PD-1/PD-L1 Blockade together with Vaccine Therapy Facilitates Effector T Cell Infiltration into Pancreatic Tumors

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Technology description

Novel Combination Therapy for Pancreatic Cancer Treatment
Invention Novelty: The technology is the novel combination of PD1/PD-L1 blockade antibody and vaccine-based immunotherapy to treat pancreatic cancer.
Value Proposition:
Pancreatic cancer is one of the top cancer killers in the United States due to late detection and resistance to current traditional cancer treatments. Infiltrative immunosuppressive cells in the tumor environment prevent the immune system from effectively eradicating the cancer. Activation of the programmed death (PD) signaling pathway in tumor infiltrating T cells induce cell death which curtails anti-tumor immune responses and promote tumor growth. This technology provides a method that uses pancreatic cancer vaccine in combination with a PD-1 or PD-1 ligand (PD-L1) blockade antibodies to facilitate immune system cell infiltration and reduce immunosuppressive pathway cell infiltration into pancreatic tumors to promote anti-tumor activity. Advantages include:
Technical Details:
Johns Hopkins researchers found that treatment with vaccine-based immunotherapy GVAX induces pancreatic cancer resistance by increasing PD-L1 expression. The pancreatic cancer tumor environment uses the upregulation of the PD-1 pathway to suppress immune responses and thus promote tumor growth. However, this immune suppression was reversed in mice bearing pancreatic cancer that were treated with PD-1/PD-L1 blockade therapy in addition to GVAX. Combination therapy treated mice also had longer survival and higher cure rates compared to those treated with GVAX alone.
Looking for Partners: To develop and commercialize the technology as combinational therapies to treat pancreatic cancer.
Stage of Development: Pre-Clinical
Data Availability: animal data
Categories: Therapeutics
Keywords: PD-1,pancreatic cancer, vaccine-based immunotherapy

Advantages

- Provides a novel treatment for pancreatic cancer
- Can potentially increase overall survival of pancreatic cancer patients
- Increases efficacy of GVAX vaccine for pancreatic cancer therapy

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