

Therapeutic antibody-drug conjugates targeting CD56-positive cancers

Summary

Available for licensing and co-development are antibody-drug conjugates (ADC) that incorporate one of two novel human CD56 antibodies, known as m900 and m906, in combination with a known cytotoxic drug, pyrrolobenzodiazepine (PBD).

NIH Reference Number

E-221-2015

Product Type

- Therapeutics

Keywords

- glycoprotein,ADC, pyrrolobenzodiazepine, neuroblastoma, small-cell lung cancer, multiple myeloma

Collaboration Opportunity

This invention is available for licensing.

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Description of Technology

The glycoprotein CD56, also known as a neural cell adhesion molecule (NCAM), plays an important role in normal physiological functions. It is expressed in low levels in normal cells such as neurons, glia, skeletal muscle and natural killer cells. It is highly expressed on a variety of cancerous cells including those of neuroblastoma, small-cell lung cancer, and multiple myeloma. In neuroblastoma, patients undergo a very aggressive standard of care regimen that results in a high mortality rate. Many neuroblastomas have increased expression of CD56, which represents a possible therapeutic target for these aggressive and hard to treat cancers.

Researchers at the National Cancer Institute's [Cancer and Inflammation Program](#), in collaboration with the Children's Hospital of Philadelphia (CHOP), have developed antibody-drug conjugates (ADC) that incorporate one of two novel human CD56 antibodies, known as m900 and m906, in combination with a known cytotoxic drug,

pyrrolobenzodiazepine (PBD). Other PBD-ADCs have demonstrated the ability to overcome resistance in some multi-drug resistant cancers that could present additional benefits for the ADCs of the current invention. The m900 and m906 ADCs have been shown to induce cell death and CD56 down regulation *in vitro* in four different CD56-positive neuroblastoma cell lines. Preliminary studies in animals have also shown promising results and additional *in vivo* work is ongoing.

Potential Commercial Applications

- Therapeutic for the treatment of neuroblastoma
- Therapeutic for the treatment of other CD56-positive cancers including small cell lung cancer, multiple myeloma, pancreatic cancer, ovarian cancer, acute myeloid leukemia, NK-T lymphoma, and neuroendocrine cancer

Competitive Advantages

- Fully human antibodies (m900 or m906) targeting CD56 may offer improved properties over the humanized antibody IMG901

Inventor(s)

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Development Stage

- Pre-clinical (in vivo)

Publications

Y. Feng et al. Differential killing of CD56-expressing cells by drug-conjugated human antibodies targeting membrane-distal and membrane-proximal non-overlapping epitopes. [PMID: 26910291]

Patent Status

- **U.S. Provisional:** U.S. Provisional Patent Application Number 62/199,707, Filed 31 Jul 2015

Related Technologies

- E-142-2014

Therapeutic Area

- Cancer/Neoplasm

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