Humanized Anti-Integrin αVβ8 mAb to Inhibit TGFβ Activity and Enhance Anti-Tumor Immunity for Immunotherapy

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TECHNOLOGY DESCRIPTION

Researchers at UCSF have generated ADWA-16, a next-generation fully humanized monoclonal antibody that binds to alpha V beta 8 (αVβ8). Cell adhesion assays demonstrate that ADWA-16 binds to cells expressing human αVβ8 with high affinity. Results show that ADWA-16 blocks LAP adhesion and TGFβ activation in vitro, blocks immunosuppression by human Treg in vivo, and reduces posterior capsular opacification in murine models. Work is ongoing to humanize two additional αVβ8 blocking antibodies as backups. All three antibodies were developed by immunizing integrin B8 knockout mice, a process expected to reduce cross-reactivity with other integrins and reduce off-target toxicity. Further work will identify mechanisms underlying the synergy between anti-αVβ8 antibodies and immunomodulators.

ADVANTAGES

- More potent than antibody currently in clinical trials
- Reduced toxicity than other antibodies due to reduced cross-reactivity to integrins
- 2 back-ups under development
- Potentially fewer side effects than other TGFβ inhibitors
- Easily engineered for effector function to further enhance tumor cell killing
- Synergistic with immune checkpoint inhibitors or radiotherapy
- Can induce long-term anti-tumor immunity

APPLICATIONS
- Combination with immune checkpoint inhibitors, radiation therapy or chemotherapy to treat the ~50% of cancer patients with highly active TGFβ.

- Treatment or prevention of posterior capsular opacification (PCO) of the eye.

REFERENCE

Not available at this time

PATENT STATUS

PCT Pending

AVAILABLE FOR LICENSING

Worldwide

INVENTOR PROFILE

Dean Sheppard

PATENT STATUS

Patent Pending