

'INNOVATION ENGINE' THAT REDUCES TIME CYCLE AND COST

The biggest challenge the pharma industry faces is the 10 - 15 years it takes to develop a new medicine in the market. At the other end, the patient needs the medicine now to treat a life-threatening illness for which the standard of care is inadequate. The need of the hour is to reduce the time to market the pharmaceutical product. TCG Lifesciences' sole focus is to work closely with its pharmaceutical and biotech partners to catalyze and accelerate the drug development process to shorten the timeline. It achieves this by contributing its highly trained and talented scientists, applying best practices in a highly optimized environment, and applying sophisticated technology platforms to solve complex problems.

TCG's single-minded attention to timely solutions is borne out by the Group's logo – "The value of time" and the culture of working laid down by its Chairman Dr. Purnendu Chatterjee. This philosophy is inculcated at all the group companies, including TCG Lifesciences.

The people shortage:

The unprecedented growth of the pharma industry, now well above \$trillion annually, requires a well-educated and highly trained workforce to drive the drug development engine further. Also, the market forces have driven large pharma companies to shed manpower to reduce costs and the bulk of drug innovation today is driven by smaller biotech and start-ups who do not have adequate scientific infrastructure and facilities nor manpower. TCG Lifesciences alone has approximately 1,100 scientists and technicians who are deployed to work for hand in hand together with its pharma partners to overcome this acute shortage. At the same time, there are endless opportunities to grow this talent pool, not only by recruiting and training talented students but also to develop in-house Ph.D. programs to add to its workforce. In this quest, TCG Lifesciences is also working with its sister organization TCG Centers for Science and Education in Science and Technology ("TCG CREST"), a not-for-profit research center with strong ties with world-class global academic institutes.

Best practices for driving innovation:

The science of drug development requires interdisciplinary teams, working with effective teamwork and creativity while cutting down on wasteful activities by being highly pragmatic. At TCG Lifesciences, we focus on every step of the complex scientific process and optimize them by employing "agile technology" and memorializing them into SOPs. TCG Lifesciences has developed proprietary software assets to document and manage data sets in a manner that has brought in efficiency and robustness in the information flow which is critical to innovation. It is also focusing on data science and AI to drive sophisticated in silico paradigms. AI applications have the promise to reduce the overall time of bringing new drugs to market by as much as 80%, as claimed by the CEO of Exscientia.

Over the years, working in a collaborative framework with its partners/clients, TCG Lifesciences' R&D activities have led to 100s of publications and patents from the company and many times that number from its partners. It has helped with the nomination of 100s of drug candidates and reduced the drug discovery timeline by several years. The key to our efforts is to promote innovation that can benefit India and the world at large. We are imparting training that not only teaches high-end scientific application skills but also offers an incentive that encourages them to take the risk and think about the sciences in a "disruptive" manner.

Technology-led innovation:

Another critical area of activity that has traditionally been responsible for significant delays in the advancement of drug molecules has been the inefficiency of the "handoff" from discovery to development. It is possible to shave off several years of the process if there is better coordination between the discovery and developments teams, with TCG Lifesciences' team managing that process. The US operations of TCG are singularly focused on applying sophisticated technology and solutions in the Custom Development and Manufacturing ("CDMO") domain. Headed by two



Swapan Bhattacharya, Managing Director

pioneers from this domain, who have together been the key drivers for the launch of over 10 new drugs into the market, TCG expects to play a significant role in shortening the time between discovery and drug launch. In fact, one of them, a stalwart in this domain has been credited with one of the shortest timelines in completing the development process of Januvia™, a diabetes drug from Merck.

The synthesis and supply of clinical trial material and their eventual cost of manufacture poses a significant challenge that requires new technologies and automation along with deep synthetic expertise. TCG has deployed many such technologies that qualify them as a leader in the chemistry domain for such activities.

"We have developed scalable and sophisticated end-to-end capabilities in the supply of small molecules to our pharmaceutical partners over the years. We are working hard to create a technological edge to differentiate ourselves. However, our biggest asset is our "drug hunting" talent pool and the leadership team, who will continue to serve our customers to bring safe and effective medicines for the patient population in the shortest period" – commented Swapan Bhattacharya, MD of TCG Lifesciences.

"In India, we are enabling innovation through the activities of TCG Foundation, a philanthropic organization, reaching out to academic institutions and schools located in remote districts of the Eastern regions too with funds for creating scientific infrastructure and inducting talented students into our House of Training (HOT) program for employment and in-house Ph.D. program. This is how we are investing for the future and promoting and challenging such folks to drive innovation in India" – he added.