

LONG REPORT

The 9th Annual Symposium on Biopharmaceuticals-San Diego Bio-Pharma Conference 2010

Getting Ahead of the Curve

Leading Organizers: Sino-American Biomedical and Pharmaceutical Professionals Association (SABPA) & San Diego Chinese American Association (SDCAA). **Co-organizers:** American Chemical Society, San Diego Section & UCSD Technology Transfer and Intellectual Property Services

Once more, the Annual Symposium on Biopharmaceuticals-San Diego Bio-Pharma Conference was an astounding success. Many of the 500 attendees, as I did, felt re-energized, motivated and optimistic about the future of biopharmaceuticals in both the United States and China. I was in awe of the talents and expertise that both presented and attended the meeting. The appropriate title of this year's event was 'Getting ahead of the curve'- It is important to know where the curve is, that is the biopharmaceutical industry curve, and where you can fit in.

The morning started with a welcome from Hui Cai, Chair of the board of SABPA who stated that the purpose of this year's event was to bring global experts together, and through a format of knowledge sharing and networking, to promote innovation, collaboration and to support advancement of Southern California's biopharmaceutical research and development.

Congressman Brian P. Bilbray, of the 50th District, California gave the opening address. Congressman Bilbray acknowledged that a third of the bioscience and life science research comes out of the US as well as 70% of commercial drugs. Congressman Bilbray also said that there needs to be less stringent regulations by government to allow the development of 'miracle drugs' and that there should be a 'fast track' system for getting drugs to the people who need it now. He acknowledged the dedication and commitment of all scientists who work diligently and patiently to find ultimate cures, treatments and preventions of debilitating diseases.

The first session, entitled 'Collaborative R&D-Industry and Academia', was chaired by Peter Zhu, Executive Vice President of SABPA San Diego. Diego Miralles, head and chief medical officer of Johnson and Johnson PRD, West coast gave a keynote speech. Dr. Miralles discussed the trend for decreased productivity and increase in the cost of R&D in the pharmaceutical industry. Because of these challenges, the pharmaceutical industry needs to adapt to the ever-changing environment. Johnson and Johnson has realized that there are many unmet medical needs in oncology, cardiovascular system, metabolism and infectious diseases and his company has developed models to increase the number of drugs that they have in the pipeline. The models include greater collaboration opportunities with academia, to externalize research and to have more focus on science and less on management. One philosophical statement from Dr. Miralles was that 'the world belongs to the optimist, not because they are always right, but because they are positive'.

Subsequently, Professor Xiaodong Wang, Howard Hughes Medical Institute and Department of Biochemistry, University of Texas Southwestern Medical Center discussed apoptotic pathways and targeting this pathway for potential cancer therapies. Dr. Wang is a pioneer in the effector mechanisms for mammalian apoptosis operating in the cytosol downstream of mitochondria and is also the co-director of the National Institute of Biological Sciences, Beijing, China. Dr. Wang is co-developing small molecules that target specific signaling molecules within the apoptotic signaling cascade that may

be used in conjunction with chemotherapies and other drugs to treat specific cancers. Specifically he has co-developed small molecules that act as Smac Mimetics to speed up apoptosis of cancer cells and he is beginning to understand why specific cancer types are resistant to Smac Mimetics. He believes that there will only be a real cure for cancer when we can understand the potential resistant mechanisms and a combination therapy will be the ultimate approach.

The second session of the symposium was a plenary discussion entitled “Emerging Fields and Adapting Strategies’. Robin Allgren of Breakthrough Bio Development introduced this session, which was moderated by Lewis Shuster, CEO of Shuster Capital. Mr. Shuster introduced five outstanding panelists who each gave a short presentation of their perspectives reflecting life science activities ranging from the cutting edge of diagnostics and therapeutics to the challenges of delivering “personalized medicine” to current trends in venture capital funding of innovative new companies and products.

Gregory F. Heath, Senior Vice President & General Manager, Diagnostics Business Unit, Illumina, discussed how his company has grown in the last 12 years. The ultimate mission of Illumina is to become the leading provider of integrated solutions that advance the understanding of genetics and health and to improve human health by enabling our customers to accelerate the collection, analysis and application of biological information. Illumina has developed a number of DNA sequencing technologies including the HiSeq 2000. The largest order to date was the purchase of 128 HiSeq 2000 systems by the Beijing Genomics Institute.

Steve Kaldor, President and CEO of Ambrx Inc. discussed the recent struggles that the pharmaceutical industry is facing, why Ambrx Inc. is focusing on biologics, and the future perspectives of his company. Dr. Kaldor stated that when ‘pharma struggles, biotech struggles.’ Over the last decade, larger pharmaceuticals have progressively been consolidated to drive revenues up, maintain stock price and outsource R&D. Ambrx Inc. is based on a fundamental advance in protein biosynthesis that enables the company to genetically engineer proteins with new amino acid building blocks beyond the common twenty, enabling the biosynthesis of proteins with new physical, chemical and pharmacological properties. Ambrx has 12 biologics products that are in preclinical and clinical development and has formed eight strategic partnerships.

John M. Dunn, Executive Vice President of New Ventures, Biogen Idec Inc. shared his insights on the future of the pharmaceutical industry and how Biogen Idec is adapting to the current problems associated with the industry. He said that Biogen Idec is exploring business opportunities. The main struggles facing the industry are declining revenue growth over the next few years, diminished R&D productivity, and finding an optimal balance of external and internal growth to fill the gap. The old system is not working and financing remains a challenge as both public and private valuations are down. The consequences are a lack of fund raising transactions, deal creativity and risk sharing, option structures and earn outs. The implications are more assets actionable today and an openness to deal structures. John Dunn also spoke on how the new legislation will affect the bio-pharmaceutical industry.

Richard Neale, Chief Business Officer, Scripps Translational Science Institute discussed the healthcare reform, individualized medicine and its utility to physicians. He said that health care in the US is placed 37th in the world, yet the cost per capita is 2.5 times that of France, which is ranked number 1. There is a great waste of money on drugs that are not working. With the new reform, personalized medicine may reduce costs, yet only 25% of physicians are educated on genetic testing. There can be no compromise

on the quality of care and individualize medicine must reduce costs and improve outcomes. Individualized medicine needs to compliment comparative effectiveness and importantly with this approach it is necessary to know who your customers are and who is going to pay.

The session was ended by Robert More, General Manager of Frazier Healthcare Ventures, discussing the future of venture capital funding and a focus on funding the unmet medical needs in our aging population.

Following a networking lunch in the San Diego sunshine, the San Diego Bio-Pharma Achievement award was presented by Xiangming Fang, President of SABPA San Diego to Ge Li, Chairman of the Board and Chief Executive Officer, WuXi AppTec. Dr. Li has received many awards in the last decade, including the Ernst & Young Entrepreneur of the year award in China. Dr. Li was one of the founding scientists of Pharmacopeia, Inc. In the year 2000, he had the vision, courage and wisdom to start his own contract research organization (CRO) from scratch in China. The company went public in New York Stock Exchange in 2007. WuXi AppTec now employs up to 4000 people with more than 400 employees in the US and recently, Charles River Laboratories bought the Shanghai-based pharmaceutical outsourcing provider in a \$1.6 billion cash-and-stock deal. Dr. Li stated that Charles River did not buy WuXi PharmaTech, but merged with the company; and this was part of his future vision for his company, to become the global leading CRO, but not just in China. Dr. Li was also credited for helping to shape the CRO industry and usher in the new generation of biopharmaceutical research and development in China. He has also been an inspiring figure for young Chinese scientists.

The afternoon session, entitled 'Drug Discovery in a Global Setting' was chaired by Mao Mao, Research Fellow of Pfizer. The first talk in this session was from Steve Yang, Vice President, Head of R&D, Asia, Pfizer. Steve initially gave an overview of Pfizer R&D in Shanghai China that employs more than 360 people. Pfizer is expanding in China and is building a new facility in Wuhan Biolake. Goldman Sachs recently said that Pfizer is the best positioned of US pharmaceutical companies. Pfizer now has R&D facilities across Asia in addition to China, including facilities in Japan and Singapore to accelerate its global portfolio, increase clinical trial activities and capabilities as well as having a growing number of partners and academic collaborators in India, Japan, Australia, Singapore and China. They have developed the 'Asia research accelerator': a virtual biotech model. Dr. Yang suggested that a metaphor for the current uncertain climate and evolution of the pharmaceutical industry is analogous to the evolution theory of punctuated equilibrium- Long periods of stability followed by short episodes of change, specifically the Cambrian explosion that occurred 530 million years ago when over 100 species vanished from earth and there was the relatively rapid appearance, of most major groups of complex animals, accompanied by a major diversification of other organisms. The Cambrian explosion has also been reported in China. Dr. Yang talked about his observations returning back to China from the US after working in Silicon Valley for over 10 years; it's a career versus a job, emotions versus rationale, to hunt versus harvest, a limited window of opportunity to make a choice. The philosophical talk ended with a statement from Leroy Hood the inventor of the automated sequencer and American biologist 'In the short-term people tend to grossly over-estimate what they can do- in the long term people underestimate what they can do.'

'Combining the Best of East and West: Drug Discovery targeting the PI3K/mTOR Pathway' was the title of the next talk by Troy Wilson, President and CEO of Intellikine. Dr. Wilson talked about his San Diego based company which employs 23 people and has three clinical programs that were developed

with a relatively small amount of money, 30 million dollars, in just three years. The focus of the company is to find potent, selective inhibitors of PI-3 kinases (α , β , γ , δ). Dr Wilson shared the reasons for why his company is surviving this turbulent climate, specifically by having a network of pharmaceutical collaborators. They source innovation from world-class scientists that are at easy access to them. They also established Chemikine, at the same time as Intellikine, which is a separate company that they use for chemical manufacture. Dr. Wilson said that innovation, the team of the best people, internal network, is then followed by focus - they do a few things better. The company is actively publishing in the best peer-reviewed journals. In addition to their selective PI-3 kinases inhibitor INK128, which targets solid tumor malignancies and is in a Phase 1 clinical trial, INK1197 is being developed for targeting inflammatory diseases, they are also developing new inhibitors for hematological and other solid malignancies.

The final session was a plenary discussion entitled '2010-2015: Stage 2 of China Life Sciences Industry' and was moderated by John Oyler. John currently resides in Beijing where he is setting up his next company. The panelists included Nancy Chang, Chairman and Sr. Managing Director, Asia, OrbiMed; James Tong, CFO, Chief Business & Development Officer of Tianyin Pharmaceutical, China; Xiaodong Wang.; Steve Yang, and Guo-Liang Yu, President, CEO and Chairman of the Board, Eptomics. Dr. Chang, Dr. Tong and Dr. Yu introduced themselves to the audience. This was followed by their answers to the question: what is their vision of the bio-pharmaceutical industry in the next 10 years? Nancy said that rapid DNA sequencing would have a great impact, as well as personalized medicine, stem cell therapy. She also said that China is going to be a major innovative center and that 'better science in China will make the country better.' Dr. Wang echoed Nancy's comments and stated that technology may go beyond sequencing and the next challenge will be on how to harvest this information and mass of data. There will be more holistic approaches to science and integrated technological platforms with greater translation from cells to whole body. He said that 'the more we know the more we don't know.'

Dr. Yu suggested that there will be a shift of focus from disease to health i.e. how do we prevent disease. He said that biotechnology would spread into other sectors such as food, environment and non-medical fields. Dr. Tong spoke of his company's treatment for heart failure. He said that there is a need to define a market that does not contain many players and stressed the importance of sales and networking. Everyone was impressed with Dr. Tong; he is sharp, smart, young and very polite. Many of the young scientists wanted to talk to him at the end of the day, to hear his success story and how they could pave a similar path. Dr. Yang predicted that 40% of pharmaceutical growth would come from the Asian market as well as new food and biomaterials. The lack of constraints in science, in China will increase the productivity and creativity of its scientists. He said that National Institute of Biological Sciences, Beijing China will be the first choice for post-docs out of the US and Europe.

To summarize, the bio-pharmaceutical industry is in turbulent period, new business models are being developed. Some will fail and some will succeed. It is certain regardless, that we will learn from this time. To continue with the evolution theme of Dr. Yang, it is natural selection at work and 'survival of the fittest.' The event was truly a success. A big thanks to the 27 sponsors of this event, the attendees, the speakers and last but not least the tireless effort of all the volunteers who have worked so diligently to put this outstanding symposium together. We look forward to seeing you all in 2011.

Bhawanjit Brar Ph.D.



Dr. Ge Li receiving the award



Panelist Dr. Nancy Chang



Dr. Diego Miralles



Dr. Xiaodong Wang and John Oyler



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A very well-attended event



Happy attendees enjoyed networking



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