are injected into the blood reservoir using a programmable drug injection system that allows the user to select which drugs will be injected over a desired schedule. Individual and combination drugs can be tested over a desired period, usually 7 days, and the cell viability of the tumor sample is checked at the end to determine if the treatment is effective. Ourotech's Genesis hydrogel is used in the tumor module to mimic breast cancer. The hydrogel keeps the cancer cells alive and mimics the breast cancer tumor microenvironment, particularly cell attachment and migration. This hydrogel can also be translated into colorectal cancer.

The medical device is sold for an upfront cost and includes the drug injection system, blood pump and blood reservoir. The organ on a chip (tumor and liver modules) and the hydrogel are sold as consumables. Each patient requires chips and hydrogel for their tumor sample, with HER2+ breast cancer patients generally testing 5 treatments.

Demo Video: https://www.youtube.com/watch?v=1t0ivf1X_FU&t=11s

Marketing Plan

Economics

The cancer treatment selection market:

- Total market size for personalized solid tumor treatment selection: $7.05B
- This is a new market with high growth and it is becoming the new paradigm in cancer treatment. The market penetration has been low because PDX mice are too expensive and new companies are now taking over the market with affordable options. These include Foundation Medicine and Mitra Biotech.
- Barriers to entry:
    - IP
    - High capital costs
    - Long sales cycles
    - Regulatory
- How will we overcome the barriers?
    - Ourotech has developed 4 patents to protect our technology (1 published, 3 pending). 2 patents are for hydrogels, 1 is for the device and 1 is a design patent for the drug injection system. Our first hydrogel patent (published) covers the mechanism for creating cost effective, biomimetic hydrogels. 1 hydrogel patent is for mimicking the breast cancer microenvironment. New hydrogel patents can be made for each target cancer. A hardware patent covers the device (the setup of the pump, reservoir, tumor module, liver module and drug injection system).
    - Mice and clinical trials are expensive, but they are one-time costs. Successful trials make marketing and sales easy. They also create a barrier for new companies trying to compete.
    - The first market for Ourotech is pharma companies. Pharma companies can use Ourotech's device as a research tool to identify new combination therapies for clinical trials and screen patients who are the most likely to respond to a clinical trial to increase their chances of FDA approval. This does not require FDA approval as it is a research tool but the sales cycles to pharma companies can be 9-12 months long.
    - FDA approval and European CE marks are the most important regulatory approvals. The CE mark can be obtained more easily (mice and some human data), but the FDA approval will need clinical trials in the US.

Product.