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Rituximab

Cat. No.:	HY-P9913
CAS No.:	174722-31-7
Target:	CD20
Pathway:	Immunology/Inflammation
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.

BIOLOGICAL ACTIVITY

Description	Rituximab is an anti-CD20 chimeric monoclonal antibody used for research of certain autoimmune diseases and cancer.
In Vitro	Rituximab inhibits the proliferation of stimulated human B cells, which is associated with a relative increase of B cells with an activated naive phenotype. Aside from this population shift, there are no major changes in phenotype or cytokine profile of the various B-cell subsets. B cells stimulated in the presence of rituximab induces stronger T-cell proliferation, compared to B cells stimulated in the absence of rituximab[1]. All lymphoma cells tested are equally sensitive to antibody-dependent cell-mediated cytotoxicity (ADCC), antibody-mediated phagocytosis of tumor cells, and rituximab-induced apoptosis. Rituximab induces high CDC killing of follicular lymphoma cells[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	A single injection of rituximab or the murine anti-CD20 Ab 1F5, given i.p. 1 day after the tumor, cures 100% of the animals. Depletion of either NK cells or neutrophils or both in tumor-injected animals does not affect the therapeutic activity of the drug. Similarly, rituximab is able to eradicate tumor cells in athymic nude mice, suggesting that its activity is T cell independent[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay	A single injection of rituximab or the murine anti-CD20 Ab 1F5, given i.p. 1 day after the tumor, cures 100% of the animals. Depletion of either NK cells or neutrophils or both in tumor-injected animals does not affect the therapeutic activity of the drug. Similarly, rituximab is able to eradicate tumor cells in athymic nude mice, suggesting that its activity is T cell independent[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [1]	C57BL/6 mice (8-10 wk of age) are inoculated 8×10^3 EL4-CD20$^+$ cells in 200 μL of saline by tail vein injection. In parallel groups of mice, 150 g of rituximab, murine anti-CD20 IgG2a Ab 1F5, or control anti-human IL-2R Ab daclizumab in 300 μL of saline, or saline only is inoculated i.p. 24 h later[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Signal Transduct Target Ther. 2020 Sep 14;5(1):200.
- Anal Chem. 2023 Apr 13.
- Anal Chim Acta. 2021, 338306.
- Cancer Biol Med. 2020 Nov 15;17(4):1026-1038.
- J Immunol Methods. 2023 Aug 29;113552.

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REFERENCES

[1]. Kamburova EG, et al. In vitro effects of rituximab on the proliferation, activation and differentiation of human B cells. Am J Transplant. 2012 Feb;12(2):341-50.

[2]. Manches O, et al. In vitro mechanisms of action of rituximab on primary non-Hodgkin lymphomas. Blood. 2003 Feb 1;101(3):949-54.

[3]. Byrd JC, et al. The mechanism of tumor cell clearance by rituximab in vivo in patients with B-cell chronic lymphocytic leukemia: evidence of caspase activation and apoptosis induction. Blood. 2002 Feb 1;99(3):1038-43.

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