Jc071c, a Caninized Monoclonal Antibody Specific for Canine Pd-L1

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ABSTRACT

Researchers at the University of California, Davis, have developed a modified, caninized monoclonal antibody that targets canine PD-L1, developed for use as dog cancer therapy.

FULL DESCRIPTION

Engagement of PD-L1 with PD-1 inhibits TCR-mediated T cell proliferation and cytokine production. PD-L1 plays an important role in tumor immune evasion. PD-L1 antibodies are widely used in cancer therapy in humans. Researchers at the University of California, Davis, have developed a modified PD-L1 antibody for use in dogs.

JC071c is a new and improved variant of a pre-existing canine PD-L1 monoclonal antibody, JC071, modified using canine framework sequences in variable regions along with canine IgGD heavy chain and kappa light chain constant regions. This modification aims to increase its effectiveness in cancer therapy in treating canine patients. The significant reduction in foreign murine sequences in JC071c minimizes unfavorable immune reactions in the canine body compared to JC071 and JC071ch.

Additional related developments:

- **2021-660 JC071c1, a Caninized Monoclonal Antibody Mutant Specific for Canine PDL1 That Could Avoid Potential Nglycosylation and N-deamidation within CDR Sequences:** A specifically engineered, caninized monoclonal antibody mutant designed for the treatment of cancer in canine patients. It targets canine PD-L1 and has been modified to avoid potential N-glycosylation and N-deamidation within CDR sequences, preventing loss of activity after production. The modifications include mutations on light chain N28 (CDR1) and heavy chain T57A, enhancing the stability and potential effectiveness of the antibody.

- **2021-661 JC071c2, a Caninized Monoclonal Antibody Mutant Specific for Canine PDL1 That Could Avoid Potential Nglycosylation and W Oxidation:** A modified version of a previously developed canine PD-L1 specific caninized monoclonal antibody, JC071c. Modifications were carried out on residues within CDR sequences, N-glycosylation on light chain N28 and W50 oxidation. These modifications, achieved through mutations, could potentially enhance the effectiveness of the antibody in cancer therapy for dogs by making it more stable than JC071c.

- **2021-662 JC071c4, a Caninized Monoclonal Antibody Mutant Specific for Canine PDL1 That Could Avoid Potential Nglycosylation within Light Chain CDR1:** A caninized monoclonal antibody specific for canine PDL1, designed to prevent potential N-glycosylation within light chain CDR1. It aims to enhance the effectiveness of cancer therapy applied to

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OTHER INFORMATION

KEYWORDS

biotechnology, canine cancer therapy, caninized antibody, canine health, cancer therapy, immunotherapy, PD-L1, PD-L1 monoclonal antibody, T-cell deactivation, veterinary medicine

CATEGORIZED AS

- **Agriculture & Animal Science**
  - Animal Science
- **Biotechnology**
  - Health
- **Veterinary**

canine patients. JC071c4 is potentially more stable than its predecessor, JC071c, derived from the same group, since it removes a N-glycosylation residue within the light chain CDR1 sequence.

▶ **2021-663 JC071ch, a Chimeric Monoclonal Antibody Specific for Canine PDL1:** A modified canine anti-PDL1 monoclonal antibody, designed to improve the effectiveness of canine cancer therapy. The antibody has been altered to include canine IgGD and kappa counterparts, with murine IgG1 and kappa light chain constant regions, potentially leading to less adverse immune responses when administered to canine patients. This modification makes JC071ch a suitable, and currently unique, canine-specific cancer therapy.

▶ Companion Animal

▶ Therapeutics

RELATED CASES

2021-659-0

APPLICATIONS

- ▶ Canine cancer therapy.
- ▶ Other potential immunotherapeutic applications in canine health.

FEATURES/BENEFITS

- ▶ Caninized antibody reduces immune reactions in canine patients compared to murine and chimeric antibodies.
- ▶ Potentially increased effectiveness in canine cancer therapy.
- ▶ No available commercial competitors of caninized anti-PD-L1 reagents for canine cancer therapy.
- ▶ Minimization of unfavorable immune reactions common with murine and chimeric antibodies.
- ▶ Fills a niche in the absence of commercial caninized anti-PD-L1 reagents for canine cancer therapy.

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ JC071c2, a Caninized Monoclonal Antibody Mutant Specific for Canine PDL1 That Could Avoid Potential Nglycosylation and W Oxidation
- ▶ Monoclonal Antibodies Specific to Canine PD-1 and PD-L1
- ▶ Monoclonal Antibodies: CCR4 Antibody for Treating Canine Lymphoma and c-KIT Monoclonal Antibodies for Detecting and Treating Canine Mast Cell Tumors
- ▶ Monoclonal Antibodies Specific For Canine C-Kit
- ▶ JC071c1, a Caninized Monoclonal Antibody Mutant Specific for Canine PDL1 That Could Avoid Potential Nglycosylation and N-deamidation within CDR Sequences
- ▶ JC071ch, a Chimeric Monoclonal Antibody Specific for Canine PDL1
- ▶ Monoclonal Neutralizing Antibodies Specific for Canine TNF Alpha
- ▶ JC071c4, a Caninized Monoclonal Antibody Mutant Specific for Canine PDL1 That Could Avoid Potential Nglycosylation within Light Chain CDR1

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