

Novel Tumor-Specific Fas Epitope Targeting Antibodies

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ABSTRACT

Researchers at the University of California, Davis have developed a unique approach to target solid tumors using novel Fas-targeting antibodies designed for improved selectivity and efficacy in immunotherapy.

FULL DESCRIPTION

Fas levels remain elevated in various solid tumor types. Furthermore, the full efficacy of CAR-T strategies also relies on Fas-dependent bystander killing of tumor cells. Hence, a series of tumor-specific Fas-targeting antibodies have been developed in both monospecific and bispecific formats. These antibodies demonstrate unmatched specificity to ovarian and other solid tumors expressing hypo or non-glycosylated form of Fas receptor, distinguishing them from engaging T-cells expressing the fully glycosylated form of Fas. This selective targeting facilitates apoptosis in tumor cells without compromising immune homeostasis, offering a potent and safer alternative to cancer treatment.

Bispecific antibodies comprising antibodies to Fas and co-targeting ovarian tumor-overexpressing antigens have been developed. The anti-tumor antigen component of the bispecific antibody finds an anchor on the surface of ovarian cancer cells through high affinity binding to the tumor-specific antigen. This additional mechanism further restricts cell death-inducing agonist activity of anti-Fas antibody (selectively targeting non-glycosylated receptor) to the antigen-enriched ovarian tumor microenvironment, resulting in an-avidity optimized bispecific binding and higher order Fas apoptotic signaling only in tumor cells but not in healthy cells or T-cells expressing fully glycosylated Fas.

APPLICATIONS

- ▶ Increased selectivity for tumor cells over healthy cells and T-cells, reducing potential side effects.
- ▶ Capability to induce apoptosis specifically in solid tumors, including ovarian, TNBC and other tumor types, through targeting non-glycosylated Fas receptors.
- ▶ Enhanced tumor specificity and efficacy through bispecific format targeting both Fas and tumor-overexpressed antigens.
- ▶ Addresses the limitations of current immunotherapies by instigating tumor cytotoxicity in solid "cold" tumor types having limited immune infiltration.

FEATURES/BENEFITS

- ▶ A solution for low clinical response rates of existing immunotherapies and CAR-T strategies in solid tumors.
- ▶ Overcomes the problem of effective immune effector cell infiltration in solid tumors.

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INVENTORS

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OTHER INFORMATION

CATEGORIZED AS

- ▶ **Medical**
- ▶ Other
- ▶ Therapeutics

RELATED CASES

2023-9AL-0

▶ Versatility of bispecifics combining Fas antibody with an antibody to a second tumor specific antigen to target different types of tumors.

PATENT STATUS

Patent Pending

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ [Engineered Hcmv Protein-Derived Variants As Dr5 Agonist Immunotherapeutics For Solid And Pediatric Tumors](#)
- ▶ [A Stable BPTI Peptide as Cancer Therapeutic and for Cardiac Surgery to Reduce Blood Loss](#)

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