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Interleukin 18 secretion and its effect in improving Chimeric Antigen Receptors efficiency[1] JAE-KUN KIM, Fort Lee HS, New Jersey — Clinical trials have shown that chimeric antigen receptor T cells modified to target cancer cells expressing a surface antigen found on immature B-cells. The purpose of this experiment is to take a pro-inflammatory cytokine, and analyze its effect in improving the efficiency of the T cells. IL-18 has been previously shown to recruit T cells to the tumor site and improve their secretion of cytotoxic cytokines. A human model of the proposed armored T cell has been created and has shown success in combating cancer cells in vitro. The next step is to design and produce a murine model to test in vivo in immunocompetent mice. This research project aimed to create two models: one utilizing 2A peptides and another utilizing IRES elements as a multicistronic vector. Both models would require the insertion of the desired genes into SFG backbones. IRES, a DNA element which acts as a binding site for the transcriptional machinery to recognize which part of the DNA to transcribe, commonly found in bicistronic vectors, is large with 500-600 base pairs, and has a lower transgene expression rate. P2A is smaller, only consisting of about 20 amino acids, and typically has a higher transgene expression rate, which may or may not result in higher effectiveness of the model.

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