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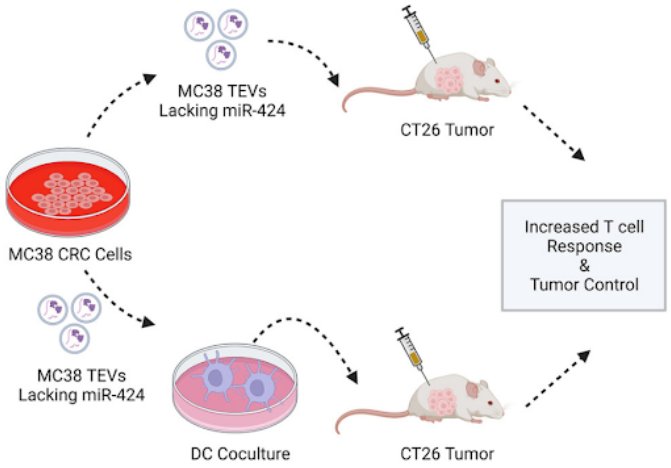
Allogeneic extracellular vesicles for enhancing CD8+ T cell response in colorectal cancer

Allogeneic tumor-derived extracellular vesicles (TEVs) that stimulate CD8+ T cell response and reduce tumor growth in colorectal cancer.



IP Status: US Patent Pending; Application No.19/173,344; Publication No. 2025/0312285 A1

Applications

- Colorectal cancer therapy
- Immunotherapy

Key Benefits & Differentiators

- **Selective:** Suppresses CT26 tumor growth, but not B16-F10 melanoma
- **Well tolerated:** Allogeneic MC38-424i TEVs did not trigger significant changes in peripheral blood cytokine expression

Technology Overview

Colorectal cancer (CRC) is the third most commonly diagnosed cancer in the United States and the second leading cause of cancer-related death. Alarmingly, incidence rates are rising among individuals under 50, highlighting an urgent and growing public health crisis. While immune checkpoint inhibitors (ICIs) like nivolumab, pembrolizumab, and ipilimumab have transformed cancer care, their effectiveness in CRC remains limited. The majority of CRC tumors are microsatellite-stable (MSS), a molecular subtype that does not respond to ICI therapy. This underscores a critical need to overcome resistance mechanisms and enhance T cell infiltration into tumors.

Technology ID

2023-280

Category

Life Sciences/Biologics
Life Sciences/Human Health
Life Sciences/Therapeutics

View online

Researchers at the University of Minnesota have developed an innovative strategy to address this challenge. By engineering extracellular vesicles (EVs) from allogeneic tumor cells to lack miR-424, a key immunosuppressive microRNA that blocks T cell costimulation, they successfully stimulated strong CD8+ T cell responses and significantly reduced tumor growth in preclinical models of MSS CRC. This novel EV-based platform has the potential to turn immunologically "cold" tumors into ones that are responsive to treatment, offering new hope for CRC patients who currently have limited immunotherapy options.

Phase of Development

TRL: 4-5
Validated in preclinical mouse studies.

Desired Partnerships

This technology is now available for:

- License
- Sponsored research
- Co-development

Please contact our office to share your business' needs and learn more.

Researchers

- **Subree Subramanian, MS, PhD** Professor, Department of Surgery

References

1. Travis J. Gates, Dechen Wangmo, Xianda Zhao, Subbaya Subramanian(2023) , https://www.cell.com/molecular-therapy-family/oncology/fulltext/S2372-7705(23)00071-2, Molecular Therapy Oncology