Molecular Adjuvant Based Dendritic Cell Vaccine

**Technology Fields:** Therapeutics - Cancer  
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**Summary**

Dendritic Cells (DCs) are very potent antigen presenting cells that are key regulators of the immune response. Due to the importance of DCs in generating immune responses, many researchers have been focused on the development of DC-based vaccines for the treatment of cancer. DC-based vaccines have shown effective anti-tumor responses in various mouse models. DC-based vaccines have also been used in clinical trials for the treatment of cancer. Researchers at the University of Nebraska Medical Center have created a new DC-based vaccine approach that utilizes a potent molecular adjuvant. They have developed a vaccine utilizing a conformationally-biased and highly response-selective agonist of C5a that induces C5a-like immune stimulatory activities without activation of C5a-like inflammatory responses. This molecular adjuvant is then linked to a tumor specific antigen and can be used to pulse DCs. By attaching to C5a receptors on DCs, this adjuvant-antigen complex both stimulates DCs while directly bringing antigens in contact with DCs thereby enhancing antigen presentation. Studies have been conducted using a mouse model of melanoma. The DC-based vaccine significantly reduced tumor volume and improved survival. This work demonstrates that the C5a based adjuvant provides an effective platform for the creation and activation of DC-based vaccines.

**Features and Benefits**

- Can be used with any tumor antigen
- Demonstrated in vivo efficacy
- Can be used to stimulate DCs ex vivo or in vivo

**Publications**