Humanized Antibodies to the Extracellular Domains of Human N-Cadherin

Tech ID: 29540 / UC Case 2017-645-0

SUMMARY

UCLA researchers in the Department of Molecular and Medical Pharmacology have developed humanized antibody therapies for invasive prostate and bladder cancers that express N-cadherin.

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.

APPLICATIONS

- Prostate cancer therapy
- Prostate cancer diagnosis

ADVANTAGES

- Reduced immunogenicity
- Interacts with the human immune system
- Reduces tumor volume by ~29% in mice

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	20200165351	05/28/2020	2017-645

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.

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

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OTHER INFORMATION

KEYWORDS

Antibody, N-cadherin, prostate cancer, humanized antibodies, immunogenicity, chemotherapy, cancer therapy

CATEGORIZED AS

- **Biotechnology**
  - Genomics
- **Medical**
  - Disease: Cancer
  - Disease: Kidneys and Genito-Urinary System
  - New Chemical Entities, Drug Leads

RELATED CASES

2017-645-0

- A Novel Immuno-PET Tracer for Imaging of CD20
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