NOVA

Cancer Therapies

Cyclophosphamide

Brand Names: Cytoxan, Neosar

What it is: chemotherapy drug

How it works: Cyclophosphamide acts by transferring one or more saturated carbon atoms to cellular macromolecules. This damages the cancer cell DNA, and slows or stops the growth of the cancer cells.

Do not use if one or more is true: ABC-B2 = +
GSTP1 = +
MT1 = +

Safe to use for: Patient 1 yes no   Patient 2 yes no

Doxorubicin

Brand Names: Adriamycin, Rubex

What it is: chemotherapy drug

How it works: Doxorubicin inhibits RNA synthesis and causes DNA strand breakage. This slows or stops the growth of the cancer cells.

Do not use if one or more is true: EGFR = +
ABC-C6 = +

Safe to use for: Patient 1 yes no   Patient 2 yes no

Fluorouracil (5-FU)

Brand Name: Adrucil

What it is: chemotherapy drug

How it works: Fluorouracil binds with and deactivates a key enzyme (thymidylate synthetase) in thymidine biosynthesis. This slows or stops the growth of the cancer cells.

Do not use if one or more is true: EGFR = +
BCL2 = +
DPYD = +

Safe to use for: Patient 1 yes no   Patient 2 yes no

Methotrexate

Brand Names: Mexate, Folex

What it is: chemotherapy drug

How it works: Methotrexate binds to and inactivates the enzyme dihydrofolate reductase (DHFR), and inhibits the synthesis of purine and pyrimidine. This prevents the growth of cancer cells.

Do not use if one or more is true: BCL2 = +
DHFR = +

Safe to use for: Patient 1 yes no   Patient 2 yes no

Paclitaxel

Brand Name: Taxol

What it is: chemotherapy drug

How it works: Paclitaxel binds to tubulin and blocks cell division. This slows or stops the growth of cancer cells.

Do not use if one or more is true: BCL2 = +
ERB-B2 = +

Safe to use for: Patient 1 yes no   Patient 2 yes no

Tamoxifen

Brand Name: Nolvadex

What it is: hormone (antiestrogen)

How it works: Tamoxifen binds to the estrogen receptor, preventing cell growth. It also affects the cycling of the cell in the natural cell cycle.

Do not use if one or more is true: ESR1 = 0 or −
ERB-B2 = +

Safe to use for: Patient 1 yes no   Patient 2 yes no

Trastuzumab

Brand Name: Herceptin

What it is: monoclonal antibody

How it works: Herceptin binds to the ERB-B2 growth factor receptor and prevents the cell from dividing.

Do not use if one or more is true: ERB-B2 = 0 or −

Safe to use for: Patient 1 yes no   Patient 2 yes no