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PROTEIN-BASED PLATFORM TO GENERATE CHIMERIC ANTIGEN RECEPTOR-IMMUNE CELLS

THERAPEUTICS

Novel immunotherapy technology that transiently creates CAR-NK and CAR-T cells without the use of stable gene transfer methodologies.

TECHNOLOGY TYPE

Drug Delivery
Antibody and Peptides
Oncology
Biologics
Stem Cells
Immunotherapy
Cell Engineering

STAGE OF DEVELOPMENT

- Three types of rCARs have been developed.
- Preliminary studies indicate rCARs can rapidly redirect NK cells.
- Next steps involve conducting in vivo efficacy studies.

IP PROTECTION

Provisional Patent Filed

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TECHNOLOGY SUMMARY

Antigen specific T cells and Natural Killer (NK) cells generated by virus-mediated gene transfer of Chimeric Antigen Receptors (CAR) has drastically advanced cancer immunotherapy. However, virus-mediated redirection typically results in permanent CAR gene expression and off-tumor toxicity. The recombinant CAR fusion protein (rCAR) developed is mixed with isolated T and NK cells *in vitro*, resulting in temporarily activated cells ready for infusion in a matter of hours, rather than days or weeks from traditional methodologies. The rCAR technology is a promising advancement for treating solid and hematological malignancies.

FEATURES AND BENEFITS

- The transient, rather than permanent, activation of CAR-NK and CAR-T cells reduces the risk of cytokine release syndrome and immune reactions.
- Activates nearly 100% of the target cells.
- Decreases manufacturing costs and timing.

RECENT PUBLICATIONS

Lim, K.S., Lee, D.Y., Valencia, M., Young-Wook, G., Young-Wook, W., Bull, D.A. (2016). Cell surface-engineering to embed targeting ligands or tracking agents on the cell membrane. *Biochemical and Biophysical Research Communications*. 482(4):1042-1047. doi: 10.1016/j.bbrc.2016.11.155.

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