Pancreatic cancer is one of the deadliest diseases in the world. It is a rare condition that produces 200,000 cases a year in the United States has a 10% five-year relative survival rate when all SEER stages are combined. The main treatments for pancreatic cancer are chemotherapy, surgery, and radiation therapy. These current treatments have many adverse effects that decrease the quality of life for the patient. The proposed project uses a new technique called Targeted Osmotic Lysis (TOL). This approach kills cancer cells without affecting non-cancerous cells, thereby reducing adverse effects. We assessed the efficacy of TOL on a murine model of pancreatic cancer.

Methods and Materials

Methods for this experiment included:
- Culturing the cells
- Harvesting the Panc-1 cell line
- Injecting the cells into the mice
- Waiting until tumors appeared on the mice
- Injecting the drug and vehicle into the mice in those groups
- Treating the stim group with the PEF
- Weight the mice
- Measure the mice tumor
- Sacrificing the mice
- Exposing all organs and tumor to fixative
- Send to Pathology

Materials for this experiment included:
- T25 Flask
- T75 Flask
- Nude Mice
- Panc-1 Cells
- Coaxial Ring Device
- Needles
- Weight Scale in grams
- Caliper

Results

There was no significant difference in tumor size when treatment groups were compared; however, the TOL treated group showed a trend in decreased tumor size when compared to the other treatment groups.

There was a significant difference when the groups were compared for weight. Drug-only treatment group lost significantly more weight compared to vehicle and stim-only treatment groups, and TOL treated group lost significantly more weight compared to vehicle.

Conclusion

This research project was supported through the School of Graduate Studies and Oleander Medical Technologies.