Cancer Therapeutics

A Tumor Mitochondria Vaccine that Protects Against Cancer

Brief Description
Immuno-oncology, Immunotherapy, vaccine

Docket # 14-7082

STATE OF DEVELOPMENT
- Currently performing experiments with patient samples

INTELLECTUAL PROPERTY
Provisional Patent Application Filed

DESIRED PARTNERSHIPS
- License to technology
- Sponsored research

Technology Overview
The global cancer immunotherapies market reached $30.8 billion in 2012 and is expected to grow to $67.9 in 2018.

Dr. Facciabene at the University of Pennsylvania has developed a technology to use the mitochondria of renal cell carcinoma as a cellular tumor vaccine. This is achieved by pulsing dendritic cells with the isolated mitochondrial proteins of the tumor. The pulsed dendritic cells elicit a cytotoxic T-cell response in vivo and protect the animal against cancer development prophylactically or therapeutically. This protection is long lasting. In summary tumor specific mitochondrial antigens can elicit effective antitumor immune responses providing a new immunotherapeutic strategy to treat cancer.

Advantages
- Mutations of mitochondrial proteins have been found in colorectal, ovarian, breast, urinary bladder, kidney, lung and pancreatic tumors. Thus this novel immunotherapeutic strategy could be effective against those tumors also.
- This technology can be used as a vaccine to prevent cancer or as a therapeutic to treat cancer.

Inventors
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