**β-Trace: Providing Innovative Radiation Therapies for Pancreatic Cancer Patients**

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**The Problem**

Pancreatic cancer is projected to be the second highest cause of cancer related deaths by 2040

- Lack of early symptoms and effective screening strategies lead to late-stage disease at diagnosis
- 1 in 5 patients are eligible for the only curative procedure (Whipple surgery) and most of these patients will face cancer recurrence within 5 years

Presently, there are no effective strategies exist for dealing with recurrence in pancreatic cancer:

- Systemic radiotherapy is damaging to radiosensitive organs near the pancreas
- Chemotherapy does not deliver sufficient therapeutics to the hypovascular tumor environment

**New Technical Frontier**

IORT (Intraoperative Radiation Therapy):

Radiation treatment of the tumor margins during surgery with a more targeted therapeutic dose delivered directly to the treatment area

- Commonly used to treat other cancers (skin, prostate)
- Radiation source placed near or directly on top of the targeted treatment site allowing for a higher dose
- Sensitive organs can be shielded or moved away

**Barriers to Adoption:**

The existing treatment modalities are not optimized for the complex, volumetric environment in the abdomen

- Applicator designed for flat surfaces
- No effective preplanning of treatment exists
- Device is inflexible and difficult to operate during surgery

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**The Solution**

Radiation oncologists determine clinical target volume & dosimetry plan from pre-treatment CAT scans

Catheter channels are optimally placed within target volume and resulting applicator is modeled in β-Trace software:

Patient specific applicator is fabricated with silicon cast in a 3D printed mold which connects with existing radiation loading systems

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**Testing and Validation**

1) Dosimetry validation:

Oncentra Brachy Treatment (industry standard) will be used to compare dose coverage of β-Trace applicator to existing competitor products (Freiburg Flap)

2) Phantom Studies to Validate Dose Delivery:

Radiation (IR-192) is delivered to a water phantom (TG-43 dose formalism) using a Nucletron HDR remote afterloader system. Dosage is measured with EBT3 radioichromic films.

3) In-Patient Clinical Trial to Validate Fit:

Ongoing, IRB approved clinical trial (beginning in March 2022) is leveraged to confirm the fit and usability of our product in the initial patient population.

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**Market Opportunity**

- TAM Based on expansion to estimated 5% of breast cancer procedures
- SOM Captured hospitals based in Northeast region
- Beach Head Market Locally advanced Surgeries at Hopkins

**Conclusion and Acknowledgments**

β-Trace is a novel, effective and affordable treatment modality for combating recurrence in pancreatic cancer through high dose IORT. Together we can aim to provide better care to families affected with pancreatic cancer.

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60.5K people are diagnosed with pancreatic cancer annually

4/5 people will lose the fight against this disease within 5 years

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$2.2B

$356M

$72M

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$35

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