

HIGH AFFINITY MONOCLONAL ANTIBODIES TARGETING GLYPICAN-2 FOR TREATING CHILDHOOD CANCERS

SUMMARY (1024-CHARACTER LIMIT)

Cancer therapies that specifically target Glypican 2 (GPC2) are strong therapeutic candidates for pediatric patients with neuroblastoma and other GPC2 expressing cancers. The inventors at the National Cancer Institute (NCI) have developed and isolated two new antibodies that target GPC2 (CT3 and CT5) that are available for licensing and co-development.

NIH REFERENCE NUMBER

E-198-2018

PRODUCT TYPE

- Therapeutics

KEYWORDS

- Glypican 2, GPC2, Immunotoxin, Recombinant Immunotoxin, RIT, Chimeric Antigen Receptor, CAR, Antibody-drug Conjugate, ADC, Neuroblastoma, Medulloblastoma, Retinoblastoma, Ho

COLLABORATION OPPORTUNITY

This invention is available for licensing.

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STATUS

Active

DESCRIPTION OF TECHNOLOGY

Neuroblastoma is a rare pediatric cancer with approximately 1,000 new cases arising annually. Current therapies have a less than forty-five percent (45%), three-year survival rate which demonstrate a need for a more effective treatment against this disease. Glypican-2 (GPC2) is a cell surface protein that is preferentially expressed in pediatric cancers including neuroblastoma, which makes GPC2 an attractive candidate for targeted therapy.

Researchers at the National Cancer Institute's (NCI) [Laboratory of Molecular Biology](#) have developed and isolated two new antibodies that target GPC2 (CT3 and CT5). These new antibodies have been shown to specifically target GPC2-expressing neuroblastoma, medulloblastoma, and retinoblastoma cell lines. These GPC2 antibodies can be used as either independent agents or targeting domains in recombinant immunotoxins (RITs), antibody-drug conjugates (ADCs), and chimeric antigen receptors (CARs). Significantly, RITs and CARs (using the CT3 clone) have shown specific killing activity against GPC2-positive neuroblastoma cells, strongly supporting that these candidates may be further developed as therapeutics for patients with GPC2-positive pediatric cancers.

POTENTIAL COMMERCIAL APPLICATIONS

- Therapeutic applications include the unconjugated antibodies and their use as a targeting moiety for CARs, RITs, ADCs, and bispecific antibodies
- Diagnostic application for detecting and monitoring GPC2-expressing malignancies

COMPETITIVE ADVANTAGES

- New CT3 antibody with high GPC2 binding specificity will result in less non-specific cell killing and lower potential side-effects
- There is a first to market potential because there are no known effective GPC2-targeted therapies currently available

INVENTOR(S)

[Mitchell Ho Ph.D. \(NCI\)](#)

DEVELOPMENT STAGE

- Discovery (Lead Identification)

PATENT STATUS

- **U.S. Provisional:** U.S. Provisional Patent Application Number 62/716,169 , Filed 08 Aug 2018

RELATED TECHNOLOGIES

- [E-211-2016 - Human Monoclonal Antibodies Targeting Glypican-2 in Neuroblastoma](#)

THERAPEUTIC AREA

- Cancer/Neoplasm