

## Compounds and Methods for the Selective Rejuvenation of Exhausted CAR T Cells

**Track Code:** 2022-LOW-69573

**Categories:**

- Pharmaceuticals

**Keywords:**

- Cancer
- Chimeric antigen receptor (CAR)
- conjugate
- Immune modulator
- non-releasable
- rejuvenation
- releasable
- Toll like receptor (TLR)

NCS: Researchers at Purdue University have discovered a method to rejuvenate exhausted chimeric antigen receptor (CAR) T cells to treat cancers. CAR T cells have shown promise in hematologic cancer treatment, however, their application in eradication of solid tumors remains limited by their development of a dysfunctional or exhausted phenotype, leading to decreased proliferation of CAR T cells and compromised effector function. By targeting ligands of the fluorescein receptor and Toll-like receptor 7/8 (TLR7/8), the Purdue researchers rejuvenated exhausted CAR T cells without harming other cells.

Technology Validation: Systemic administration of fluorescein-TLR7/8 agonist conjugate in vivo not only rejuvenated exhausted CAR T cells in an immunosuppressive tumor microenvironment without stimulating immune cells in healthy tissues, but also halted the growth of CAR T cell-refractory cancers.

**Advantages**

- Non-toxic
- Reverses exhausted CAR T cells
- Effective therapy for CAR T refractory solid tumors

**Applications**

- Solid cancer treatment

**People:**

- Low, Philip Stewart (Project leader)

- Napoleon, John Victor

**Intellectual Property:**

**Application Date:** August 30, 2022

**Type:** PCT-Patent

**Country of Filing:** WO

**Patent Number:** (None)

**Issue Date:** (None)

**Application Date:** August 30, 2021

**Type:** Provisional-Patent

**Country of Filing:** United States

**Patent Number:** (None)

**Issue Date:** (None)

**Contact OTC:**

Purdue Office of Technology Commercialization

The Convergence Center

101 Foundry Drive, Suite 2500

West Lafayette, IN 47906

Phone: (765) 588-3475

Fax: (765) 463-3486

Email: [otcip@prf.org](mailto:otcip@prf.org)