
CRISPR-optimized allogeneic non-viral BCMA-CAR NK cells to overcome loss-of-target in multiple myeloma

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The CRISOptiCARNK project aims to develop a CAR-NK cell product for the treatment of multiple myeloma (MM). MM is a malignant disease of the bone marrow characterized by the uncontrolled proliferation of abnormal plasma cells. Despite significant advances in therapy, the disease remains incurable. The loss of tumor-specific antigens and the development of resistance mechanisms limit the effectiveness of current treatments. This project seeks to identify resistance mechanisms that allow MM cells to evade the immune response using a genome-wide CRISPR screen. Building on these insights, a non-viral and specifically optimized CAR-NK cell product will be developed, featuring precise genetic modifications to enhance anti-tumor activity. The use of primary natural killer (NK) cells offers a directly available "off-the-shelf" cell therapy for rapid application.
