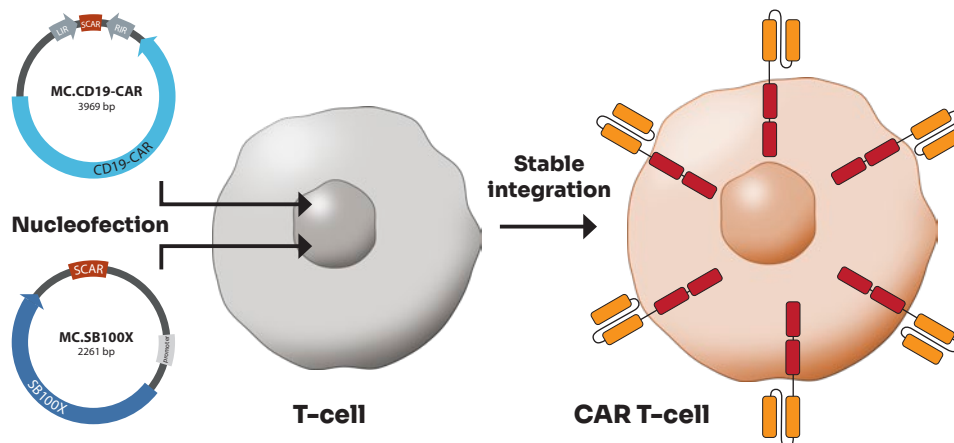
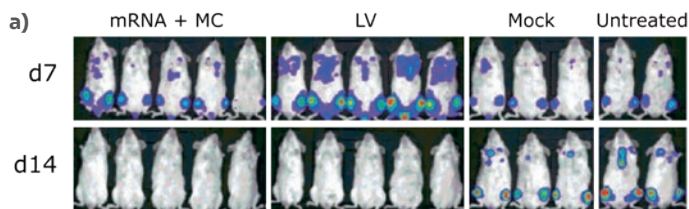


# Virus-Free Cell Engineering with Minicircles

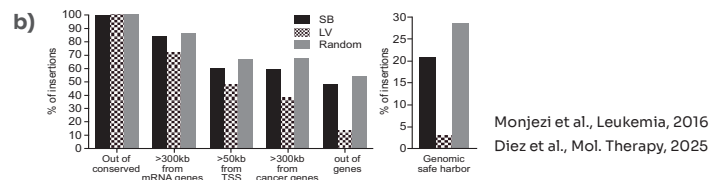


## Minicircle advantages

- ✓ **Efficient** – improved transfection and stronger expression for hard-to-transfect cells
- ✓ **Flexible** – no cargo limits, supports complex transgenes
- ✓ **Safe** – reduced immunogenicity and lower DNA toxicity
- ✓ **Virus-free** – ideal for transposon and other non-viral systems
- ✓ **Scalable** – seamless path from research to GMP
- ✓ **Future-proof** – regulatory-ready and enabling *in vivo* engineering via e.g. LNP/PNP
- ✓ **Economic & fast** – shorter and cheaper production than viral vector systems



(a) Bioluminescence imaging of Raji-ff Luc lymphoma in NSG mice shows CD19-CAR T cells generated with SB100X mRNA and Minicircle DNA rapidly eradicated tumors, while control mice developed progressive disease.



(b) Insertion-site analysis shows SB-transposon CAR T cells from Minicircles integrate preferentially into genomic safe harbors (20.8% vs. 3% for LV), reducing insertional mutagenesis risk.

**Discover the power of Minicircles and see how bacterial backbone-free DNA enables cleaner, safer and more efficient therapies**

