Bevacizumab Mechanisms and Indications

Bevacizumab is a monoclonal antibody cancer therapy that targets vascular endothelial growth factor (VEGF). The ending -mab indicates that this drug is a monoclonal antibody, -zu- reflects that this is humanized and -c(i)- indicates its target is involved with the circulatory system, in this case, that target is a blood vessel growth factor called VEGF.



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Mechanisms

Monoclonal Antibody to VEGF
Monocle Ant-tie-body at VEGetable-Farmer
Monoclonal antibodies mimic antibodies normally made by the body in that they attach to invasive cells. Monoclonal antibody medication targeting VEGF, such as Bevacizumab, attach to cancer cells that express the VEGF signal protein, thereby signalling to the immune system to kill these cancer cells.

Inhibits Angiogenesis (and Vasculogenesis)
Inhibiting-chains on Angel-jeans Generating Capillaries
The VEGF ligand normally binds to its receptors on endothelial cells to help stimulate formation of new blood vessels either from endothelial cells (vasculogenesis) or from existing blood vessels (angiogenesis). Bevacizumab inhibits this by binding directly to VEGF extracellularly and preventing VEGF from binding VEGF receptors (VEGFRs) on the surface of endothelial cells; thereby inhibiting VEGF from stimulating angiogenesis. The anti-angiogenic effects inhibit tumor growth, while the anti-vascular effects reduce tumor size.

Indications

Capillaries Grow CORN (CG-CORN acronym)
Capillaries Growing CORN
The acronym CG-CORN will help you rememnber the many indications for bevacizumab.

Colorectal Cancer
Colon Tumors
Bevacizumab is often used in combination with 5-Fluorouracil (5-FU) for treatment of colorectal cancer, particularly metastatic colorectal cancer (mCRC).

Glioblastoma
Glitter-blast brain
Glioblastoma multiforme (grade IV astrocytoma) is a common and highly malignant, primary adult brain tumor. Bevacizumab is used to treat recurrent glioblastoma (rGBM) in patients whose glioblastoma has progressed after initial treatment.

Cervical Cancer
Cervix Tumors
Bevacizumab is used as an adjunct to chemotherapy that includes either cisplatin/paclitaxel or topotecan/paclitaxel in the treatment of cervical cancer.

Ovarian Cancer
Ovary Tumors
Bevacizumab is approved for treatment of ovarian cancer, specifically platinum-resistant ovarian cancer (prOC), when combined with other chemotherapeutic agents (paclitaxel, doxorubicin, or topotecan). It is important to note that ovarian failure is also a side effect that female patients should be told.

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Renal Cell Carcinoma

Kidney Car-gnome tumors

In combination with interferon alfa, Bevacizumab is used in the treatment of metastatic renal cell carcinoma.

Non-small Cell Lung Cancer (NSCLC)

Nun Lung Tumors

Bevacizumab, in combination with carboplatin and paclitaxel, is used to treat advanced non-squamous NSCLC.

Age-related Macular Degeneration

Old Macula-Dracula

Bevacizumab is only FDA-approved for the treatment of brain, colorectal, kidney, lung and cervical cancer. Although it is used to treat neovascular age-related macular degeneration, this ophthalmologic use is off-label. Other off-label uses of Bevacizumab include metastatic HER2-negative breast cancer, endometrial cancer, retinopathy of prematurity (ROP), diabetic retinopathy.

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