When we administer an anti-hormonal cancer treatment, we are blocking the upstream signaling pathway between estrogen and the estrogen receptor that is needed to continue the cell dividing process.

1. In a malignant ER+, HER2 breast cancer cell, the signaling pathway sends incorrect information to the nucleus. This signal is started from estrogen outside of the cell sending the message through the estrogen receptors on the surface of the cell, which carries the overactive signaling to proteins (CDK 4 and 6) in the nucleus.

2. When we administer an anti-hormonal cancer treatment, we are blocking the upstream signaling pathway between estrogen and the estrogen receptor that is needed to continue the cell dividing process.
When administering a CDK4/6 inhibitor in combination with anti-hormonal therapy, you are blocking two portions of signaling pathways. CDK4/6 inhibitors block farther downstream between cyclin D1 and cyclin dependent kinases 4 & 6 (CDK4/6), which is located in the nucleus. CDK4/6 are important in allowing cells to move from G1 to the S Phase.

Safe Handling: CDK4/6 Inhibitors are still relatively new anti-cancer agents and we do not know the long-term effects of these agents. It is recommended that PPE recommendations be adhered to when handling these oral agents.

Resistance: In metastatic breast cancer, the cancer cells do find another route to bypass the block formed by anti-hormonal therapy and the CDK4/6 inhibitor and that is when our patients experience resistance to therapy.