Washington University in St. Louis
Office of Technology Management

A NOVEL MODULATOR OF TUMOR ANGIOGENESIS AND ANTI-TUMOR IMMUNITY

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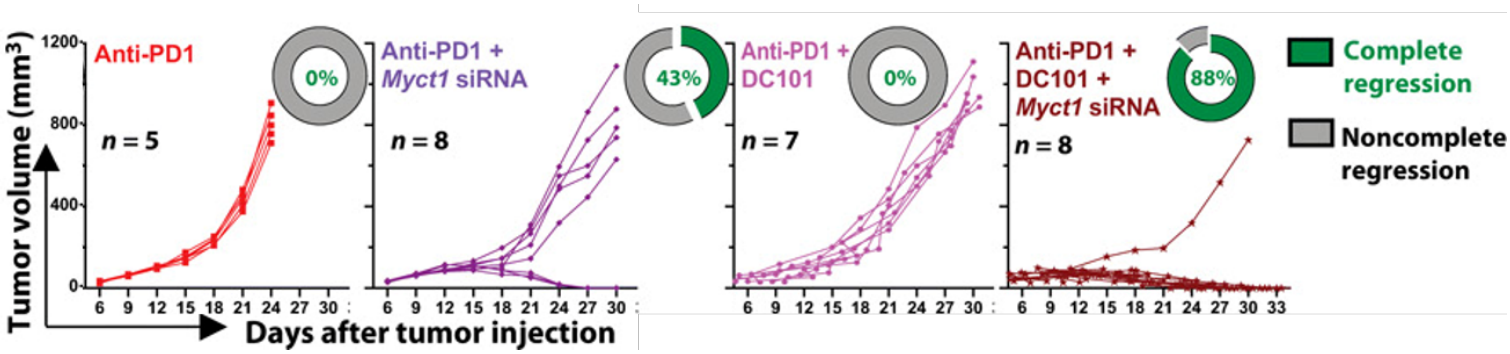
Technology Description

Researchers in Kyunghee Choi's lab at Washington University in St. Louis have identified a novel target, Myct1, that modulates tumor angiogenesis and anti-tumor immune response. Myct1 inhibition with siRNA blocks angiogenesis and promotes infiltration of cytotoxic T lymphocytes, increasing the effect of immune checkpoint inhibitors.

Existing anti-angiogenic therapies, like VEGF inhibitors, have seen incomplete or modest successes in patients. Adding Myct1 inhibition to the therapy appears to drastically improve the efficacy and promote more complete tumor regression.



Mice with anti-PD1-refractory breast tumors saw significant tumor regression with a combination of anti-PD1, VEGFR2 blocking antibody DC101, and Myct1 siRNA

Stage of Research

The inventors tested *Myct1* inhibition by siRNA in both anti-PD1-responsive (1956 sarcoma, subcutaneous) and anti-PD1-refractory (PyMT-BO1, orthotopic) tumor models. Mice received a combination of anti-PD1, VEGFR2 blocking antibody DC101, and/or a *Myct1* directed siRNA-peptide nanoparticle starting from day 9 following tumor injection. The inhibition of Myct1 drastically increased the efficacy of both anti-PD1 and DC101. Current work focuses on the development of an anti-Myct1 blocking antibody.

Publications

- Kabir AU, Subramanian M, Lee DH, Wang X, … & Choi K. (2021). Dual role of endothelial Myct1 in tumor angiogenesis and tumor immunity. *Science Translational Medicine*, 13(583):eabb6731.

Applications

- Solid tumor diseases, particularly in combination with immune checkpoint inhibitors and VEGF inhibitors

Key Advantages

- Novel inhibition target for angiogenesis
- Increases efficacy of checkpoint inhibitors and existing anti-angiogenesis therapeutics

Patents: Pending

Related Web Links: Choi Profile & Lab