

Humanized Antibodies to the Extracellular Domains of Human N-Cadherin

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Technology description

BACKGROUND

Prostate cancer is the second leading cause of cancer death among men in the United States (National Cancer Institute). Unfortunately, systemic therapies such as chemotherapy suffer from low treatment efficacy. Antibodies can be used to increase treatment efficacy by binding to proteins expressed on the surface of cancerous cells. N-cadherin expression on cancerous prostate cells leads to treatment resistance towards targeted therapies and results in the rise of cancerous cells. Consequently, N-cadherin is an attractive target for diagnosis, therapy, and monitoring of disease progression. There is a need for antibody therapies that bind to N-cadherin in prostate and bladder cancers.

INNOVATION

UCLA researchers have developed an antibody therapy for invasive prostate and bladder cancers that express N-cadherin. These antibodies are humanized, or modified to more closely resemble antibody variants produced naturally in humans. This humanization technique reduces the immunogenicity of antibodies and enables their interaction with the human immune system. The antibodies show increased binding to N-cadherin and therefore reduce the tumor volume in mice by ~29% in comparison to control mice. This antibody therapy can be used alone, as an antibody-drug conjugate, in radioimmunotherapy or in various combinatorial therapies with small molecule inhibitors or chemotherapy. This invention provides a therapy with increased specificity for prostate and bladder cancer patients that express the protein N-cadherin.

RELATED MATERIALS

E. A. Kono, N. Kobayashi, K. Zettlitz, J. Yamashiro, W. Chun, D. Z. Hu, A. M. Wu, and R. E. Reiter, Efficacy of new developed N-cadherin monoclonal antibodies in combination with enzalutamide against castration-resistant prostate, Clinical Cancer Research, 2018.

Application area

Prostate cancer therapy

Prostate cancer diagnosis

Advantages

Reduced immunogenicity

Interacts with the human immune system

Reduces tumor volume by ~29% in mice

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