Avelumab

Cat. No.: HY-108730
CAS No.: 1537032-82-8
Target: PD-1/PD-L1
Pathway: Immunology/Inflammation
Storage:
- Pure form: -20°C for 3 years, 4°C for 2 years
- In solvent: -80°C for 6 months, -20°C for 1 month

BIOLOGICAL ACTIVITY

Description: Avelumab is a fully human IgG1 anti-PD-L1 monoclonal antibody with potential antibody-dependent cell-mediated cytotoxicity.

IC₅₀ & Target: PD-1/PD-L1

In Vitro: Avelumab is a fully human IgG1 anti-PD-L1 monoclonal antibody with potential antibody-dependent cell-mediated cytotoxicity property. Avelumab increases NK-cell lysis 3.1-fold (P=0.01) in JHC7 cells relative to isotype control. When the cells are treated with IFN-γ, Avelumab markedly enhances NK-cell lysis relative to isotype control in the following cell lines: JHC7 (7.56-fold; P=0.001), UM-Chor1 (7.34-fold; P<0.001), U-CH2 (2.6 fold; P=0.008), MUG-Chor1 (8.38-fold; P=0.0016). Avelumab effectively increases antibody-dependent cell-mediated cytotoxicity (ADCC) of both the non-cancer stem cell (CSC) and CSC subpopulations to the same degree[1]. Results also demonstrate that the addition of Avelumab increases the frequency of antigen-specific multifunctional CD8+ T cells by more than fivefold, relative to the isotype control in CEFT-stimulated peripheral blood mononuclear cells (PBMCs)[2].

In Vivo: Measurement of individual tumors clearly shows a slowing of tumor growth in the Avelumab-treated mice. By day 36 post-tumor implantation, there is a significant (P<0.01) reduction in the average tumor volume of the Avelumab-treated mice. Reduction in MB49 tumor growth in the mice treated with Avelumab is durable and leads to a significant (P<0.05) improvement in percent survival. Avelumab treatment of 10 mice with bladder tumors results in complete tumor regression in 8 mice, confirmed by histopathology. However, in mice depleted of either CD4 or CD8 cells, Avelumab treatment is much less effective in controlling bladder tumor burden with tumor breakthrough occurring in a higher frequency in mice depleted of CD4 T cells[3].

PROTOCOL

Cell Assay[1]: To examine the relationship between a cancer stem cell (CSC) subpopulation and antibody-dependent cell-mediated cytotoxicity (ADCC) activity, UM-Chor1 cells are left untreated or treated with 50 ng/mL of IFN-γ for 24 h. Cells are then plated as targets at 50,000 cells/well in 6-well round-bottom culture plates and incubated with 2 μg/mL of
Avelumab at room temperature for 30 min. NK cells are added at 2500,000 cells/well at an effector-to-target (E:T) ratio of 50:1. After 4 h, tumor cells are harvested and stained with antibodies for flow cytometry[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

**Animal Administration** [3]

Female C57BL/6 mice are used in this study. Subcutaneous tumor injections are carried out by inoculating C57BL/6 mice with $1 \times 10^5$ MB49 parental cells on the right shaved flank. Tumor growth is measured with calipers and 8 days post-inoculation mice are assigned to treatment groups. Tumor-bearing mice are treated with Avelumab (400 µg per 100 µL) and injected i.p. **three times, 3 days apart**. Since Avelumab is a human IgG1, three injections have to be compressed within a **7 to 9 day window** (i.e., days 9, 12, and 15 post-tumor inoculation) to avoid the onset of neutralizing mouse anti-human Ig[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

**REFERENCES**

