Fred Hutch Cancer Center

MHC class II restricted T cell receptors targeting mutations in EGFR

Business Opportunity
Exclusive license
Sponsored Research
Start-up

Technology Type
Immuno-Oncology
Cell Therapy
Therapeutic

State of Development
Preclinical in vitro

Patent Information
PCT filed, patent pending

Investigator
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Tech ID
22-111

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Brief Description
Compositions and methods for targeting EGFR antigens (for e.g., to treat or manage cancer)

Technology Overview
Activating mutations in EGFR cause a subset of non-small cell lung cancer that occurs preferentially in women and non-smokers. EGFR mutated lung cancer responds to small molecule kinase inhibitors, but resistance occurs in almost all cases, and they do not benefit from existing immune therapies, so new immune therapies are necessary. While CAR and TCR immunotherapies have historically focused on CD8+ T cells, there is growing support for the importance of CD4+ cells in driving effective immunotherapy, including recent reports of clinical success with MAGE-A3 TCR CD4+ adoptive cell therapy. Here, Fred Hutchinson Cancer Center researchers have discovered MHC class 2 directed T cell receptors that specifically recognize 2 different recurrent EGFR mutations that could be used for novel CD4+ T cell therapies to target patients with these EGFR mutations.

Applications
- Adoptive CD4+ T cell transfer with transgenic TCRs to be used as immunotherapy in subjects having or at risk for a cancer with mutant EGFR expression or activity
- Combination treatment with anti-PD

Advantages
- Novel treatment strategy for targeting difficult to treat disease or disorder associated with EGFR expression or activity that are not responsive to ICI treatment
- Can be applied to solid tumors and hematologic malignancies
- Presentation by HLA obviates need for high cell surface expression
- Can be applied to solid tumors and hematologic malignancies