Cancer Treatment

VCU Innovation Gateway
Office of Research and Innovation

Enhancing Tumor Immunotherapy

Increasing the drug response rate of cancer patients

Virginia Commonwealth University researchers have developed a novel agent, which enhances tumor response to immunotherapy. Immunotherapy is currently being established as a fourth treatment modality for advanced cancers. It consists of using immune checkpoint inhibitors (ICIs) which target inhibitory immune regulatory proteins, such as programmed cell death protein-1 (PD-1) or its ligand PD-L1. ICIs have been shown to improve the prognosis of patients with cancers such as advanced melanoma and lung cancer. However, only 20-30% of patients respond to this treatment. The novel agent developed by VCU researchers can be used to improve the drug response rate in patients with advanced melanoma and lung cancer, and could also be applied to a wider population of cancer patients.

The technology

In some forms of cancer, tumors are intrinsically resistant to treatment with ICIs. This novel agent is able to reprogram these tumors' immune environments to induce tumor infiltration by tumor-reactive T cells. This enhances tumor immunogenicity and mobilizes cytotoxic T lymphocytes to provide a more personalized immune response. In combination with the elevated PD-1/PD-L1 levels in the tumor sites, this treatment can help to not only manage tumors which are normally inaccessible in metastatic disease, but also prevent relapse when used in conjunction with other treatments.

Benefits

- Increased response rate to immunotherapy
- Enhanced T-cell response
- Increased tumor immune infiltration

Applications

- Immunotherapy
- Treatment of:
  - Melanoma
  - Head/neck cancer
  - Prostate cancer
  - Sarcomas

Patent status:
Patent pending: U.S. and foreign rights are available.

License status:
This technology is available for licensing to industry for further development and commercialization.

Category:
Biomedical

VCU Tech #:
18-113

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