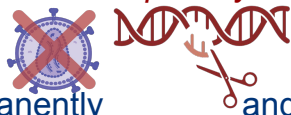


HIV-Scribe: Molecular Recording System to Detect the Activation of Latent HIV-1

Members: Joan Choi, Dillon Possinger, Brandon Schuster, Jalen Winfield | Advisor: Dr. William Dampier

Need: Problem - Treated HIV, in **680k patients**, randomly activates within individual cells → *hard to quantify cure/therapy effectiveness*

Objective - Design molecular system for Dr. Dampier & HIV Researchers that permanently and continuously records HIV activation events



and
*Created with
Biorender.com

Design Inputs:

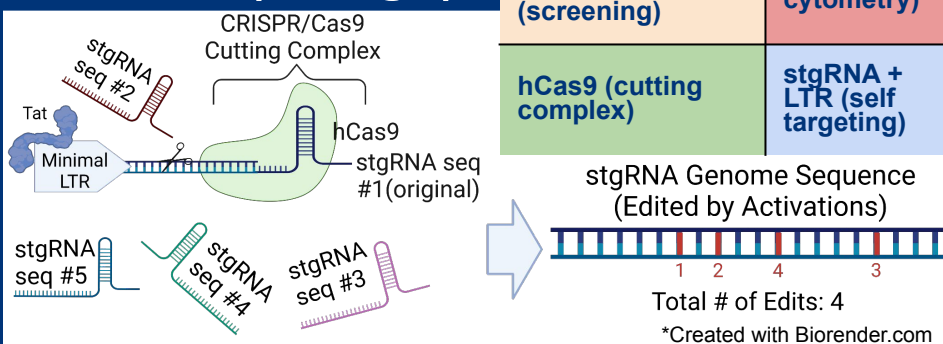
Key Requirements

- R1 - Presence of Plasmid Components
- R2 - Order of Plasmid

Key Constraints

- Time - 9 months (Sept. to May 2023)
- NIH Grant - Framework (MuLE Kit)

Solution (Design):



Future: Revisions - Validation for recording of HIV-1 activation and addition of insert into Entry MCS

Impact - Future therapies for HIV to be cheaper, efficient, and streamlined (bench to bench use)

Verification:

Nanopore Sequencing Results:

Presence & Order → ✓

Original ACCCTGGCGTTACCCAACCTTAAT

Consensus ACCCTGGCGTTACCCAACCTTAAT

Alignment
(original/consensus)

795/795

1,723/1,723

4,515/4,515

501/501

Solution (Build):

