coast Teaching Hospital, are being followed over a course of eight weeks to study SARS-CoV-2 transmission within health facilities.

Special Thanks:

Google
TIDES
A Force for Social Good



The Greater Accra Regional Hospital RIDGE



Whole genome sequencing of SARS-CoV-2 on a MinION sequencing device