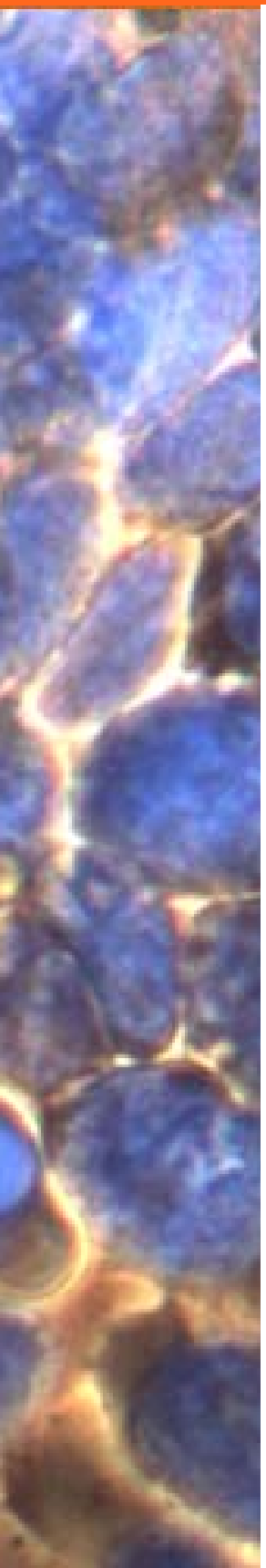
versiti™
Blood Research Institute

CAR-T cells ReACT to solid tumors



In Brief

Genetically engineered T cells from a patient's own tumor combined with chimeric antigen receptor and vaccine technology offers a lasting cure for solid tumors.

Description

A chimeric antigen receptor (CAR) approach combines vaccine receptor technology with a patients own tumor reactive T cells. Genetically modified cells responsive to the vaccine antigen are re-infused and the patient is vaccinated near the site of the tumor. The main problems in solid tumor therapy are addressed.

1) T cells home to the site of tumor
2) T cells are strongly activated by the vaccine
3) T cells are responsive to both multiple tumor antigens and a vaccine antigen
3) Lasting tumor erradication demonstrated in mouse models

The use of intracelleular CAR signalling domains allows the T cells to be fully reactivated and able to clear tumor effectively after adoptive cell therapy. Hence the term ReACT or reenergized adoptive cell therapy. The method has been tested in mouse models of breast, melanoma, and bladder cancer with 70% complete eradication of the tumor using just one treatment. An initial clinical trial is in the planning stages for bladder cancer.

Benefits

- Potential therapy when complete tumor resection not possible
- Low toxicity compared to alternative chemotherapeutic/radiologic interventions
- Less invasive than complete tumor resection
- Could be combined with other treatments or used for resistant tumors

Inventor Weiguo Cui

Patent protection

WO/2017/112184 Method of manufacturing dual-specific t-cells for use in cancer immunotherapy

Licenses available

Seeking clinical partners for the bladder cancer trial and other support to expand this work into other solid tumor treatments.

Publications

GXin, DSchauder, WJing, AJiang, NJoshi, BJohnson, WCui. A Pathogen Boosted Adoptive Cell Transfer Immunotherapy to Treat Solid Tumors. Proc Natl Acad Sci U S A. 2017 Jan 24;114(4):740-745. doi: 10.1073/pnas.1614315114 PMCID: PMC5278465

Laura Savatski, Technology Transfer Officer, Versiti, Blood Research Institute
(414) 937-3833 Laura.Savatski@bcw.edu http://versiti.org/research