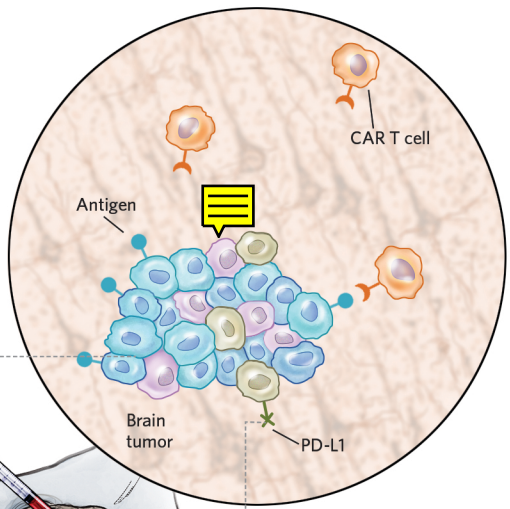
SOLID VERSUS LIQUID CANCERS

Approved CAR T-cell therapies have led to remarkable regressions in cancers of the blood and bone marrow, so-called liquid cancers. Scientists are now hoping to apply CAR T therapy to treat solid tumors. Both types of cancer present challenges.

SOLID TUMORS

HETEROGENEITY
Cells of a solid tumor do not all present the same mix of antigens on their surfaces, so a given CAR will likely miss some of the cancer.

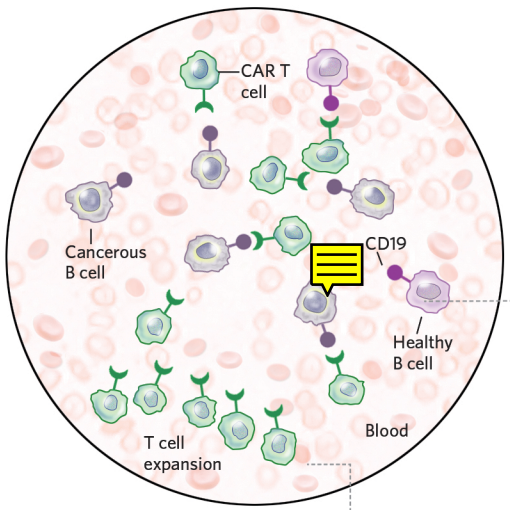


MICROENVIRONMENT
Solid tumors produce immune-suppressing agents such as the checkpoint mole-

DELIVERY
A solid mass of cells thousands of layers thick is difficult for T cells to infiltrate. While some trials deliver the cells systemically, others aim to improve efficacy by administering CAR T cells directly to the site of the tumor.

LIQUID CANCERS

HETEROGENEITY
Although all cancerous B cells present the CD19 antigen targeted by approved CAR T therapies, normal B cells do as well, which can lead to severe side effects when healthy cells are destroyed.



MICROENVIRONMENT
The blood is T cells' home turf, and engineered CAR T cells readily expand once they are introduced into circulation, although an immune overreaction by the cells can lead to cytokine release syndrome.

DELIVERY
Approved CAR T therapies are infused into the blood where they can easily access malignant B cells.

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