### DRUG-FREE TARGETED TUMOR KILLING WITH MULTIMERIC ANTIBODY CONJUGATE

#### THERAPEUTICS
Antibody treatment therapy that binds therapeutics to graphene oxide, thereby increasing the visibility of B cells and directly targeting cancer cells with 1000x more potency.

#### TECHNOLOGY TYPE
- Drug Delivery
- Antibody and Peptides
- Biologics
- Nanoparticles
- Platform Method

#### STAGE OF DEVELOPMENT
- Proof of concept established in animal models.
- Collaboration established with Huntsman Cancer Institute for extended validation and biological characterization.

#### IP PROTECTION
Nationalized PCT Pending in the United States
A nanomaterial complex comprising graphene oxide associated with a therapeutic agent and methods of use WO2017066583A1

#### LEARN MORE
Reference Numbers: U-5880, U-5888

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### TECHNOLOGY SUMMARY
Monoclonal antibodies show limited clinical efficacy as a single agent therapy for solid and blood cancers. The requisite high doses result in undesired adverse immunogenicity and toxicity. Conjugating antibodies to cytotoxic drugs shows durable clinical response. However, antibody drug conjugate designing is complex, with knowledge of linkers, drug and antibody combinations in the context of a specific cancer.

University of Utah researchers are developing a new approach for modifying and improving antibody avidity by using graphene oxide (GO) as a targeted delivery scaffold. The GO-based aqueous composition allows non-covalent association of multiple antibody molecules on individual GO molecules, resulting in high efficacy antibodies.

#### FEATURES AND BENEFITS
- Improves avidity for antigen by 10 fold.
- Increases efficacy for anti-CD20 and anti-HER2 in osteosarcoma, lymphoma and pancreatic xenograft tumor models.
- Decreases required dose for effective tumor killing with minimal to no adverse effects.
- Composition involves easy, reproducible, non-covalent and stable ratio-metric formulation.

#### RECENT PUBLICATIONS
doi: [10.18632/oncotarget.7230](https://doi.org/10.18632/oncotarget.7230)

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