Multilayered Hydrogel for the Treatment of Glioblastoma

**BACKGROUND:** Glioblastoma (GBM)

Aggressive brain tumor
- 50% of global brain cancer cases
- 5% median 5 year survival rate
- Median survival time of 15 MO

**STANDARD OF CARE:**

- **TUMOR RESECTION**
- **RADIATION**
- **CHEMOTHERAPY**

Blood brain barrier prevents 80% of chemotherapy from reaching the brain

**PROBLEM:** Current treatment is ineffective in treating residual tumors and induces systemic toxicity

**UNMET NEED**

A way to address the inability of current treatment methods to maintain therapeutic drug levels at a tumor site in patients with glioblastoma in order to decrease tumor size.

**MARKET**

GBM treatment is valued at $1.7 BILLION
Hydrogels growing with 7% CAGR
Broaden market to ALL GLIOMAS

**SOLUTION:** MULTILAYERED HYDROGEL

**WHY A HYDROGEL?**

- Biocompatible
- Biodegradable
- Tunable release kinetics
- Desirable mechanical properties
- Implanted during tumor resection

**MAKE IT CONTROLLED:**

Alternating layers with distinct functions allows controlled drug release

**MAKE IT SQUISHY:**

Match hydrogel stiffness to brain stiffness to avoid adverse reactions related to trauma or dislodgement post-implantation

**MAKE IT SMALL:**

Make the hydrogel pore sizes small to prevent drug diffusion

**LEAD COMPOUND:** PACLITAXEL

PTX: loaded chemotherapy
- successful in preclinical models for GBM
- effective in combination with current standard of care

**REFERENCES & ACKNOWLEDGEMENTS**