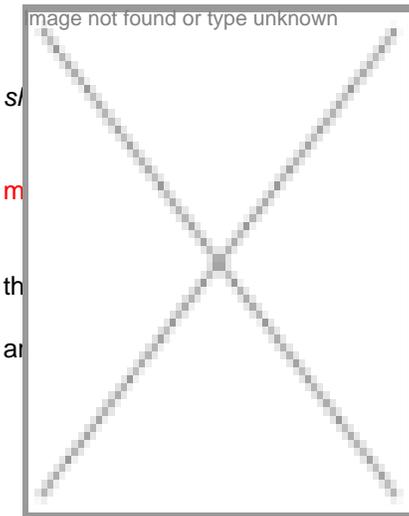


## Nanobiotech park

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*Nanobiosym Inc, a globally recognized nanotechnology firm is setting up India's first Nanotech park, The Nanobiosym Technology Park (NTP) in Ahmedabad in a public-private partnership with the state. Dr Anita Goel, chairman and CEO, Nanobiosym science initiatives.*

**Do you think there is a lot of hype around nanotech and real applications in the field of**

There is certainly a lot of buzz out there about nanotechnology and thus one has the additional burden (of proof) to separate fact from fiction and the real applications from

Nanotechnology overall is still in its early stages as a field and its impact on commercial veral sectors its seems to be right on the horizon.

Medicine and nanomaterials may provide some of the first low hanging commercial fruits from nanotechnology. In medicine, for example, nanotechnology is enabling novel diagnostics as well as new approaches to therapy and drug delivery. In nanomedical diagnostics, I envision the impact of this technology to be somewhat similar to the cell phone industry. We saw a paradigm shift in the telecom industry when computing and communications devices became portable. Likewise, I believe that we will see a similar

shift in healthcare when the ability to detect and diagnose disease can be taken out of pathological labs and put in the hands of doctors and nurses, and healthcare workers. Well, at least this is the motivation and vision behind our Gene-RADAR technology platform.

**What are some of your focus areas at Nanobiosym?**

Nanobiosym focuses on creating innovations on the interface of physics, medicine, and nanotechnology. One particular

interest of mine is nanomotors or molecular machines that read/write information into DNA. We also work on harnessing these nanomachines for various applications ranging from novel nanomedical diagnostics to nanomanufacturing to more far-out applications such as nanoscale energy transduction and biocomputation.

Nanobiosym has also developed a nanotechnology-enabled diagnostics platform called GeneRADAR. This platform enables portable detection of infectious disease. Envision mobile diagnostic devices which can analyze a drop of blood or saliva and quickly identify infectious diseases and pathogens at the point-of-incidence. Our commercial engine Nanobiosym Diagnostics focuses singlemindedly in commercializing this platform and its related products into various world markets.

I see a huge unmet need in the rural villages of India, for example, where there's a problem with basic sanitation and hygiene. Moreover, there's no hospital and certainly no pathology lab in these villages. If the villagers are lucky, there might be a social healthcare worker who comes once a month and transports blood samples back to the city for testing and analysis. Imagine having a simple, handheld device that healthcare workers could take with them into the village and use to diagnose problems on the spot.

Our Gene-RADAR technology platform has many other commercial applications. We have looked at the life sciences tools market as well as the bio-defense market where we are working closely with the US military and Department of Defense. We envision our portable biosensor chip will ultimately impact biodetection in several different sectors, including water testing, food pathogen testing, animal and livestock testing, blood and organ transplant testing, agro-bio testing etc.

### Can you tell us more about the nanotech park that you are setting up in Gujarat?

Some departments within the Indian government as well as some state governments have expressed enthusiasm for Nanobiosym to establish the Nanobiosym Technology Park in India. We envision the Park as an integrated Knowledge Ecosystem comprised of an R&D center, incubator, business hub and world-class education center for nanotechnology. The Nanobiosym Technology Park is poised to bring best-of-breed players into a single, integrated ecosystem focused on bringing the benefits of the most cutting edge, emerging technologies to people in emerging markets.

Our vision is to work symbiotically with India. In the US, we will do prototyping and some of the initial innovation. In Nanobiosym Technology Park in India, we plan to do scaled-up manufacturing, some of the clinical testing for the local markets, and other advanced R&D around the GeneRADAR technology platform. That will not only help drive down the cost of production, but also allow us to tailor the technology and its products to local markets, thus making the benefits of our technology more affordable and accessible to the people of India and other emerging markets.

### Why is most of the nanotech research still done at academic institutions?

Nanotechnology is still a nascent field in many ways. Nanotechnology as a science and industry will enable new innovations and collaborations at the global level across many conventional boundaries. It's highly interdisciplinary, and as a result, academic institutions organized around around the traditional fields of physics, chemistry and biology are not optimally positioned to advance this area. It is an area, where we see a lot more collaboration between industry and academia. One of the goals of the Nanobiosym Technology

Park is to help incubate and commercialize innovations in nanotechnology.

### What is the current size of the nanotech industry in India and globally?

Nanotechnology's ability to touch a number of industrial sectors has led to a huge growth in the level of discovery, investment and application over the last 10 years. According to Nature Nanotechnology, if we were to measure the progress in terms of the number of patents, then nanotechnology is most certainly one of the fastest-growing sectors: since 1995, the annual number of patent applications for nanotechnology-related discoveries has grown threefold. Globally, over \$13.5 billion is being invested to explore the potential for nanotechnology to impact fields such as biotechnology, materials, construction, energy, and textiles.

India and other hypergrowth economies are uniquely positioned to take a leadership role in moving nanotechnology forward.

### What are some of the major drivers now?

It is very important to have leaders with the vision to forge ahead in this field. I believe in introducing cutting-edge technologies into emerging economies early on. Often a huge unmet need can be addressed by leapfrogging or bypassing the need for conventional infrastructure. Furthermore, governments around the world are realizing the great potential of this new technology and dedicating budgets to its development. The United States Congress, for example, recently passed the \$1.5 billion National Nanotechnology Initiative which coordinates with over 25 different government agencies and numerous research institutions and universities.

Nanobiosym plans to work closely with local governments in maximizing the socio-economic benefits of such emerging technologies for the local people- with a focus on driving hi-tech innovation while also maximizing its impact for the common man.

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### **India's First Nanotech Park**

Nanobiosym Inc, a globally recognized nanotechnology firm is setting up India's first Nanotech park, The Nanobiosym Technology Park (NTP) in Ahmedabad in a public-private partnership with the state.

The 500 acre nanotech park will include: a Nanobiosym incubator for research and development, a manufacturing engine, a global health village, a global business center, an institute for education and human resource development, and green living space.

The Nanobiosym Technology Park aims to be an innovation epicenter that will bring together top talent from around the globe for cutting edge research, learning and incubation, and commercialization of new nano-enabled technologies and products.

The innovative public-private partnership between Nanobiosym and the State of Gujarat will maximize the benefits of the park for both the state and the country. The park is expected to generate billions in foreign direct investments and international commerce and create thousands of new jobs in cutting edge industries such as nanotechnology, biotechnology, high tech manufacturing and medical tourism.

The park will bring the latest medical developments including the GeneRADAR, to improve the state's healthcare infrastructure and attract world class talent to stimulate world class development.

Nanobiosym is also forming a global consortium comprising of best of breed partners from a variety of sectors like R&D, education, healthcare, infrastructure development, finance and banking, knowledge partners, multinationals and small/medium enterprises. The power is expected to act as a global powerhouse with a focus on hi-tech innovation and entrepreneurship.

Jahanara Parveen