Glioma Drug Delivery

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Unmet Need

- Glioblastoma (GBM) is the most common and most aggressive primary brain tumor of adults, accounting for 52% of all cases.
  - Treatment can involve chemotherapy, radiation and surgery.
  - Cancer stem cells (CSCs) generate tumors through the stem cell process of self-renewal and differentiation.
  - Despite treatment, patients typically live less than a year after diagnosis.
  - One of the worst 5-year survival rates among all human cancers with high tumor recurrence (5-year survival rate of ~4%)
Lectins Target Glycan Biomarkers on GBM CSCs

Targeting glycans on CSCs would deplete the tumor of its regenerative cell source.
Targeting GBM CSCs with Lectins

GBM Cancer Stem Cell

GalNAc/GlcNAc Glycan biomarkers

Drug

Lectin

NP

Drug
Lectin NPs are internalized by GBM CSCs

Cells treated with lectin NPs at 12hrs
Lectin NPs inhibit GBM cell growth *in-vitro*
R&D Status and Intellectual Property

- Conduct in-vivo studies
  - Testing of efficacy and toxicity in mouse model of GBM
  - Investigate targeting of other CSCs (breast, colon, prostate)

- Compositions Comprising Saccharide Binding Moieties And Methods For Targeted Therapy
  - PCT patent application (filed April 4th, 2012)
Value Proposition

• High unmet need for a treatment strategy that improves survival for GBM patients
  – even a small improvement in outcome is significant and viable

• Targeting of reliable and specific surface marker for GBM cancer stem cells

• NPs and existing drugs are in clinical use

• Multiple potential indications (glioblastoma, breast, colon, prostate)
Thank You!