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Anti-human CD40L Monoclonal Antibody

Catalog No.: YR0371

Basic Information

Molecular Weight
150kDa

Endotoxin
<1EU/mg (<0.001EU/μg)Determined by LAL gel clotting assay

Sterility
0.2 μm filtration

Aggregation
<5% Determined by SECP

Purity
>95% Determined by SDS-PAGE

Reported Applications

ELISA,neutralization,functional assays such as bioanalytical P K and ADA assays,and those assays for studying biological pathways

Background

Ruplizumab Biosimilar uses the same protein sequences as the therapeutic antibody ruplizumab. Ruplizumab is a humanized anti-CD40L/CD154 monoclonal antibody. he binding of CD40 to its ligand, CD40L, is a critical element in T cell activation. In systemic lupus erythematosus, CD40L is over-expressed on T cells, B cells, and monocytes. It was intended for the treatment of rheumatic diseases like systemic lupus erythematosus and lupus nephritis, as well as the primary skin allograft rejection. A study showed that the drug was associated with life-threatening thromboembolisms, while another study only found thrombocytopenia. In previous studies, the monoclonal antibody, ruplizumab showed evidence of potential efficacy in patients with lupus nephritis and idiopathic thrombocytopenic purpura. Besides, clinical trials were halted because of a higher than expected occurrence of thromboembolic events. It is proposed that the observed treatment-related (TR) thromboembolic events occurred as a result of platelet activation and aggregation, due to the formation of anti-CD40L antibody and soluble CD40L immune complexes that tether to platelets via binding of sCD40L to surface-expressed CD40 and activate platelets through interactions of the Fc with Fc gamma receptor IIA on the platelet surface. Modern allotransplantation requires the daily administration of nonspecific immunosuppressive agents to prevent T cell-mediated acute rejection. The agents commonly used include glucocorticosteroids, antiproliferative agents such as azathioprine or mycophenolate mofetil (MMF) and calcineurin inhibitors (tacrolimus or cyclosporine A). Although these agents have considerably improved the outcome of patients receiving solid organ transplants, their therapeutic effects are transient, and all are associated with substantial toxicity. The CD40 ligand (CD40L, also known as CD154) has been shown to be an important modulator of immunoinflammatory events in autoimmune disease and acute allograft rejection. CD40 is expressed constitutively on antigen presenting cells (APCs), including B cells, while CD40L is a member of the tumor necrosis factor family of transmembrane glycoproteins and is expressed on activated CD4þ T cells. The CD40-CD40L interaction is essential for normal T cell–B-cell interactions, including T-cell priming, immunoglobulin (Ig) class-switching, and the T cell-dependent humoral immune response. Indeed, the CD40-CD40L molecules form a co-stimulatory pair, providing the second signal required for T-cell activation of APCs. CD154 binds to CD40 and leads to APC secretion of IL-1β, TNF-α, and IL-12, and to endothelial cell secretion of monocyte chemotactic factors. It also increases APC and endothelial cell expression of MHC class II molecules, of adhesion molecules, and of the co-stimulatory ligands CD80 and CD86. Although blockade of the CD154-CD40 pathway does little to prevent the proliferative response of CD4+ T cells in vitro, it substantially curtails the maturation of cytotoxic CD8+ T cells by interfering with required T-cell-APC interactions. The monoclonal antibody ruplizumab neutralizes CD40L function, as it blocks the interaction between CD40 and CD40L. It has been proven in animal experiments that this drug can prolong rhesus monkey renal allograft survival.

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Immunogen Information

Clone
Ruplizumab Biosimilar

Isotype
Human IgG1 kappa

Immunogen
Human CD40L

RecommendedIsotype Control(s)
In Vivo Grade Recombinant Human IgG1 Kappa Isotype Control Antibody

Recommended Dilution Buffer
1×PBS pH 7.4

Product Information

Production
Purified from cell culture supernatant in an animal-free facility

Purification
Protein A/G

Storage
Store at -20℃