

## Acquisitions fulfil needs of the business, customers and technology

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**BD Biosciences that provides flow cytometers, reagents, tools and a wide range of services to support the work of researchers and clinicians, recently launched two new instruments in India. In an interaction with BioSpectrum Bob Balderas, VP R&D, BD Biosciences, Cell Analysis shares the key research areas of the company and its plans on devising new technologies etc.**



### **What are the recent launches in flow cytometer?**

From the instrument perspective, we have recently launched two new instruments in India, BD FACSLyric and BD FACSMelody. BD FACSLyric is a high performance flow cytometer designed to support both routine clinical analysis and clinical research whereas BD FACSMelody is an easy to use cell sorter. Cell sorting has been considered a more challenging technique as compared to cell analyzer. There was a need for the users to have an instrument that has an easy software interface, small compact size and also something that individual users can use in their own laboratories. At times for cell sorting, people go to the core facility, but with this new machine it is more convenient and it is easy to learn. With that in mind, and to help people in the immunology field and the rapidly growing genomics field, we launched BD FACSMelody.

In addition to these two new platforms, in the last 2 years, BD Biosciences have had a number of new products both with

respect to the reagents and instruments. BD FACSymphony a high-speed Cell Analyzer was launched last year to enable identification and analysis of rare cell types. Another recent launch is BD FACSCelesta, a flow cytometer which is designed to make multicolor flow cytometry more accessible and allow researchers to benefit from new innovations in instrument and reagent technology.

We have clinical solution platforms and research solution platforms. So, as part of the BD Horizon Global Tour, we are presenting all the products and techniques which can be used for research and for clinical analysis. On the reagent front, we launched the BD OptiBuild custom reagents which offer more fluorochrome options with the antibodies researchers need. It allows us to offer many new combinations of products in thousands that have not been offered before by anyone else.

In 2012, we acquired a company called Sirigen, and this acquisition allowed us to make few dye polymers. So now we are working on combining antibodies and these dyes together and offer combinations to customers in order to meet their needs.

### **How do you plan out acquisitions and collaborations with other companies?**

Business in the year goes through a strategic process. We are really very much focused on the customers. We look into the environmental factors and to what the customers want and what we can provide them. We also look into how other companies are serving customers. The company takes decisions on how best to accelerate in order to meet the needs of the customers. At times, it results in acquisitions or partnership where we think that a technology developed somewhere else can help us to move things faster. So it all depends on the evolving market place and the customer needs.

Acquisitions fulfil needs of the business, customers and technology, of what is needed today or what might be needed in the future. Sometimes we need to look outside to enable us to grow more. So recently we looked into a brand new field of imaging flow cytometry and we acquired a very new company called Omega Biosystems. It has transformed our ability to utilize flow cytometer by integrating technologies that allow us to electronically turn a signal into a real time image, which separates us away from the traditional ways of looking at it as a picture. Eric Diebold is the scientist who created this new technology. We acquired their company 6 months ago and are in the process of integrating that technology to several different parts of the future of flow cytometry.

### **What are the key research areas BD Biosciences is focusing on today?**

Although the core focus is on immunology, there are new areas such as genomics and cell therapy where we are focusing significantly. Then of course on the clinical side, HIV and cancer have been primarily a big focus because of history of flow cytometry in those diseases. So, genomics and cell therapy are the key research areas where there is a lot more expansion happening right now.

For 40 years, BD has been the leading player in the field of flow cytometry, especially on the research domain. We have focused on a single cell. The first commercial flow cytometer ever made was a cell sorter that actually sorted samples at a single cell level. Today, the focus of all researchers is to understand functions at a single cell level. So focusing on single cell will give us a more implicit understanding of what a cell does in the field of native and adaptive biology. Say for example, we need to go inside that single T cell to get more information. We need that information to understand how all these single cells resonate together.

### **How is the Indian market different from the other countries?**

When we look through clinical and research perspectives, it is different especially when we talk about flow cytometry in the clinical field. You have got applications in HIV, in cancer, and there could be other disease states specific in other regions and so the clinical perspective is different in India. There is tremendous potential from a clinical perspective that may have higher applications in India. From a research side, lately there is tremendous growth in both pharma and biotech companies in India. A lot of top institutes are coming up in India, and so the path is brighter and India continues to be a key market. India is a very special place in the world with may be around 20 percent of the world's population. Within India, there are unique diseases that are regional that need to be solved and recently there have been some significant moves in the field that have moved from science of plants and medicinal point view to a more alternative way of looking at science and technology focused on a person.

In the past 10 years, scientists have left India and gone to other parts of the world and spent time and energy at higher levels of education and they are now coming back with work speed and they are bringing back different perspective on how to approach medicine and scientific questions. Universities here have a level of individuals that are ready to take over the infrastructure to the next generation of scientists in this field. So that puts it in a

place similar to China, which is going through the same transformation which we can see in the type of questions that are asked, the types of experiments that are done, the types of publications that are being done by scientists in India today, and that is transformational, little different from what it was 10-15 years ago.

### **How much time is required to introduce a new product, beginning from its research to marketing?**

It all depends on the product. Let's say if the product is completely new, then it might take multiple years. It takes time to set the stage for product launch, and doing the market shaping activities. In a lot of ways, this Horizon Tour has been a market development activity. We are trying to educate customers in different ways the flow cytometry application can be used. This is helping develop the market for future discoveries of flow cytometry platform.

On the other the hand, the total time taken for introducing a new product can be very less as well, for example when we are refreshing a product line, and just adding a couple of new features. It also depends whether the product is of research use only or it is a clinical product. Since clinical products need to go through a series of clinical trials, FDA approval in the US, in Europe the CE mark is required, while in China it has to be approved by the CFDA. So various regulatory bodies are required for the approval process and that it takes its own time. Research products come to the market earlier than the clinical products.

### **How important is customer feedback to you?**

It is all about the customer. What are their current needs, what are the challenges they are facing during their research work and to figure out how best we can provide them with a solution which not only includes the products but also the services and offers we can make. We have tools online for the customers to design their panels, to be able to purchase the right products. We do spend a lot of time globally talking to customers about their needs, trying to understand how best we can fill those needs.

The foundation of our biosciences has its roots in different areas. Scientists developed the first flow cytometer through a hybridoma technology. They gave us a way to take the information from a B cell, to put into a cancer cell and made us secrete an antibody. And then there were all those scientists who used that technology that was central to the foundation of basic immunology that showed us and discovered all of the molecules that were important in the receptor part of the cell. BD has partnered with these scientists and licensed their technologies, licensed their discoveries and has commercialized them over time. So in one way of saying it, we have been a part of co-creation in the field of immunology and that has allowed us to grow over time deeper into this field. These individuals tell us what is important in the field, they share their tools so that we can commercialize them. We have engineers and scientists who can take the information and build for the future. We go outside and work with other companies, and buy their technologies. BD FACSymphony was co-created with a creator technology from NIH with a scientist Mario Roederer who is the director of vaccine research, and with those interactions we co-created an instrument that is different and will allow a re-definition of immunology because it is not one of the smaller, easier to use instruments which we also make. We also listen to the customers that tell us we need to make bigger discoveries. BD FACSymphony is the most complex instrument in the world that defines the largest opportunity to get most information out of a single cell. Today people are using that instrument to redefine their fields of biology.

### **What has been the genesis of BD Horizon Global Tour? How do you rate its success?**

It is an educational tour for all levels of customers of flow cytometry. There is an opportunity here to teach the community about best practices on how to use these new tools with the combination of more sensitive instruments and also take into account what the research goals of the customers are, and what are the trends in the market.

So the last 4 years have been an evolution of this event. It started quite modestly and has grown each year. We see very inquisitive participants wanting to come and learn more about the newest techniques of flow cytometry. Each year, as a team we come here with the customer's perspective building on with the foundation from previous year as to what would be the best theme to pursue. Initially, it was more foundational but since then it has migrated through a journey of sorters and genomics, to help customers learn something new.

We also started to recognize certain other elements because of the popularity of the event, as we cannot be everywhere. We get pretty good attendance with most of the main cities. We also enable our regional teams to take care of small events and execute them in universities and laboratories, as on demand. So that we can connect with more people outside the main event.

We have also uploaded the educational material on the website from the previous year tour. This program is global in nature. It is not restricted to one particular region. It is the people in BD that make this event happen. There are hundreds of scientists behind this program. I think it's an opportunity for us to really show it to the customer our strength and character as

a team. We decided to go digital last year. It can be a benefit to a college student in a remote city who is unable to attend this event but with access to the internet, the student can learn more about flow cytometry. So we want to make sure that everyone can receive the knowledge we are sharing. We would be working on this more in the coming years where everybody has access to educational information.