Washington University in St. Louis
Office of Technology Management

TREM2 BLOCKADE AS AN ADJUVANT FOR CHECKPOINT INHIBITORS

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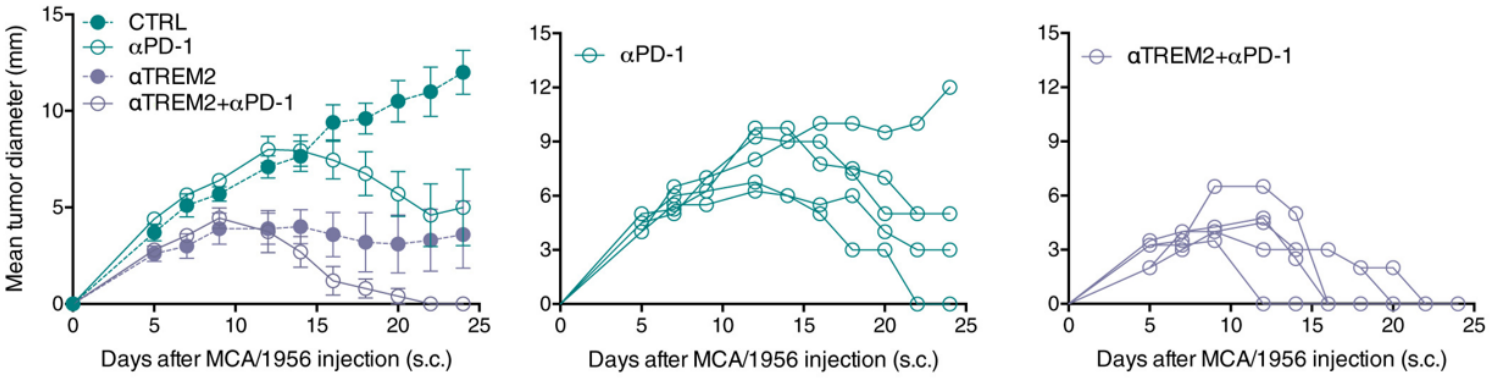
Disease indication – In combination with anti-PD-1 therapy for cancer. Anti-PD-1 therapy is currently approved for:

- Melanoma
- Non-small cell lung cancer
- Hodgkin's lymphoma
- Renal cell carcinoma
- Head & neck squamous cell carcinoma
- Squamous cell lung cancer
- Cutaneous squamous cell carcinoma

Drug format – Monoclonal antibody

Drug class – First-in-class

Target – TREM2



Research stage and preliminary data – The inventors performed initial *in vivo* proof-of-concept experiments using an MCA-induced sarcoma model in wild type mice. While mice treated with anti-PD-1 therapy saw a marked reduction in tumor size, the addition of anti-TREM2 resulted in complete tumor regression in all mice studied.

Background – Checkpoint inhibitor therapies have proved successful in a broad variety of cancer types. However, the efficacy is limited by both normal and tumor-mediated mechanisms of immunosuppression. Checkpoint inhibitor efficacy can be restored by blocking that immunosuppression or by overwhelming the suppressive signals with stimulatory signals.

Mode of action – Blocking TREM2 curbs cancer growth and induces expansion of immunostimulatory myeloid cells in the tumor microenvironment. The resulting immune stimulation increases the efficacy of anti-PD-1 immunotherapy.

Competitive edge – Currently, the only TREM2 antibody in clinical trials is a TREM2 agonist being studied in Alzheimer's disease (AL002 from Alector).

Publication

- Molgora M, Esaulova E, Vermi W, Hou J, Chen Y, Luo J, … Colonna M. (2020). TREM2 modulation remodels the tumor myeloid landscape enhancing anti-PD-1 immunotherapy. *Cell*, 182(4):886-900.
- Bhandari T. Immunotherapy-resistant cancers eliminated in mouse study. *The Source from Washington University in St. Louis*. August 11, 2020.

Patent status – Pending

Web Links – Colonna Profile & Lab