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Pertuzumab

Cat. No.:	HY-P9912
CAS No.:	380610-27-5
Molecular Weight:	145175.19
Target:	EGFR
Pathway:	JAK/STAT Signaling; Protein Tyrosine Kinase/RTK
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.

BIOLOGICAL ACTIVITY

Description	Pertuzumab, a humanized IgG1 monoclonal antibody, is a HER2 dimerization inhibitor for the treatment of metastatic HER2-positive breast cancer.
IC_{50} & Target	HER2
In Vitro	Trastuzumab and Pertuzumab are highly synergistic inhibitors of BT474 breast cancer cell survival. The combination of trastuzumab and Pertuzumab mediates a loss of up to 60% of cells at doses in which individual drugs do not alter cell survival. The combination of trastuzumab and Pertuzumab reduces the percentage of proliferating (S-phase) cells by more than 2-fold. A combination of trastuzumab and Pertuzumab inhibits cell proliferation and survival to a greater degree than does either agent alone[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	In Calu-3 NSCLC xenografts, monotherapy with pertuzumab or trastuzumab is able to significantly inhibit tumor growth, with treatment-to-control ratios (TCR) of 0.23 and 0.27, respectively. The combination of trastuzumab and pertuzumab produces a dramatically enhanced antitumor activity compared with single-agent treatments (TCR 0.05, resulting in tumor regression and, in 3 of 10 animals, complete tumor remission). Treatment of KPL-4 breast cancer xenografts with either trastuzumab or pertuzumab inhibits tumor growth with TCRs of 0.67 and 0.65, respectively. Pertuzumab maintains antitumor activity after progression on trastuzumab[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	BT474 cells are seeded at 5×10^4 cells/well in 12-well dishes. After 24 h, cells are treated in triplicate with 2-fold serial dilutions of trastuzumab, Pertuzumab, or both drugs simultaneously at a fixed 1:1 ratio at low doses ranging from 0.9 ng/mL to 10 ng/mL. After 5 days, cells are trypsinized and counted by trypan blue exclusion. Growth inhibition is calculated as the percentage of viable cells compared with untreated cultures[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [2]	Mice: Calu-3 or KPL-4 tumors (100 mm^3) are treated with trastuzumab (30 mg/kg loading dose, then 15 mg/kg weekly), Pertuzumab (30 mg/kg loading dose, then 15 mg/kg weekly), or both, administered i.p. for the duration of the study. Tumor volumes and body weights are measured twice weekly. For the acute study, advanced Calu-3 tumors of 400 mm^3 are treated

	once with trastuzumab and/or Pertuzumab at a dose of 30 mg/kg. Samples are harvested 7 d later for immunohistochemistry (IHC) and Western blot analysis[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- J Invest Dermatol. 2022 Dec 7;S0022-202X(22)02820-2.
- Anal Chim Acta. 2021, 338306.

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REFERENCES

[1]. Nahta R, et al. The HER-2-targeting antibodies trastuzumab and pertuzumab synergistically inhibit the survivalof breast cancer cells. Cancer Res. 2004 Apr 1;64(7):2343-6.

[2]. Scheuer W, et al. Strongly enhanced antitumor activity of trastuzumab and pertuzumab combination treatment on HER2-positive human xenograft tumor models. Cancer Res. 2009 Dec 15;69(24):9330-6.

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