EGFRvIII Antibodies for the Treatment of Human Cancer

Summary (1024-character limit)
Researchers at the National Cancer Institute (NCI) have isolated seven monoclonal antibodies that bind to the human epidermal growth factor receptor variant III (EGFRvIII) but not wildtype EGFR. The NCI seeks research co-development partners or licensees for monoclonal antibodies that specifically target cancer-expressed EGFR.

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E-103-2019

Product Type
- Therapeutics

Keywords
- Epidermal growth factor receptor, EGFR, Epidermal growth factor receptor variant III, EGFRvIII, Chimeric Antigen Receptor, CAR, Antibody-drug Conjugate, ADC, Recombinant Immunotoxins, RITs, FitzGerald

Collaboration Opportunity
This invention is available for licensing and co-development.

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Description of Technology

Epidermal growth factor receptor variant III (EGFRvIII) is a variant of EGFR that is an excellent target for immunotherapy because of its expression in cancer cells and not in normal cells.

Inventors from the National Cancer Institute (NCI) have isolated seven mouse monoclonal antibodies that bind to the human EGFRvIII but not wildtype EGFR. These EGFRvIII antibodies can be used as either independent agents or targeting domains in recombinant immunotoxins (RITs), antibody-drug conjugates (ADCs), bispecific antibodies, and chimeric antigen receptors (CARs). Significantly, RITs using one of the antibodies (40H3) have shown potent killing in breast cancer cells and in epidermoid cancer cells, strongly supporting that the antibodies may be further developed as therapeutics. The 40H3 antibody is also able to bind to EGFR when overexpressed as seen in various cancers, and thus has broad therapeutic

potential.

The NCI seeks research co-development partners or licensees for monoclonal antibodies that specifically target cancer-expressed EGFR.

Potential Commercial Applications

- Therapeutic applications include the unconjugated antibodies and their use as a targeting moiety in ADCs, RITs, and CARs
- Diagnostic agent for detection and monitoring levels of EGFRvIII expressing cancers

Competitive Advantages

- The EGFRvIII antibodies with high EGFRvIII binding specificity will result in less non-specific cell killing and lower potential side effects
- RITs using the 40H3 antibody are available for immediate testing
- 40H3 can also bind EGFR when over-expressed from amplified EGFR, which is specific to various cancers

Inventor(s)

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Development Stage

- Discovery (Lead Identification)

Patent Status

- **U.S. Provisional:** U.S. Provisional Patent Application Number 62/869,956 , Filed 02 Jul 2019

Therapeutic Area

- Cancer/Neoplasm