

BIO Africa Digital Convention 2021

23rd – 24th August

Advancing Africa's Biomanufacturing
Value Chains Through Innovation.



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Message from the President of AfricaBio



The theme for the BIO Africa 2021 Digital Convention is Advancing Africa's Biomanufacturing Value Chain through Innovation. This theme expresses the need for the African continent to manufacture its own biotechnology products rather than depend on other developed countries. This urgency for self-sufficiency was brought to light during the COVID-19 pandemic.

As with previous BIO Africa Conventions, this year we aim to bring together key drivers from all parts of the world to engage on biomanufacturing through innovation around Biotechnology in Africa. The BIO Africa 2021 Convention will serve as a platform that will provoke conversation, partnerships, collaborations, and networking to advance Africa's biotechnology capabilities. AfricaBio is excited to host the 4th annual BIO Africa convention and the possible opportunities that will emerge from this forum.

BIO AFRICA CONVENTION PROGRAM AND PARTNERS

Although the BIO Africa 2021 Convention will be held digitally, the Convention Committee has consolidated a power-packed program that includes tracks such as Healthcare, Finance, Investments and Market Access, Food Security (and Safety)/ Agriculture, Indigenous Knowledge-based Bio-Innovations & Cannabis Industrialisation, Manufacturing & Industrialisation, Internationalisation, Partnerships & Collaborations, Civil Society/ Advocacy, 4IR and Digital Economy and much more.

The 4th annual BIO Africa Digital Convention is hinged on the support from our partners. Our partners include and not limited to; the Technology Innovation Agency, Department of Science and Innovation, eThekweni Municipality, BioCiTi, Mail & Guardian, Durban ICC and more.

BIO Africa 2021 Digital Convention Media Launch – Vaccines: “Africa should not waste a good crisis.”

The Official Media Launch for the BIO Africa Digital Convention 2021

Join The Conversation: Advancing Africa's Biomanufacturing Value Chains Through Innovation-Vaccines

At the time when the world is discussing the proposed TRIPS Waiver of IP for Covid-19 vaccines, the BIO Africa Convention will bring to the spotlight this topic, focussing on Africa's capability and capacity to form effective partnerships with other nations towards bringing vaccine manufacturing to the continent.

Facilitator: Phemelo Motene

Panel: Dr. Ntlanhla Msomi

Panel: Mr. Christopher Whitfield

Panel: Dr. Vuyisile Phehane

Panel: Dr. Phil Mjwara

Panel: Dr. Shadrack Moeophuli

Panel: Dr. Lwazi Manzi

Panel: Mr. Bada Phorasi

AFRICABIO

21 July 2021 14:00 - 16:00

@bioafricacon

On Thursday, 22 July 2021, AfricaBio hosted the 2021 BIOAfrica Digital Convention Media Launch. Facilitated by media personality, Ms. Phemelo Motene, the esteemed panel of thought leaders representing various parts of the biomanufacturing chain, had a discussion that served as a preview of the type of discussions to expect at the Convention under the theme of Advancing Africa's Biomanufacturing Value Chains Through Innovation.

Following the recent Pfizer-Biovac collaboration announcement, Mr Patrick Tippoo stated that this was “a small but significant step towards realising the dream of Africa becoming self-sufficient.” Even with Africa's unique position of advantage to exploit available Intellectual Property (IP) due to the patents not being registered in Africa, and the pre-existing asset capital, technology transfer is the most expedited route for advancing biomanufacturing.

The lack of collaboration between African nations was noted as a challenge. Following the phrase by Dr Lwazi Manzi, “don't waste a good crisis”, the sentiment of the importance of establishing partnerships and collaborations across Africa was reiterated by the panellists. It was the general consensus that by creating platforms such as the coordinated pandemic response, Africa can create mechanisms to exert market pressure to procure tools needed for biomanufacturing.

The perspective of the consumer was a highlight during the conversation, as the pandemic created the age of an informed consumer. The closing remarks by the President of AfricaBio reiterated BIOAfrica's role in facilitating discussions effective communication about the role of biotechnology in Africa.



Launch of The Dr Konji Sebati Female Leaders of Tomorrow Fellowship

In honour of the late Ambassador Dr Konji Sebati (CEO of IPASA and AfricaBio Board member), AfricaBio will be launching the BIO Africa Fellowship Program at this year's Convention. Dr Sebati was very instrumental in setting up the BIO Africa Convention, from its conceptualisation as a platform for facilitating biotechnology development in Africa, to bidding at the 2017 BIO International Convention in San Diego for the rights of AfricaBio to develop and host an independent Pan African edition with its own contextual Agenda. Dr Sebati was a very active Member of the Board of AfricaBio, the organisation that hosts the Convention.

The Fellowships will be named Dr Konji Sebati Female Leaders of Tomorrow, which will be awarded/announced at the 2021 BIO Africa Convention. The Dr Konji Sebati Female Leaders of Tomorrow Fellowship is a continuation of the

Convention's recognition and support of Women Leaders and Rising Stars within the Science field. In 2020, the BIO Africa Convention launched a discussion on Women in Science, Technology, Engineering and Mathematics (STEM) as well as Women Rising Stars in Science, Technology and Innovation (STI). Following from this, AfricaBio and the BIO Africa Convention has made a policy decision to represent females across all sciences, it is planned that future editions of BIO Africa Convention will strive for a 50% representation of Women across all our platforms.

The aim of the Fellowship is to provide opportunities for young female scientists who are looking to diversify away from the laboratory but still have a deep passion for science. There are careers such as in Innovation, Science Communications, Entrepreneurship, Business and Finance which viable extensions to the scientific domain.

AfricaBio's First Girls STEAM Camp



AfricaBio hosted the first Girls STEAM Camp which was designed to benefit girls from underprivileged backgrounds and expose them to science outside the classroom. The term STEAM encompasses science, technology, engineering, arts, and mathematics.

The camp took place on the 25th and 30th of April 2021 at the Evangelical Lutheran Church in KwaMaphumulo. A total of 45 girls from grades 8 – 12 attended from all parts of KwaZulu – Natal.

“This camp gave me the enthusiasm to pursue and believe in my dreams,” these were the words of a young aspiring scientist. The STEAM camp equips and empowers the young generation to believe they can make a difference in our society. AfricaBio is looking forward to bringing together young scientists of all ages and gender groups from underprivileged areas around South Africa for more STEAM camps. AfricaBio will be announcing dates for the next STEAM Camp.

BIO Africa Innovation Hub

The biotechnology sector has grown over the recent years with a current estimate of US\$600 billion. To ensure growth in the industry it is essential to coordinate an ecosystem where various players with diverse value offerings operate independently but cooperate with a single defined objective. As a result, the Innovation Hub was launched at the 2020 BIO Africa Digital Convention which serves as a bioecosystem to facilitate the growth of the biotechnology sector:

- Market Place: A platform aimed at supporting and showcasing the approved products/innovations.
- Innovators Market Corner: Interactive platform that allows users to access funding opportunities for innovations
- Knowledge Resources Portal: empowering innovators and SMMEs across the continent with tools to bridge the gap for technology that is considering low tech but relevant to isolated communities.
- Training Hub: Allows users to view available courses and sign-up for participation

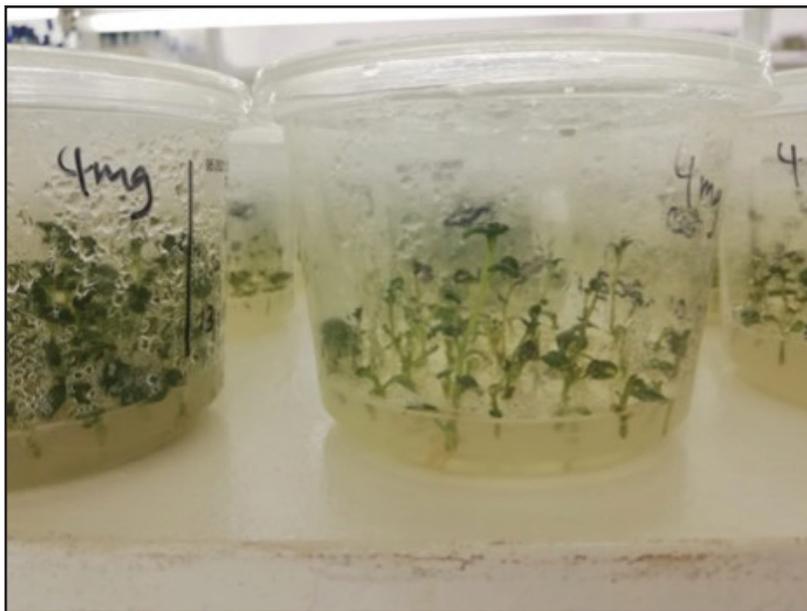
All of the vertical's feed into the start-up Index, which ultimately gives the business access to markets and strategic partnerships.

CapeBio Technologies Achieves Another Milestone

CapeBio Technologies team lead by Daniel Ndima claims yet another milestone. CapeBio Technologies, that spun out from the Council for Scientific and Industrial Research (CSIR) is a local company that specialises in the biomanufacturing of molecular biology enzyme technologies. Their enzymes are a driving force in molecular diagnostics development which is important for PCR applications such as COVID-19 diagnostics.

Their mission is to “deliver excellence in innovation to improve quality of life”. This is evident in their development of COVID-19 RT-qPCR test kit which is approved by the South African Health Products Regulatory Authority (SAPHRA). CapeBio continues to keep the South African flag flying as their PCR products will be sold in India.

AfricaBio and the City of eThekweni Potato Seed Nursery Developments



Potato (*Solanum tuberosum*) is one of the most important agricultural crops in South Africa. They are cultivated for their starchy tubers which are consumed as a starch vegetable by humans, they can also be processed in consumed food products, and used in animal feed. Potatoes are high carbohydrate crops as they contain a more balanced mineral and vitamin content than any major carbohydrate crop.

Potatoes contributed over R3bn per annum to the GDP of South Africa. Potatoes can grow in different climatic regions, and are therefore, are produced all year round. They are cultivated as table potatoes and seed potatoes. There is a decline in the number of seed

potato producers due to the escalating production cost (Potatoes SA, 2019). The number of commercial potato farmers has been declining, from 3500 pre-1994, to under 500. Their importance and the potential markets are gradually becoming a scarce resource.

AfricaBio in collaboration with the City of eThekweni has established a potato nursery at the Noordene Agri-ecology hub, in the eThekweni municipality. The



main objective was to produce potato seeds/mini tubers. The intervention will assist small-holder farmers to be able to produce their own potato seeds in the process. Potato seeds are the major constrain in potato production. This will allow small holders to have certified potato seeds that can be planted up to fifth generation. AfricaBio is committed to helping smallholder farmers improve their crop production because they form a critical link in the food production chain.

Partner Content: BioCiTi New Launch

The Western Cape has grown to become the Biotechnology hub and destination of choice for African biotech start-ups. To leverage on this geographical advantage and the commitment of the Cape Innovation and Technology Initiative (CiTi) to grow the Bioeconomy in Africa, BioCiTi Labs NPC was created in 2019. BioCiTi is the first incubator in Africa that provides access to a state-of-the-art shared laboratory and co-working space with business infrastructure. As a specialised Biotechnology business incubator, BioCiTi provides tailored business, financial, marketing and technical mentorship and support to start-ups and SMMEs.

The increased attraction to the service offerings at BioCiTi quickly led to us outgrowing the initial laboratory. BioCiTi invested in growing the capacity by adding equipment and increasing the size of the lab to be able to support the growth trajectory.

BioCiTi is proud to partner with BIO Africa to launch the new and improved lab at the BIO Africa Digital Convention 2021. We invite start-ups, SMME's and investors to visit our facilities and to partner with us to translate scientific concepts into commercial realities that will stimulate the Bioeconomy in the Western Cape, South Africa and Africa.



Challenges of Local Development of Vaccines:Op-Ed

by Dr Nhlanhla Msomi

Vaccines are some of the most important inventions to key public health objectives for whole populations. Some might argue they are THE most important because they serve to prevent the onset of infection and/or disease. An important dimension about vaccines is that they are cost effective, they provide protection across whole populations at a minimal cost compared to alternatives. The architectural strategic makeup is that since vaccines are preventive by design, they eliminate possible additional costs down the clinical management value chain. A cynical way of looking at them is that they are simply not good for business if they work properly. There will be a reduced need for diagnostics, therapeutic pharmaceuticals, and complementary solutions. What exacerbates the situation is that since they are a public good, the market regulates their pricing differently. Pharmaceutical companies cannot charge the prices they do for other highly innovative, originator compounds. They occupy a very low position in the profitability ladder, and yet their cost of development is not much cheaper. Clearly, vaccine development must be located somewhere between the middle and lower orders in the business priorities list of any pharmaceutical company. It is not easy to justify to the shareholders, and therefore allocation of resources for their development. This means that Public Policy must step into the gap created by markets. The advances in the development of Covid Vaccines owe their success to such Public Policies such as the US' Operation Warp Speed (other high-income nations had similar schemes), which put on the table financial incentives to bridge the gap between the normal vaccine economics and other pharmaceuticals. The design of this policy was focused on providing direct financial support to the highly risky business of discovery science and more importantly the very expensive clinical development. As if this was not adequate, the stimulus package went on to guarantee market access through pre-orders for products that had not been developed. This was unprecedented and could go some way in explaining why developing countries could not participate in what was, for all intents and purposes, a lottery. In the South African context, one

could imagine the field day to be had by the Opposition Parties and other guarantors of the Constitution if the Government had placed such bets with taxpayers' money on a vaccine candidate that later failed. The reality is that a few of the vaccines, that formed part of these pre-orders did fail as expected in any product development effort. These dynamics, and few other systemic ones, gave rise to the notion of vaccine nationalism (some call it vaccine apartheid).

This label is easy to apportion but has the danger of missing the point completely when it comes to crafting solutions to ensure that the world never sees the disparities currently being experienced in the global distribution of vaccines. One common fall back position, whose crescendo is reaching a din that is starting to crowd out alternative voices is local manufacturing. There is no rational argument that could be built against local manufacturing per se, but certain elements that are starting to dominate the discourse are dangerous, even disingenuous. The more appropriate approach, it is argued, is local innovation and development. This is more valuable and strategic to secure future supplies of vaccines and many lifesaving medicines, currently out of reach in the developing world. Fortuitously, a focus on innovation and development will start solving a whole portfolio of public health challenges beyond infectious diseases, ranging from lifestyle diseases such as the metabolic syndrome to other intractable challenges such as cancers. These challenges already account for many mortalities in our public healthcare system. In some areas of our country and continent, a diagnosis for cancer is colloquially called 'tickets', indicating that you just got your ride to the other side. That is how hopeless the situation can be; and to a lesser extent, this also applies to people with medical insurance. Without losing the point, and ensuring the issue is not trivialized, it is important to emphasise that the underlying biotechnology innovation of the newer vaccine development also addresses some of these issues. It is instructive to evaluate what therapeutic areas leading mRNA vaccine technology developers were

doing, before Covid arrived. The key word is 'pivot', how did they pivot their capabilities to develop such effective vaccines so rapidly.

The last question, we may want to ask relates to transitioning from development to manufacturing such that adequate doses are available where they are needed. There is a feeling that this is the source of conflation. An analysis of the manufacturing equation for vaccines, starts from understanding the different components of vaccines. It needs to begin with accepting that beyond the vaccine product (which is the active biological ingredient), there are adjuvants and several other components. More importantly, industries supplying these products were not created simply to respond to a pandemic. They are based on other economic drivers, with firms possibly supplying other industries. While the Covid crisis led to a disruption to the international supply chains, it is a bit dangerous to discount the value of global value chains when it comes to vaccine components, or even manufacturing. A notable observation is that almost all the Covid Vaccine players utilize contract manufacturing to fill the orders. These same contract manufacturers procure components from a vast array of global suppliers (some specialized and others commodity). As a parting shot, it is argued that perhaps, the

one realistic solution to secure public health goals in future epidemics and build 'vaccine nationalism' proof strategies are to focus on the development of the correct part(s) of the value chain. Focusing on where real value lie or where there are inherent comparative advantages. This requires a complete overhaul of how innovation and product development strategies are crafted. The current rush for local manufacturing is not helpful, as it conserves the status quo. Manufacturing other people's vaccines, in the absence of strategic technology transfer, means they continue to set the agenda. It is maybe, a short-term solution. A new dawn will be when we start seeing HIV, Malaria, and other vaccines enter clinical development phases in the numbers reflecting the scale of our challenges. One could add other biopharmaceuticals and diagnostics; this hinge moment should not be lost to overhaul our operational frameworks to create innovation strategies to secure our future. Finally, on the issue of strategic technology transfer, this requires sufficient level of innovation and development capabilities, including human resources, within the recipient of such technology. In that case, the technology transfer serves not only in enabling immediate needs such as manufacturing, but also bolsters gains in local innovation and development, with prospects of a pivot, to address other unmet healthcare needs, in this case.



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Visit www.bioafricaconvention.com to register for the convention

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