

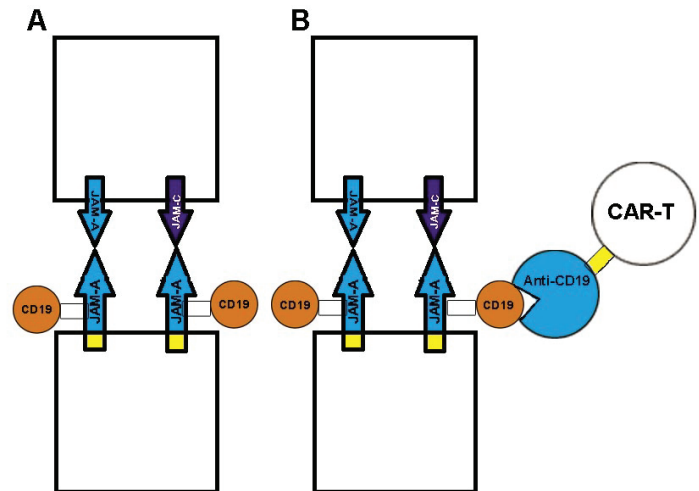


# A Method to Inhibit Cancer Metastasis and Eradicate Tumors

BYU #2021-010

## DESCRIPTION

This is a method to produce a biologic composed of a fusion protein that contains three domains with specific functions. The first domain consists of a pH-sensitive peptide, pHLIP that recognizes and inserts itself into the membrane of cancer cells. The second domain consists of the Junctional Adhesion Molecules, JAMs which increase the number of tight junctions, allowing for cell-cell interactions of the tumor cells that will decrease metastasis. The third domain consists of the CD19 extracellular region of the target protein that has been seen in many cancers. This CD19 region will enable the CAR-T cells to recognize, bind to, and eradicate the tumor.



Metastasis-inhibiting protein functional model A) pHLIP (yellow) inserts itself into the membrane of the cancer cells. JAM-A binds in a homotypic interaction of JAM-A (blue) with adjacent JAM-A or heterotypic interaction of JAM-A with JAM-C (purple). B) The GS linker allows for recognition of CD19 (coral) by the Anti-CD19 in CAR-T cells.

## PROBLEM SOLVED

Cancer treatment traditionally involves chemotherapy and surgery. Other promising treatments such as genetically engineered T cells called CAR-T (chimeric antigen receptor T cells) target surface proteins such as CD19. Unfortunately, these treatments do not inhibit metastasis. Using the power of cell adhesion and with the combination of pH-sensitive peptides, pHLIP with JAMs, BYU researchers have invented a technology to prevent or decrease metastasis of tumor cells.

## KEY ADVANTAGES

- » *Decreases the incidence of metastasis*
- » *Recognizes a great variety of tumors*
- » *Enables the eradication of tumors*

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## APPLICATIONS

Pharmaceutical companies will be the most interested in this invention.

IP STATUS:  
Patent Pending



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