New CARs

Similar to CAR-T cells, CAR-NK cells are reprogrammed with artificial receptors to recognize and attack cancer.

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Genetically engineered natural killer cells could be the next breakthrough in immunotherapy. Like CAR-T cells, CAR-NK cells are reprogrammed with artificial receptors to recognize and attack cancer.

CAR-T therapy involves removing a sample of a patient's white blood cells, inserting the new receptors into T cells, multiplying them in a lab and reinfusing them back into the body. CAR-NK cells, in contrast, don't have to be custom-made for each patient and could potentially be manufactured as off-the-shelf products.

In a recent small study, CAR-NK therapy led to complete remission in seven out of 11 people with lymphoma or leukemia. What's more, the CAR-NK cells didn't cause immune-mediated side effects as CAR-T cells often do.

Coming down the pipeline: CAR macrophages (CAR-M), immune system first responders that eat abnormal cells. If T cells are like a game of Space Invaders, macrophages are more like Pac-Man. Researchers at the University of Pennsylvania recently reported that genetically engineered macrophages could kick-start an attack against solid tumors, which are resistant to current CAR-T therapy. In a mouse study, CAR-Ms shrank tumors and prolonged survival.

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