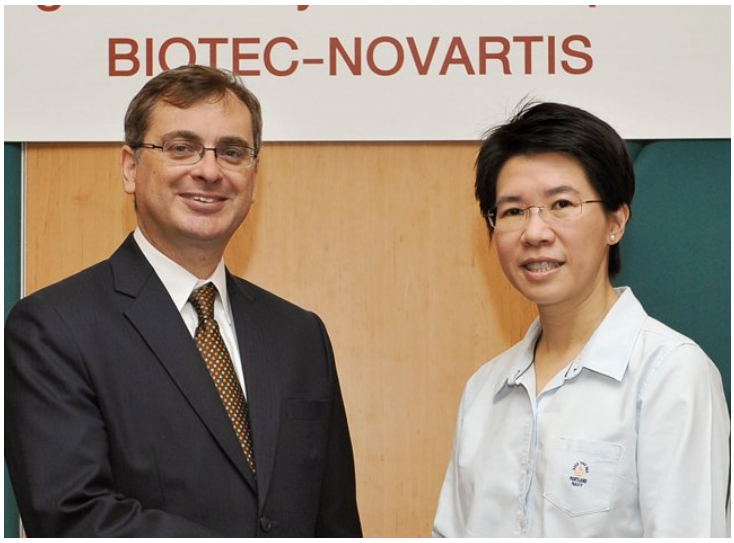
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Novartis, BIOTEC tie-up to explore Thailand's biodiversity

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Novartis, BIOTEC partnership to explore Thailand's biodiversity



In 2005, Novartis, a leading healthcare solution provider, decided to partner with The National Center For Genetic Engineering and Biotechnology (BIOTEC), Thailand, to decipher the potential use of microorganisms and natural compounds as sources of new medicines to treat diseases such as cancer, diabetes, and heart and tropical diseases. Owing to the success of the partnership, Novartis and BIOTEC decided to extend tie-up for three more years.

In an interview with *BioSpectrum*, Dr Kanyawim Kirtikara, executive director, BIOTEC, and Mr Richard Abela, country president, Novartis Thailand, discuss some of the achievements of the partnership and their future plans under the project.

Tell us about the BIOTEC-Novartis Partnership in Drug Discovery?

Dr Kirtikara: BIOTEC-Novartis Drug Discovery Partnership was conceptualized in 2005, with an aim to find the potential use of microorganisms and natural compounds as sources of potential new medicines. This partnership is based on the complementary expertise of both parties.

In addition to the research collaboration, capacity building of BIOTEC scientists through internships at research laboratories of Novartis Switzerland is also a focus of this partnership. Novartis also supports seminars and workshops in Thailand and sends experts to the country from time to time.

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How does Novartis contribute to this partnership?

Mr Abela: Novartis contributes to this partnership through its expertise in the discovery, characterization, development and worldwide commercialization of compounds derived from both synthetic and natural product sources. Novartis also provides

internship scholarships for BIOTEC scientists and lab courses and seminars by Novartis experts at BIOTEC.

How does BIOTEC contribute to this partnership?

Dr Kirtikara: BIOTEC's expertise is in the knowledge of microorganisms, ranging from collection, identification, preservation to culturing conditions, and in the isolation and elucidation of pure natural compounds from such microorganisms, but with limited biological activities. For this current phase, which started recently, we will investigate anti-parasitic activities of microorganisms and develop a method to enhance compound production in microbial strains.

Share with us some of the success stories of this partnership?

Mr Abela: Over the past six years of collaboration, as many as 7,200 microbial isolates and 115 pure compounds have been evaluated against a battery of drug targets from all disease areas of the Novartis research portfolio, such as infectious and cardiovascular diseases, oncology, and immunology. Many of the microorganisms have proven their ability to produce new compounds. Moreover, this cooperation has also enabled BIOTEC to automate and improve its extraction and chemical screening systems. Expertise in taxonomy and isolation of Actinomycetes, a class of bacteria known to produce relevant compounds for drug development and acquired during the partnership, also enabled BIOTEC to accumulate 6,000 more strains over the past six years. These strains are assets of Thailand and are now maintained at BIOTEC Culture Collection available for other research programs in Thailand, outside BIOTEC-Novartis scope.

What milestones have been achieved through the partnership?

Dr Kirtikara: We are pleased to see a significant know-how transfer taking place with the internship of Thai researchers at Novartis laboratories and the stint of Novartis experts at BIOTEC laboratories. Improvements on our research capability have been made in the following aspects:

- Our chemistry lab is able to automate and make and improve on the extraction and chemical screening systems.Ã?Â
- Two new screenings Ã?Â¢Ã¢â??Â¬Ã¢â?¬Â• an anti-tick assay and a sensitized-Staphylococcus aureus-based antibiotic assay Ã?Â¢Ã¢â??Â¬Ã¢â?¬Â• were added to our bioassay repertoire, which already includes anti-infectious disease pathogens, anti-plant disease pathogens and cytotoxicity test. These new assays will soon be part of screening service offered at BIOTEC.
- The partnership has helped us to set the direction of our research program in many ways. For instance, we have identified some new types of microorganisms that we would focus our attention on, namely actinomycetes and myxobacteria. Owing to the knowledge we have gained from this partnership, we have identified many new and rare species of actinomycetes confirming the richness of undiscovered biodiversity of microbes in Thailand. A Thai PhD student will soon graduate in the field of actinomycetes, under the joint supervision of a Thai professor and a Novartis expert.

The attention given to capacity building in our partnership is very unique. Therefore, the significant achievement of our partnership, in my opinion, would be recognition of this partnership as a model of biodiversity research collaboration by the international community. BIOTEC and Novartis were invited to share this experience at The International Regime Implications for Pharmaceutical Research and Development, which was a part of The 6th Meeting of the Ad Hoc Open-ended Working Group on Access and Benefit-sharing held in January 2008 in Switzerland, under the auspices of Convention on Biological Diversity.

Which type of drug is the partnership focusing on?

Mr Abela: The collaboration aims to investigate the potential of compounds produced by local microorganisms (natural products) as active ingredients for innovative medicines for treating diseases such as cancer, diabetes and heart and tropical diseases.

What is the plan for the future?

Dr Kirtikara: As BIOTEC a responsible organization in Thailand in the field of biotechnology, we are committed to building the nation's research capability in this field. In addition, we aim to be a leader in the field of microbial utilization and management in the region. Both Novartis and BIOTEC are working closely to bring out fruitful results to demonstrate the value of natural products from microorganisms.

What were the hurdles on the way of the partnership and what steps were taken to overcome them?

Mr Abela: The BIOTEC and Novartis Drug Discovery Partnership focuses on exploring Thailand's biodiversity for compounds that may serve as new and better medicines to address unmet medical needs. New medicines do not appear overnight. The interface of the chemical, biological, and pharmacological universes is highly complex. On an average, it takes approximately 14 years and a budget of $1.7 billion to develop one medicine. The R&D process is full of risk, uncertainty and takes time. Therefore, the perspective on success should be long-term. We cannot guarantee what we will achieve and when it will happen. The important thing is to make progress.