Alteration of dendritic cell metabolism to augment cancer vaccine efficacy

Meet the Inventors

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Publication(s)

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External Link(s)

• From the lab of Dr. Brent Hanks
• Researchers Identify New Way to Unmask Melanoma Cells to the Immune System

Value Proposition

Despite recent advances, many cancers remain refractory to available immunotherapeutic strategies. Immunotherapy is currently one of the treatment options for the 100,350 new melanomas that are estimated to be diagnosed in 2020 by the American Cancer Society. Emerging evidence indicates that the tolerization of local dendritic cells (DCs) within the tumor microenvironment promotes immune evasion. However, the mechanisms by which cancers induce this DC tolerization program are largely unknown. There is a need to better understand these mechanisms and improve the efficacy of checkpoint inhibitor immunotherapies.

Technology

Duke inventors have reported a method for treating cancer intended to improve patient response to immunotherapeutic strategies. This method comprises initiating a dendritic cell-based cancer vaccine treatment in the patient and then inhibiting fatty acid oxidation in the dendrtitic cells. This technology has been demonstrated to enhance the activity of anti-PD-1 antibody immunotherapy and suppress disease progression in a transgenic melanoma model.

Advantages

- A promising pharmacological target for augmenting checkpoint inhibitor immunotherapy
- Demonstrated enhancement of anti-PD-1 antibody activity in mouse model
- Offers a platform for designing the next generation of dendritic cell-based cancer vaccines