Docket #: S17-367

NK-cell based therapies to treat MYC-driven lymphomas

Researchers at Stanford have developed methods to classify and treat MYC-driven hematopoietic cancers. The MYC oncogene drives the proliferation and survival of many hematopoietic cancers. These cancers are highly aggressive and do not respond to conventional chemotherapies. Thus, additional therapeutics, such as immunotherapies that enhance the immune system's response to tumors, are needed. To help meet this need the inventors have taken advantage of their recent findings that MYC-driven lymphomas suppress the ability of the innate immune system to identify and eliminate cancer cells. To counteract this, they have developed methods of innate immune-cell based therapy. Furthermore, they have identified innate immunological biomarkers to identify aggressive MYC-driven lymphomas. The biomarkers can be used to determine which patients would benefit from innate immune-cell based immunotherapy interventions. This technology provides methods to improve the treatment of hematopoietic cancers.

Stage of research
Validations studies show promise and additional development is ongoing.

Applications

- Immunotherapy to treat MYC-driven hematopoietic cancers including:
  - Non-Hodgkins lymphoma
  - Burkitt's lymphoma
  - Diffuse large B cell lymphoma
  - T cell acute lymphocytic leukemia

Advantages

- The biomarkers enable patient stratification for optimal immunotherapy response
- The biomarkers are easily detectable in blood drawn from a patient
- Innate immune cell-based immunotherapy can:
    - Heighten the immune response to cancer
    - Use immune cells isolated from the patient
    - Be tailored to each patient

Patents

- Published Application: WO2019125868
- Published Application: 20200353000
- Issued: 11,648,275 (USA)

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