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Targeting Tumor-Associated Macrophages to Overcome Immunotherapy Resistance

Tech ID: 34378 / UC Case 2023-213-0

TECHNOLOGY DESCRIPTION

APPLICATION

This therapeutic approach focuses on a novel immune population of tumor-associated macrophages (TAMs) within the tumor microenvironment. Leveraging a pharmaceutical composition comprising a binding agent, such as an antibody or aptamer, this technology specifically targets this population of TAMs that are enriched in immunotherapy-resistant tumors. The binding agent can be directly or indirectly conjugated to a cytotoxic moiety, enabling selective elimination of TAMs via an antibody-drug conjugate (ADC). By disrupting TAM-mediated immune suppression, this approach represents a paradigm shift in cancer immunotherapy, particularly for tumors resistant to immune checkpoint blockade (ICB).

Competitive Advantages:

- **Novel Mechanism of Action:** Unlike traditional immunotherapy approaches that focus on lymphocytes, this technology targets a specific population of TAMs, a previously underexplored immune population critical to immune evasion.
- **Broad Applicability:** Demonstrated efficacy across multiple tumor types, including colorectal cancer, breast cancer, and melanoma, particularly in cases resistant to current immunotherapies.
- **Enhanced Tumor Microenvironment Modulation:** Selective targeting of tolerogenic macrophages disrupts the immune-suppressive niche, improving tumor clearance without reliance on lymphocyte activation.
- **Strong Preclinical Evidence:** In vitro and in vivo studies validate the therapeutic potential of TAM ablation to significantly reduce tumor growth, independent of immune checkpoint blockade.

STAGE OF DEVELOPMENT

Preclinical.

RELATED MATERIALS

PATENT STATUS

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OTHER INFORMATION

KEYWORDS

Tumor Associated

Macrophages, Macrophages,

Colorectal Cancer, Breast

Cancer, Melanoma

CATEGORIZED AS

- **Medical**
- **Disease: Cancer**
- **Therapeutics**

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