PRIMARY VERSUS ACQUIRED RESISTANCE

Cancer cells can evolve ways to evade a drug's attack, or they may already be resistant prior to treatment.

PRIMARY RESISTANCE

Within a tumor, genetic diversity exists among cells. Some cells may be resistant to a therapy before they're ever exposed.

Tumor cells with resistance to drug A

When treated with drug A, only susceptible cells die and the tumor shrinks slightly.

Resistant cells continue to divide and the tumor regrows following treatment.

ACQUIRED RESISTANCE

Even if none of the cells are initially resistant to a therapy, as they divide the cells acquire genetic mutations that can enable their survival in the face of treatment.

Tumor cells with resistance to drug B

When treated with drug B, most cells die and tumor shrinks significantly. But some cells can acquire resistance.

Eventually, the resistant cells can form new tumors that do not respond to the drug.