BXQ-350: A Novel Biologic that Modulates Sphingolipid Metabolism and Demonstrates Anti-Cancer, Anti-CIPN, and Anti-Viral Properties

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Background:
Dysregulated sphingolipid metabolism is associated with many pathologies including cancer, pain, Parkinson's disease, autoimmune and inflammatory diseases, viral infections, chemotherapeutic induced peripheral neuropathy (CIPN), diabetic mellitus and others. Several compounds targeting receptors involved in Shingosine-1-Phosphate (S1P) signaling have been approved for the treatment of autoimmune and inflammatory diseases but none for cancer, CIPN, CNS diseases or viral infections.

BXQ-350 is a nanovesicle of Saposin C, a human protein encoded by the *Psap* gene and an allosteric activator of enzymes involved in sphingolipid metabolism. BXQ-350 has been characterized preclinically in cancer, CIPN and viral models and is being clinically investigated in adult and pediatric cancer patients.

Results:
Results indicate that BXQ-350 possesses anticancer and antiviral properties and mitigates CIPN symptoms.

Preclinical results show that BXQ-350 possesses prophylactic and therapeutic activity against multiple viruses, including RSV, influenza, and coronavirus COVID 19; results also show BXQ-350 is a novel anticancer agent that mitigates the neurotoxic effects of chemotherapeutic agents. Clinically, BXQ-350 was investigated in a Phase 1 dose-escalation safety study in an all-comer adult cancer patients with advanced solid malignancies to determine its safety profile and potential clinical activity as monotherapy. Eight patients (~11% of evaluable patients) had PFS$\geq$ 6 months, with 2 patients still on study six years after enrollment. Analysis of biomarkers revealed changes in sphingolipids following BXQ-350 treatment that favor apoptosis and a tumor suppressive tumor microenvironment. Some patients with established CIPN at the time of enrollment reported an improvement of their symptoms after receiving BXQ-350.

Results, demonstrating that BXQ-350 positively impacts sphingolipid metabolism across therapeutic areas, will be presented and current development plans will be discussed.