

High-performance multiplex drug-gated CAR circuits

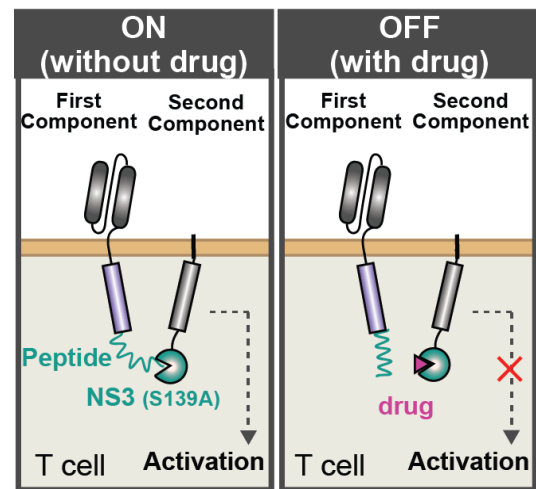
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Abstract

Chimeric antigen receptor (CAR) T cell immunotherapy has the potential to revolutionize cancer medicine, but excessive CAR activation have limited the safety and efficacy of CAR T cell therapy. A CAR system that is regulated by safe, clinically-approved pharmaceutical agents is urgently needed.

Boston University researchers have developed a clinically-relevant innovative CAR system comprising a diverse set of inducible ON and OFF switch CAR circuits that can be regulated by multiple FDA-approved antiviral protease inhibitors, including grazoprevir (GZV). The schematic on the right depicts an OFF switch circuit.



Boston University is seeking licensing partners, R&D partnerships, or sponsored research to advance this exciting technology.

Benefits

- Improved safety - reversibly controllable by safe, clinically-approved pharmaceutical agents
- Dynamic, tunable set of single- and advanced dual-gated CAR circuits
- Dual-gated circuits targeting multiple antigens to improve specificity or mitigate antigen escape
- CAR activity established *in vitro* and in a xenograft tumor model

Principal Investigators

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Keywords

CAR T cells
ON/OFF safety switch

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Market Applications

- Cancer immune therapies
- Cell-based therapies for:
 - Infectious diseases
 - Autoimmunity
 - Alloimmunity
 - Fungal infection

Publications

Li et al., [High-performance multiplex drug-gated CAR circuits](#). *Cancer Cell*. 2022 Nov 14;40(11):1294-1305.e4.

Patents

US Patent Application No. [US11059864B2](#)