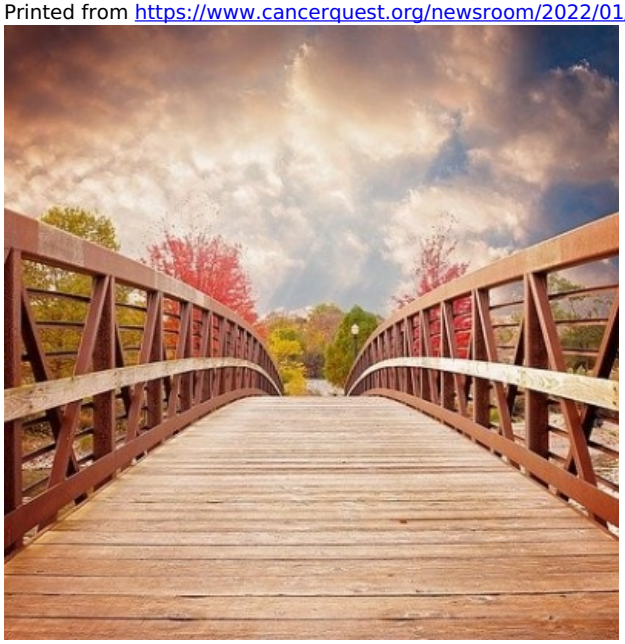
Building Bridges To Activate Cancer Killers

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Natural killer (NK) cells are an amazing part of the human immune system and have the potential to kill breast tumor cells. However, NK cells need a trigger for them to do so. Dr. Wei and his team from Clemson University came up with the idea of using a bifunctional protein to bridge the NK cells and breast tumor cells. If the two cells are brought together using this protein, the natural killer cells can use their killing machinery against the cancer cells. This is a novel approach to develop immunotherapy specific to breast cancer. Immunotherapy, a type of cancer treatment, helps the immune system fight cancer by harnessing its power. Usually, the immune system can recognize the abnormal cells and destroy them before they become cancer cells. However, the immune system does not eliminate every cancer cell. Some cancer cells win the fight between the immune system and tumors. In this research, the team targeted the prolactin receptor.

Prolactin is a hormone involved in breast growth and milk production. Some breast cancer cells make too many copies of the prolactin receptor, and this helps drive the growth of the cancer. The bifunctional protein that the researchers developed has two parts. One part is an altered form of prolactin that can bind to the prolactin receptor but not cause tumor growth. The other part is a section of a protein involved in immune cell targeting. The hybrid protein was shown to activate killer cells, but a big question remains: Will the bifunctional protein cause natural killer cells to harm healthy cells with prolactin receptors? If the animal model studies are successful, this potential new treatment can move to human clinical trials.

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