Docket #: S15-050

Mobilizing anti-tumor immunity by targeting chemerin receptor CCRL2

Researchers at Stanford have developed a new, patented strategy to enhance anti-tumor immune responses to treat cancer. Cancer is the second leading cause of death in the United States and inflicts a tremendous burden on public health. Harnessing the immune system to destroy tumor cells is a promising therapeutic strategy. However, most current cancer immunotherapies selectively activate only a limited repertoire of anti-tumor immune defenses and often have incomplete efficacy. To overcome these limitations, the inventors have developed a new strategy to facilitate recruitment of anti-tumor immune cells into tumor tissue by exploiting chemerin. Chemerin is a chemoattractant that directs recruitment of anti-tumor immune cells, including NK cells. The inventors have identified a chemerin-sequestering receptor, CCRL2, which restricts chemerin-dependent recruitment of tumor fighting immune cells. This technology provides methods of inhibiting CCRL2 to enhance the anti-tumor immune response to treat cancer.

Stage of research
Initial studies have shown great promise. Additional development and validation is ongoing.

Applications

- Cancer immunotherapy

Advantages

- New therapeutic strategy
- Facilitates anti-tumor immune defenses independent of existing immunotherapeutics

- Works though a non-checkpoint inhibitor pathway to slow tumor growth
- Synergies with emerging checkpoint inhibitor and conventional chemotherapeutic approaches
- Mobilizes the endogenous immune defenses to attract a broader and more cohesive repertoire of immune cells

Publications

- Woo Jae Shin, Brian A. Zabel, Russell K. Pachynski, "Mechanisms and Functions of Chemerin in Cancer: Potential Roles in Therapeutic Intervention," Frontiers in Immunology, Nov 30, 2018, Vol. 9, Article 2772, doi:10.3389/fimmu.2018.02772.

Patents

- Published Application: 20170002087
- Issued: 9,868,792 (USA)

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