Docket #: S19-031

Blocking pathogen mimics of CD47 therapeutically with CV1-G4

Stanford researchers in the Weissman lab have developed an engineered protein that blocks the function of the CD47 mimics pathogens use to evade the immune system. Normal and healthy cells display the cell-surface protein CD47 that serves as a 'don't eat me' signal through interaction with signal regulatory protein α (SIRPα) receptors on phagocytes of the immune system. This signaling is a key component to the specificity of the immune system's clearance of aged, damaged, and dying cells. Pathogens across the tree of life have evolved proteins that mimic CD47 to similarly suppress phagocytes from consuming them, enhancing their ability to establish persistent infections. Characterizing potential CD47 mimics in diverse pathogens remains a challenge as they can often not be identified through sequence-similarity searches. This engineered protein can not only block the function of pathogen CD47 mimics to reduce infections and improve protective innate immune responses, but also be employed as a probe for the discovery of unknown CD47 mimics.

Applications

- Infectious diseases
- Bacterial Infection
    - Lyme Disease
- Fungal Infection
    - Aspergillosis
- CD47 mimic target discovery

Advantages

- No current therapeutics that target pathogen CD47 mimics

- High specificity
- High affinity
- Unknown pathogen CD47 mimic discovery tool

Patents

- Published Application: WO2020257196
- Published Application: 20220235131

Innovators

- Irving Weissman
- Michal Tal
- Balyn Zaro
- Laughing Bear Torrez Dulgeroff
- Effie Bastounis
- Efthymia Iliana Matthaiou
- Joe Hsu
- Maxim Markovic
- Maia Shoham
- Tal Raveh

Licensing Contact

Minxing Li

Licensing and Strategic Alliances Manager

Email