Frequently Asked Questions

Q: Why Tumor Paint Technology?
A: Surgery is first-line therapy for most solid tumor cancers yet surgeons often cannot see cancer during surgery. Taking too little tissue means the patient is not cancer-free while taking too much can harm the patient by removing normal tissue that should have been left alone. Surgeons need to be able to distinguish cancerous tissue from normal tissue in real time throughout surgery to be sure they know what should be removed.

Tumor Paint technology was developed to "light up" tumors during surgery to improve outcomes for cancer patients. Tumor Paint products penetrate and "light up" cancer cells throughout surgery so surgeons can see and excise tumor tissue real time in the operating room. This approach should enable surgeons to remove the tumor in a more complete and precise manner, while preserving surrounding normal tissue, and prevent cancer recurrence and repeat surgeries.

Q: What are Tumor Paint products?
A: Tumor Paint products are designed to provide real-time, high-resolution intraoperative visualization of cancer cells, enabling more precise and complete resection of cancer. The first Tumor Paint product candidate is BLZ-100, a drug consisting of a tumor penetrating Optide and a near-infrared beacon, that "lights up" tumors to detect cancerous lesions thousands of times smaller than those that can be currently detected. This would provide surgeons with a real-time ability to see cancerous tissue at high resolution in the surgical suite.

Q: What is BLZ-100?
A: BLZ-100 is the first Tumor Paint product candidate that is being developed for cancer surgery in multiple solid tumor types. BLZ-100 is a drug administered by IV injection that circulates within the body and "light ups" cancer cells. It consists of an Optide*, which binds and internalizes into cancer cells, and a fluorescent dye, which emits light in the near-infrared range.

Preclinical utility of BLZ-100 has been demonstrated in a wide range of cancer types, including brain, breast, prostate, lung, colorectal, skin, and sarcomas. BLZ-100 is currently in Phase 1 clinical trials in patients with brain and breast cancers. In July 2015, Blaze Bioscience announced that BLZ-100 had received Orphan Drug Designation from the Office of Orphan Products Development of the U.S. Food and Drug Administration (FDA) for malignant brain tumors. The FDA grants Orphan Drug Designation status to products for rare diseases and disorders, providing incentives to sponsors developing drugs or biologics.

Use of BLZ-100 is designed to allow surgeons to distinguish between cancerous and normal tissue real time during surgery for more complete resections and sparing of normal tissue, resulting in improved patient outcomes such as:

- reduced rate of repeat surgeries,
- fewer patients having recurrent tumors
- fewer long term complications from surgery and
- improved quality of life for patients.

Q: What is the mechanism of action?
A: BLZ-100, the first Tumor Paint product candidate, consists of a tumor penetrating Optide*, which provides binding specificity, and a dye, which fluoresces or glows when light shines on it during surgery. The Optide in this case is a peptide originally discovered in the Israeli Deathstalker scorpion and synthetically optimized to have improved drug-like properties.

When the peptide portion of BLZ-100 binds to the surface of the tumor cell, the product is internalized, resulting in an accumulation of signal inside the tumor cells. The signal inside the tumor cells persists for days, allowing BLZ-100 to be given days before surgery. During surgery, near-infrared light emitted from the accumulated product is visualized in real time and at high resolution. This approach should enable surgeons to remove the tumor in a more complete and precise manner while preserving surrounding normal tissue and prevent cancer recurrence and repeat surgeries.

* Optides, or "optimized peptides," are tiny molecules originally derived from natural organisms, such as scorpions, violets and sunflowers and optimized for drug-like properties in the research laboratory.