FlashCell: a new gene therapy company specialized in the development of RNA carriers for therapeutic applications

Based on the licensed and proprietary non-integrative LentiFlash™ technology, FlashCell will develop innovative treatments mediated by RNA delivery

FlashCell

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The game-changing LentiFlash™ technology

- The LentiFlash™ technology is a game-changing class of RNA carriers based on a chimeric lentiviral platform including the MS2 bacteriophage packaging system.
- FlashCell will leverage this new generation of lentiviral vectors, which allow RNA delivery without integration of the transferred genetic material into the genomic DNA of target cells.

The LentiFlash™ particles leads to an efficient delivery in primary & stem cells both *in vitro* and *in vivo*.

The LentiFlash™ technology offers an important safety consideration for human use.

Targeted therapeutic applications

FlashCell will address many disease areas such as cancer, viral or genetic diseases by developing gene editing & antigens expression strategies mediated by RNA delivery.

1. Gene-editing (GE) strategies mediated by LentiFlash™ technology

CANCER IMMUNOTHERAPIES

Combining adoptive T-cell immunotherapy with gene-editing techniques can enhance both the efficacy against diverse tumor types and the manufacturing of cell products:

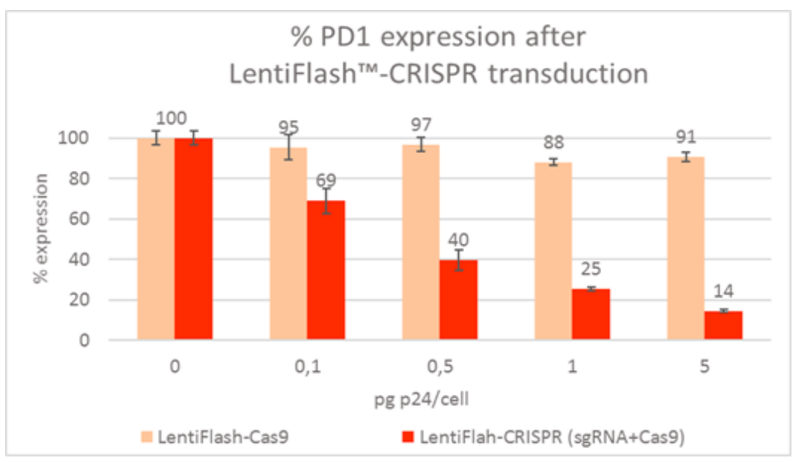
- GE can contribute by deleting the endogenous T-cell receptors (TCR-a)
- GE can eliminate genomic drivers that hamper T-cell proliferation and function (PD-1)
- GE can knockout the human leukocyte antigen (HLA) by which the immune system discriminates self and foreign antigens.

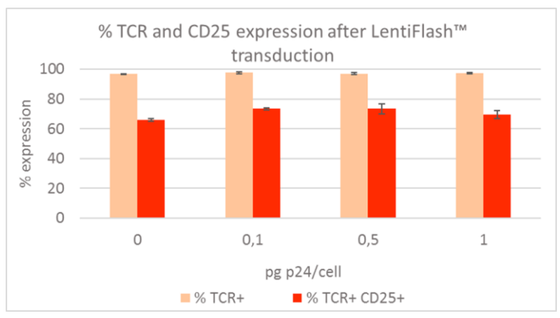
ANTIVIRAL STRATEGIES

The goal is to knockout genes by using an *ex vivo* cell therapy to prevent viral infection or replication. Such GE strategy is used for *ex vivo* modification of T cells, to knock out the CCR5 co-receptor used by the primary HIV infection:

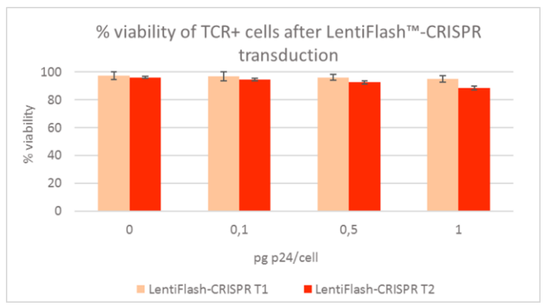
- Several clinical trials using Zinc Finger nuclease and research approaches with TALENs or CRISPR/Cas9 technologies are currently conducted
- Same strategies can be applied to other viral pathogens including Hepatitis B virus, Herpes simplex virus or human papilloma virus.

HIGHLY EFFICIENT DISRUPTION OF PD-1 IN HUMAN PRIMARY T-CELLS

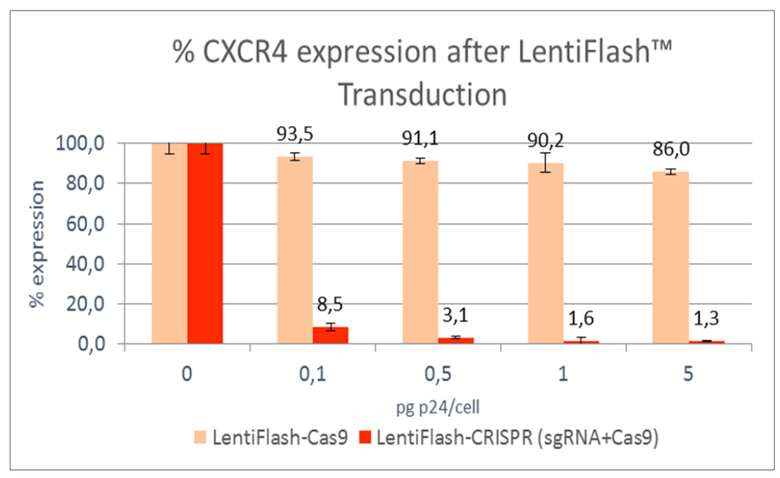




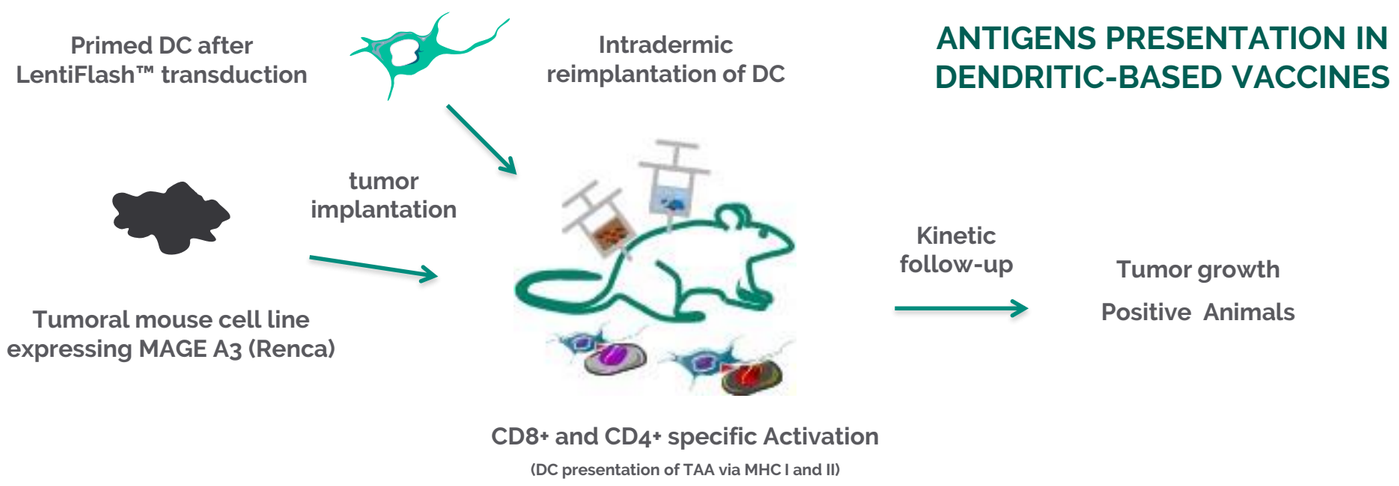
SAFE CELL ENGINEERING: PRESERVATION OF THE ORIGINAL CELL PHENOTYPE



HIGHLY EFFICIENT DISRUPTION OF CXCR4 IN HUMAN PRIMARY T-CELLS



2. Antigens expression mediated by LentiFlash™ technology



ANTIGENS PRESENTATION IN DENDRITIC-BASED VACCINES