

Improving Lung Cancer Survival and Alleviating Chemotherapy-induced Neutropenia

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Neutropenia is a common, often severe adverse effect experienced by cancer patients who are undergoing chemotherapy treatment. We recently spoke with Dr Lan Huang, CEO at BeyondSpring, a clinical-stage biopharmaceutical company to learn more about the company's efforts to develop innovative immuno-oncology cancer therapies.

Huang discusses the clinical development of their first-in-class drug Plinabulin, which is currently being investigated as an anticancer therapy for non-small cell lung cancer and for the prevention of chemotherapy-induced neutropenia.

Laura Lansdowne (LL): For our readers who may not be familiar with BeyondSpring, could you tell us about the company?

Lan Huang (LH): BeyondSpring is a global, clinical-stage biopharmaceutical company focused on the development of innovative immuno-oncology cancer therapies. Our lead asset, Plinabulin, is currently in late-stage clinical development as an anticancer therapy in non-small cell lung cancer (NSCLC) and for the prevention of chemotherapy-induced neutropenia (CIN).

In addition to Plinabulin, the company has impressive internal R&D capabilities with a robust pipeline, plus a seasoned management team with many years of experience bringing over 30 drugs to the global market. Best of all, BeyondSpring employs a unique business model that integrates clinical resources in both the U.S. and China, the two largest pharmaceutical markets in the world, providing time- and cost-efficiency in conducting clinical trials and bringing highly needed therapies to patients.

LL: Could you tell us about the development of your first-in-class drug as an anticancer agent for lung cancer and the prevention of neutropenia?

LH: Plinabulin is a marine-derived small-molecule currently in late-stage clinical development to increase overall survival in cancer patients with NSCLC and to alleviate CIN. We are in the process of starting our third Phase 3 study. The latest results from our clinical study for the prevention of CIN, which we presented at the 2019 ASCO-SITC Clinical Immuno-Oncology Symposium, showed that, through combining Plinabulin with Neulasta (pegfilgrastim) – the current standard of care for CIN – patients not only experienced better outcomes for treatment of CIN, but Neulasta's potential immune-suppressive phenotype and prevalent bone pain were also reduced.

All of this is noteworthy, because maintaining an optimal immune response against cancer is vital for patient survival. The data also shows the power of combination therapies in potentially treating cancer, because Plinabulin is also an anti-cancer agent, and the Plinabulin–Neulasta combination significantly reduced bone pain and improved patients' quality of life. This is a huge win for both doctors and patients across the globe.

LL: What is neutropenia, and how is it caused?

LH: Neutropenia is a common, often severe side effect that cancer patients who are undergoing chemotherapy treatment experience. It involves the destruction of a type of white blood cell called the neutrophil, which is a patient's first line of defense against infections. Patients with severe neutropenia have an abnormally low concentration of neutrophils, making them more susceptible to bacterial and fungal infections and sepsis, which may require hospitalization and can potentially be fatal.

LL: Could you elaborate on your unique U.S. / China business model and its impact on time and cost of drug development?

LH: China is a vast market when it comes to developing oncology drugs: not only is there a larger patient pool, but there is also a higher percentage of patients who enroll in clinical trials. The Chinese market also has a high concentration of cancer patients in large metro areas where research hospitals are located, such as Beijing, Shanghai and Guangzhou, which makes patient recruitment for clinical research much easier. Another competitive advantage of BeyondSpring is our local presence in China, as we have people on the ground to oversee the trials to ensure execution quality.

Additionally, BeyondSpring's regulatory speed in China is boosted through a major innovation grant that Plinabulin received from the Chinese government: "The Thirteenth Five-Year Grant for Innovative Drugs." This special designation allowed BeyondSpring to accelerate the regulatory process through our inclusion in the government's priority review drug list. These combined factors represent a unique and disruptive business model in our view and give BeyondSpring major advantages over other drug companies across the global medical community today.

Lan Huang was speaking to Laura Elizabeth Lansdowne, Science Writer for Technology Networks