

## Hormones

**Hormones** are substances made naturally in the body. Blood carries hormones throughout the body to certain cells. Cells are tiny structures that make up our whole body - there are millions of body cells - skin cells, muscle cells, blood cells and many other kinds. The specific cells that respond to a hormone have "**receptors**" for that particular hormone. Hormones and hormone receptors work sort of like a lock and key mechanism. If the key fits the lock, then the door will open. If a hormone fits the receptor, then there will be an effect in the cell. If a hormone and a receptor site do not match, then there is no reaction.

Breast cells have receptors for the female hormones estrogen and progesterone. The receptors get messages sent by the hormones and figure out what to do with these messages. The hormones tell the receptors to stimulate or "turn on" breast cell growth. Sometimes, breast cancer cells have the receptors too. Estrogen and progesterone can increase both normal and abnormal breast cell growth.

Your doctor will order a hormone receptors test. The test will see if the cancer cells have hormone receptors. A cancer is called "ER-positive" if the cancer cells have receptors for the hormone estrogen. It is called "PR-positive" if the cancer cells have receptors for the hormone progesterone. Breast cancer cells that do not have receptors are "negative" for these hormones. ER-negative and PR-negative cells do not respond to hormone therapy.

Breast cancers that have hormone receptors, ER-positive and PR-positive, are more likely to respond well to **hormone therapy**. In hormone therapy, some medicines reduce the hormones in the body while other medicines keep the hormones away from the receptors. This can limit the growth of the cancer cells. Tamoxifen (Nolvadex) is a drug that stops estrogen from reaching hormone receptors on the breast cancer cells. If the cancer has no hormone receptors, there are still very effective treatments available.