Cancer is the second leading cause of mortality in the United States, responsible for a quarter of all deaths and claiming over 500,000 lives every year. Existing cancer vaccines target specific antigens on tumor cells. Since cancer cells are highly prone to mutation, these antigens may not always be present, which limits the effectiveness of existing vaccines. Approaching cancer vaccination from a different angle, we developed an immunogenic tumor-associated stromal cell antigen (TASA) peptide vaccine that targets cells in the connective tissue around the tumor, destroying its support system. By going after markers on the stromal cells rather than the cancer cells themselves, our vaccine could prove useful in fighting a wide array of cancers.

**Technology Description**

Following vaccination with immunogenic TASA peptides, the host develops an immune response producing T-lymphocytes that recognize TASA antigens neuropilin 1 (NRP1), protein delta homolog 1 (DLK1), and tumor endothelial marker 1 (TEM1). Attacking cells that express these markers decreases tumor vascularization and inhibits cancer progression in the host. In mice, therapeutic vaccines eliciting immune responses against TASA peptides effectively suppressed the growth of melanoma and colon cancers, and in most cases, promoted disease regression.

**Advantages**

- Broadly effective against many different types of cancer
- Targets stable, less variable stromal cells within and surrounding tumors

**Applications**

- Decrease growth and promote regression of solid vascularized forms of cancer

**Stage of Development**

*In vivo* data

**IP Status**

US patent 9,345,770 issued
Dr. Storkus’ research over the past 20 years has focused on the immunobiology and immunotherapy of melanoma and renal cell carcinoma. He has defined novel vaccines and cytokine gene therapy approaches targeting tumor cells and stromal cells within the tumor microenvironment that have been translated from murine tumor models into the clinic.

Education
PhD Duke University
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Publications

