Interview: Jason Lurie â?? CEO, BioTech Africa, South Africa

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The CEO of BioTech Africa, Jason Lurie, evaluates the domestic and global landscape for diagnostic recombinant proteins, and highlights other developmental streams that have helped diversify the companyâ??s portfolio. He also illustrates the underlying aspirations in targeting this market niche, while depicting the distinct set of hurdles faced from the perspective of a local biotechnology venture.

To begin, Jason, can you highlight the key takeaways from BioTech Africaâ??s recent participation at the Medic East Africa Exhibition and Congress?

Thereâ??s a perception and misconception about whatâ??s happening in Africa. The general view seems to be that everything needs to happen under a tree and if you canâ??t make it point of care under a tree in a rural area then you donâ??t have a diagnostic tool. It was quite surprising to see the number of skilled technicians and workers walking around wanting to have regional control of diagnostics. A lot of the work is still being sent to South Africa through the big path labs, but thereâ??s definitely movement towards self-sufficiency and regionalization. Unlike therapy, the logistics cost for rapid diagnostic products can be extremeâ??especially when it comes to

transatlantic shipping of bulk quantities in large containers. Given these dynamics, there is a pressing need for more regional hubs.

Personally, I was pleasantly surprised by the amount of industry stakeholdersâ??whether its technicians, MDs, or pathologistsâ??looking for training, product service, and consistency of supply from an African producer. Thereâ??s been a lot of good work done by the multinationals in bringing therapies through NGOs into the continent. But nevertheless, we are down the list. Simply asking these two questionsâ??what do you need and how can we build it togetherâ??caused a real fundamental difference in feeling and a sincerely encouraging hope for future collaborations.

It was also encouraging to see the level of development in Kenya and the strength of its economy, as well as how itâ??s drawing upon neighboring countries such as South Sudan, Ethiopia, or Tanzaniaâ??which we often donâ??t think about. The other takeaway from our discussions with oncologists and other healthcare practitioners is that as life expectancies grow, so do chronic diseases. Also the consequences of urbanization such as typhoid, water-borne illnesses, which werenâ??t previously in Africa, are all happening hereâ??a rather eye-opening revelation.

What were the initial aspirations behind BioTech Africa? What were the biggest challenges to position the company at where it stands today?

The founding principle is diagnostic solutions made by Africa, for Africa. There are a lot of big players who work in this space, but none born out of Africa. Thereâ??s still a feeling that we import everything, either at cheap costs from the Far East or at exorbitant premiums from Europe and America. For the companies that currently import proteins, the producers can charge whatever they like, exhibiting inconsistencies in supply and perhaps even quality. The goal is to create solutions here from first principles, so weâ??re not controlled by imports and currency fluctuations. The only way to do that is by establishing production capabilities to create our own products from codeâ??which hasnâ??t happened yet in our space in South Africa.

We initially started off with two commercial HIV proteins, which are currently being used by a company in Korea that has a World Health Organization (WHO) pre-qualified product. A fundamental component of our technology is the ability to lyophilize, which takes away a lot of our logistics problems in Africa and has contributed a great deal to our success thus far. Weâ??ve now expanded our protein range to include other diseases such as syphilis and typhoid. Weâ??re also looking at producing finished sheets, which can then be cut and assembled elsewhere, with the ultimate end goal of setting up facilities all over Africa.

We have two streams of development. The first one is immunology, which covers our proteins, and the other one is molecular, which was inspired by Kapa Biosystems, one of the premier producers of enzymes. Essentially, we take their enzymes and create molecular tests for use in centralized labs and then tweak them for use on battery operated platforms. We have an equipment platformâ??a lab in a boxâ??that will help establish smaller and more economical pathology labs in regional markets and, in turn, reduce the time to diagnosis. For example, with regards to HIV, rapid tests are appropriate if the diseases are relatively developed, but the big challenge is in early infant diagnostics. The only way to determine the prevalence is molecularly. Itâ??s not an either or, but often works together. We need both of those tools if weâ??re going to have a comprehensive offering for diagnosis.

How far has BioTech Africaâ??s commercial presence progressed?

Our recombinant proteins are either used in rapid tests or ELISA, and also in R&D to develop antibodies. There are a few assembly facilities in East and West Africa, but no manufacturers. So we donâ??t sell direct proteins to anybody in Africa. What weâ??re busy doing with partners all over the

world and some in South Africa is getting our proteins into end-user products, while evolving the whole biotech space, thereâ??s very little in terms of direct biotechnology going on in Africa. We would bring in final products but with a view to working with ministries of health and the larger NGOs towards a self-sufficiency system in the different territoriesâ??initially an assembly plant, then followed by full manufacturingâ??ideally thatâ??s what weâ??d like to do.

Weâ??ve already got seven recombinant proteins on the market, with our bacterial expression platform also fully up and runningâ??allowing us to effectively build anything that can be expressed in bacteria. Our molecular platform is also functionalâ??weâ??ve developed hepatitis B virus (HBV) and hepatitis C virus (HCV) tests with an HIV comingâ??but none yet registered on the molecular side. There are not a lot of regulatory requirements, but from our point of view, molecular tests worldwide are not being tested against actual human serums but templates. We need to go that step further and look at international serum panels and confirm our tests, for our own edification and quality assuranceâ??especially considering that people will be using our products to base life decisions on.

How do the companyâ??s products compare with whatâ??s already on the market?

Speaking on the molecular side, there are no commercial scale producers of assays in Africa. These are all imported at the momentâ??effectively leaving ample market opportunities for BioTech Africa. For recombinant proteins, there is work happening in different universities, but weâ??re one of the few, if not the only producer on the continent for the proteins that weâ??re making. In terms of international competitiveness, we are producing products that others do produce. Our competitive advantage is derived first and foremost from the quality and capabilities of our scientistsâ??which have been reaffirmed by the producers that we sell to. The costs of producing in South Africa are much lower than the US and Europeâ??low enough to compete with the Chinese. Lyophilization also serves as a critical enabler of continued growth. Needless to say, especially considering the industry wide prevalence in this area, the more we can lyophilize products the more we can improve healthcare.

How would you evaluate South Africa as a platform to develop and launch new technologies, particularly in the field of biotechnology?

The biggest problem when we were first starting out was attributed to supply. Itâ??s not like in some developed countries where we can order from a catalog and have it delivered the next day. Especially with the lack of biotech incubators in South Africa, weâ??ve had to effectively go it alone; though weâ??re very fortunate to have been privately incubated within Kapa Biosystems from a development and connectivity standpoint. But thereâ??s not a lot of infrastructure support when starting out cold. Weâ??re a small country far away, working with long delays every time we need to order something newâ??creating its own set of challenges when collaborating with an international team of scientists. Itâ??s not as simple as if we were based in Europe or US.

How can the country better support the local incubation of more startups focusing on high value-added technology?

From a biotechnology perspective, creating more shared facilities can help mitigate the upfront costs required to get a new biotech venture off the ground and encourage more bioentrepreneurs to enter the market. That being said, we are starting to see movement in this regard, with the development of biotech hubs in the Western Cape and Pretoria. In order for this industry to take off, however, I believe that stakeholders need to move away from an â??us versus themâ?• mentality and create a better pathway for collaborate to compete as a collectiveâ??especially from buying power perspective. With a greater supply comes a greater decline in pricesâ??effectively improving access

to more novel healthcare treatments.

In South Africa, biotechnology is a relatively unknown marketâ??especially among venture capitalists. Unlike chemistry, which demonstrated more interest among investors, biotechnology requires synthesis of products through living organismsâ??an extremely meticulous process requiring massive funding with minimal success rates. Even without the consideration of a startup, the majority of biotech products barely make it past phase III clinical trials. From my point of view, the lack of awareness and understanding in this sector combined with sheer level of speculation associated with commercial success has created a material level of aversion among the South African investment community.

Your rather illustrious background spans music, economics, and food; what has attracted you to the biotech and broader healthcare industry?

Iâ??ve had several close people in my life that have been afflicted and subsequently died of AIDS. Itâ??s an incredibly frustrating experience when youâ??re stuck on the sidelines while this is happening. I wanted to see some change and pursue a role where I could make more of a positive impact on the lives of the people I hold dear. All of the things Iâ??ve done have been for Afro-optimism. I believe in Africa, and believe itâ??s a fantastic place for economic and social opportunities. Thereâ??s a real need here. The most important things you can have are food security and health security. So itâ??s made a lot of sense to be in healthcare. I serendipitously met Jenny, the Chief Scientific Officer, and collaborated to eventually bring Biotech Africa to fruition. A little bit of anger, good fortune, timing, and an underdeveloped market niche are factors that have brought us to this point today.

In terms of reputation, capabilities, and performance, what direction would you like to take the company in the next three to five years?

We want to be a lot closer to point of care diagnosisâ??to the point where weâ??re able to materially reduce the window of diagnosis. We want to get very close to delivering the result there and then, so that treatments can immediately commence. Weâ??ll have an expansive range of products within that timeframeâ??including a range of lateral flow tests and early infant diagnostic kits, but ultimately we want to position ourselves as the leader in infectious diseases on the continent.

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