A double bottom line doesn't have to mean half the profits

Mass Device

MassDevice.com is blogging on the topic of building innovative medical technology for the developing world, featuring some of the leading minds in the field.

This feature will continue through May 17 and the first annual World Health Medical Technology Conference *[1] at Boston University.*

The conference *[1] is a one-day workshop dedicated to exploring the opportunities and challenges of designing, building and funding medical technologies for the developing world. It's a way to bring together stakeholders from the medical technology industry with the leading minds in the Global Health movement. To find out more about the conference, visit the conference's* website *[1] for an agenda, registration information and a list of speakers.*

This installment features Dr. Anita Goel, CEO of Nanobiosym [2], a stealthy incubator and diagnostics company working on technologies at the convergence point of physics, nanotechnology and biomedicine. Goel is one of the most respected voices in science and business and her vision of changing the world with innovation are probably only matched by her board of directors, which includes Boston Scientific Corp. (NYSE:BSX) founder John Abele; Ratan Tata, chairman of the Tata Group, one of the largest conglomerates in India; Alfred Ford, the current chairman of the Ford Motor Co. (NYSE:F) and grandson of Henry Ford; and former Ambassador John Palmer.

The company is primarily funded by government contracts from agencies including the Defense Advanced Research Projects Agency, the Air Force Office of Scientific Research and the U.S. Dept. of Energy.

Dr. Goel took a few minutes to talk about her views on the developing world and how diagnostics can be made not only cheaper but more accurate.

Dr. Anita Goel, CEO, Nanobiosym

"I weigh the developing world and the developed world equally. I see a global opportunity. I see that we sit here in Boston, in the Mecca of innovation, the wellspring of global intellectual capital, and we have an opportunity to make a global impact with innovation. We need to think globally and think about emerging markets like India and China and other parts of the world on two fronts: One, that there's a huge humanitarian need; and second, that there's a great new market that's emerging and it's naive of us to ignore it.

"We have the Nanobiosym incubator, which focuses on research and new science and technology creation at the convergence point of physics, biomedicine and nanotechnology. We use this convergence point to create game-changing technologies, new spinoff companies and new ways of solving global problems. And what are the planet's most pressing needs? They're healthcare, energy, water testing. We're operating at the point where fields that haven't previously talked to each other can create not just incremental advances, but quantum leaps in our thinking. That's the basic philosophy of the incubator.

"We're a research company, but we operate as an incubator where we collaborate with academia and government laboratories. The focus is on implementing these philosophies of meeting at convergence points of those disciplines [physics, biomedicine and nanotechnology]. We're about breaking the silos. Part of it is virtual — we have a facility here in Boston, but it doesn't all happen in one place. It can be done globally with people in different places.

"We've also spun out a company called Nanobiosym Diagnostics Inc., which is singularly focused on this technology we've developed that uses physics and nanotechnology to do something that previously has only been done using the tools of molecular biology.

"In point-of-care diagnostics some people are using things like immunoassays and colorimetric assays that work quickly and cheaply in the field. What we're doing is a DNA/RNA-based level of test with a very high level of sensitivity and accuracy. Today, if you look at diagnostics in the developed world, the gold standard for testing is technologies like PCR and cultures, which require a central laboratory structure, and a clinical technology lab infrastructure to give accurate results. The developing world doesn't have all that infrastructure in place yet. The developing world relies upon assays that are quick, but they suffer from lower sensitivity and lower specificity. With immunoassays, they are fundamentally limited in how sensitive they can be, but they give you a quick answer. With HIV you can use an immunoassay to get a quick and dirty answer out in the developing world in the point-of-care fashion, but you still have to back it up with a PCR test.

"In the developing world they have a lack of infrastructure, but they use this kind of quick test. What we've developed is this technology that we consider game-changing. Basically, we bring the capability of that gold-standard level of sensitivity and specificity and go beyond what the traditional technologies can do, because we employ physics and nanotechnology to improve the precision and accuracy with

which you can read out DNA, and we bring that into a developing world context to create a leapfrog effect.

"A developing-world country would have to invest billions of dollars just to create the equivalent of the landline infrastructure in the healthcare system that it needs to deploy the existing type of technology we have in the developed world. But with ours, just like you saw a paradigm shift in the telecom industry, when you saw a shift to mobile devices — you see villagers and farmers and beggars in places like Africa using cellphones — the reason they had that quantum leap in telecommunications was because they no longer needed that landline infrastructure. There was such a huge need that, when you had the technology and it came to a critical cause, the technology just spread.

"We hope to bring a similar paradigm shift into healthcare, by creating mobilized medicine used to diagnose disease, but outside of the hospital lab and bring it into the doctor's office and into people's homes in the remote villages. But the key is to do it with the same, or better, level of accuracy that you would have with a centralized lab infrastructure."

"Today there are a lot people in the field using immunoassays to get a quick answer as to what something someone in a village has, but they suffer from a high level of false positives and false negatives. In America those tests don't survive the scrutiny of time, because people don't want to live with the scrutiny of whether they have Swine Flu or HIV or not. You can't afford to have a high level of false positives or false negatives. But in the developing world, it's better than nothing. What we bring is a leapfrog technology that does kind of what the cellphone did in the developing world. But remember, the cellphone was a breakthrough technology for the developing world; it's just that we had all the infrastructure. So, in essence it was easier for the developing world to switch over.

"We have a social and humanitarian agenda with what we're trying to accomplish. That appeals to some of the public sector, so we go out of our way to try and create a win-win synergy with them. We're not purely driven by the profit motive, or maximizing the short-term ROI. We're looking at creating a long-term, sustainable impact, and that allows us to decrease our profit margin and try to impact more people rather than hype it up and take as much money out as you can. We endeavor to find strategic and financial partners and customers who share our philosophy and vision, as well as stake holders who have a vested interest in trying to maximize the humanitarian impact we can create with technology platform like this. I don't want to make that sound easy, but we try to stay true to our integrity and purpose. A lot of people want to acquire it and do their vision of how they think it should do, but we're really in search of those partners, investors and stakeholders who want to help use it to change the world in a way that's economically aligned so that they make a return.

"The way I see it is, if you have the right philosophy you can actually make a bigger impact and a bigger return, including financial, if you align it the right way. If you keep looking at the short term and think only about the exit, then you miss out on the bigger picture of the humanitarian impact and making a larger financial return."

SOURCE [3]

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