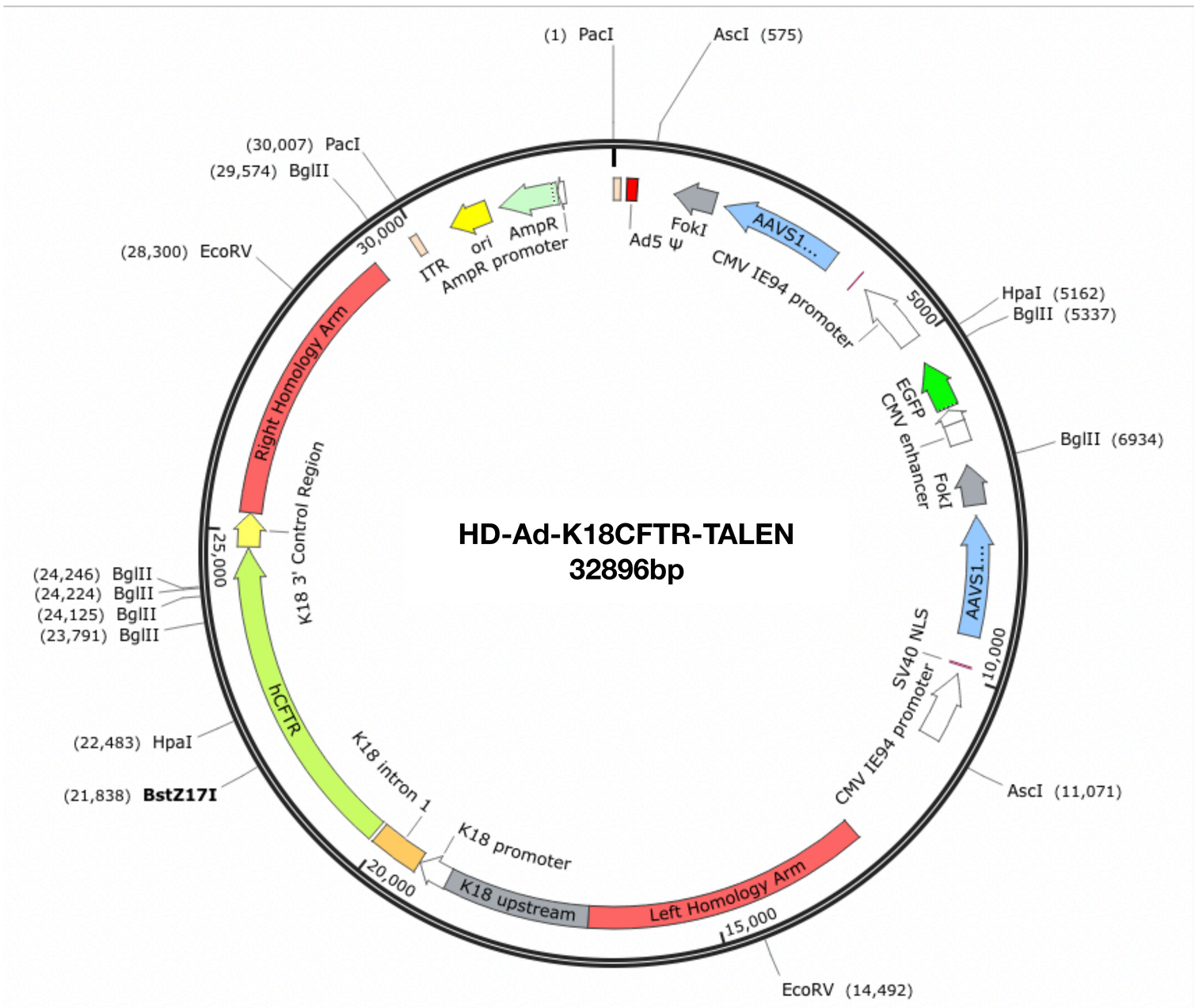
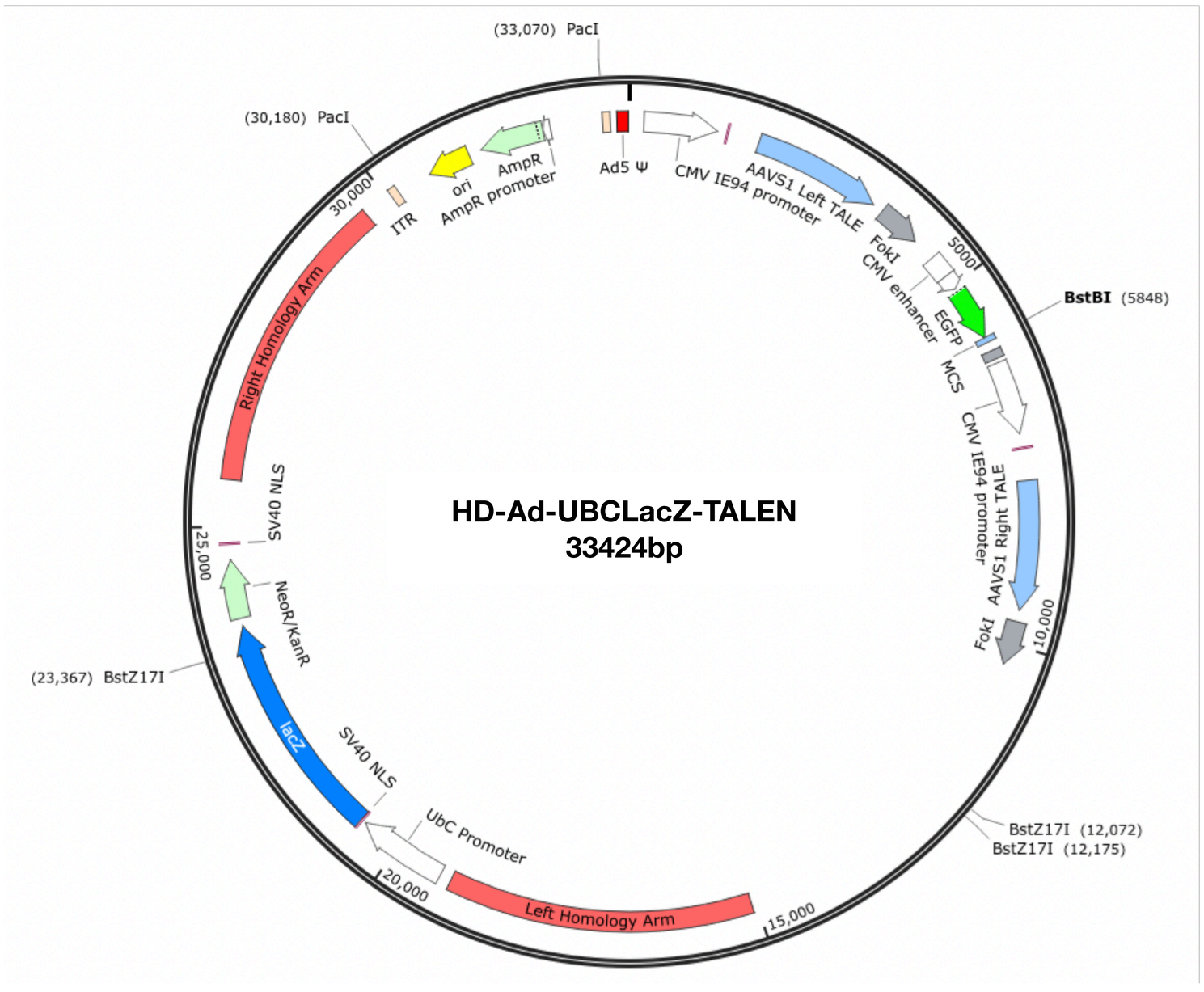
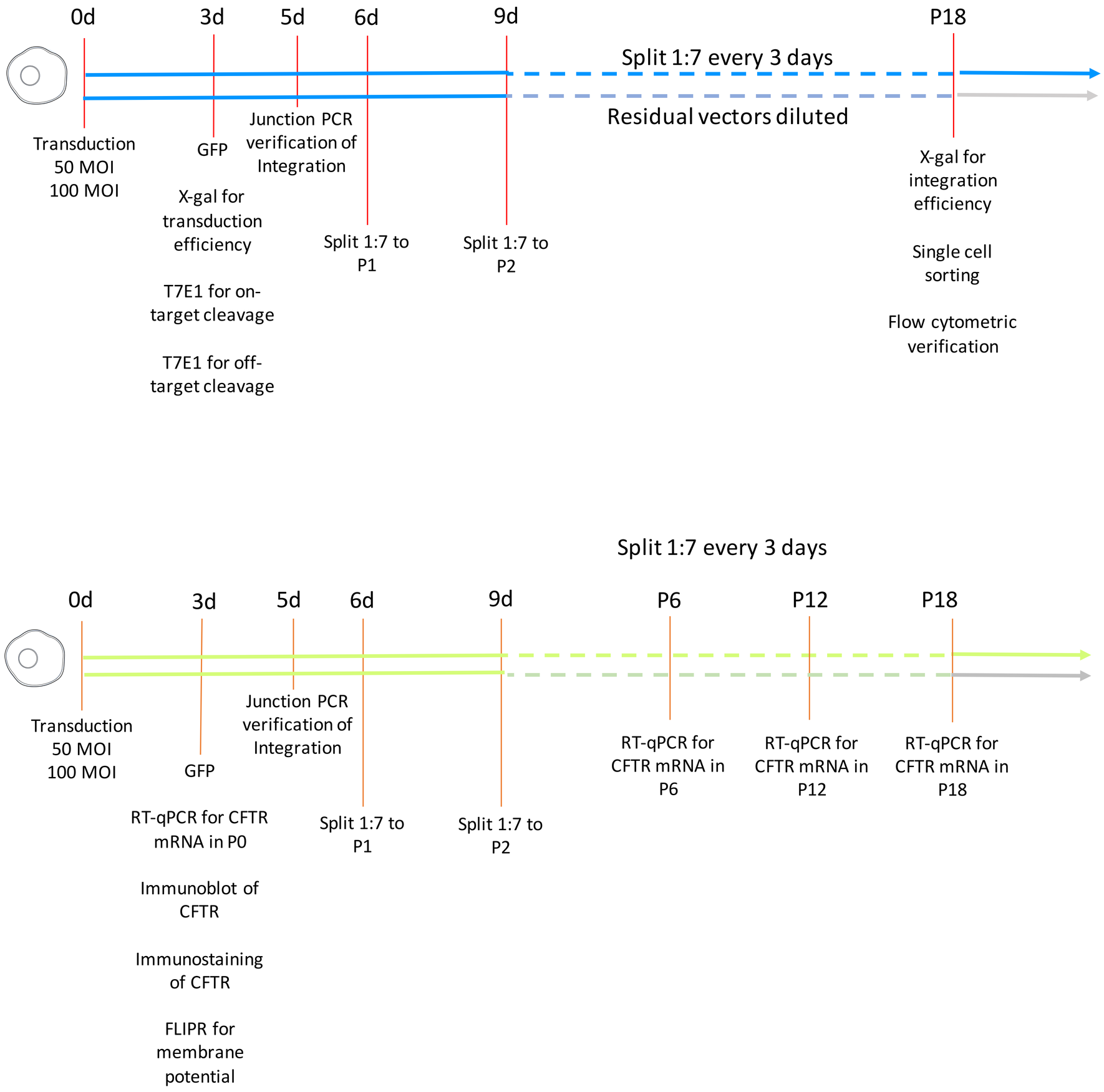
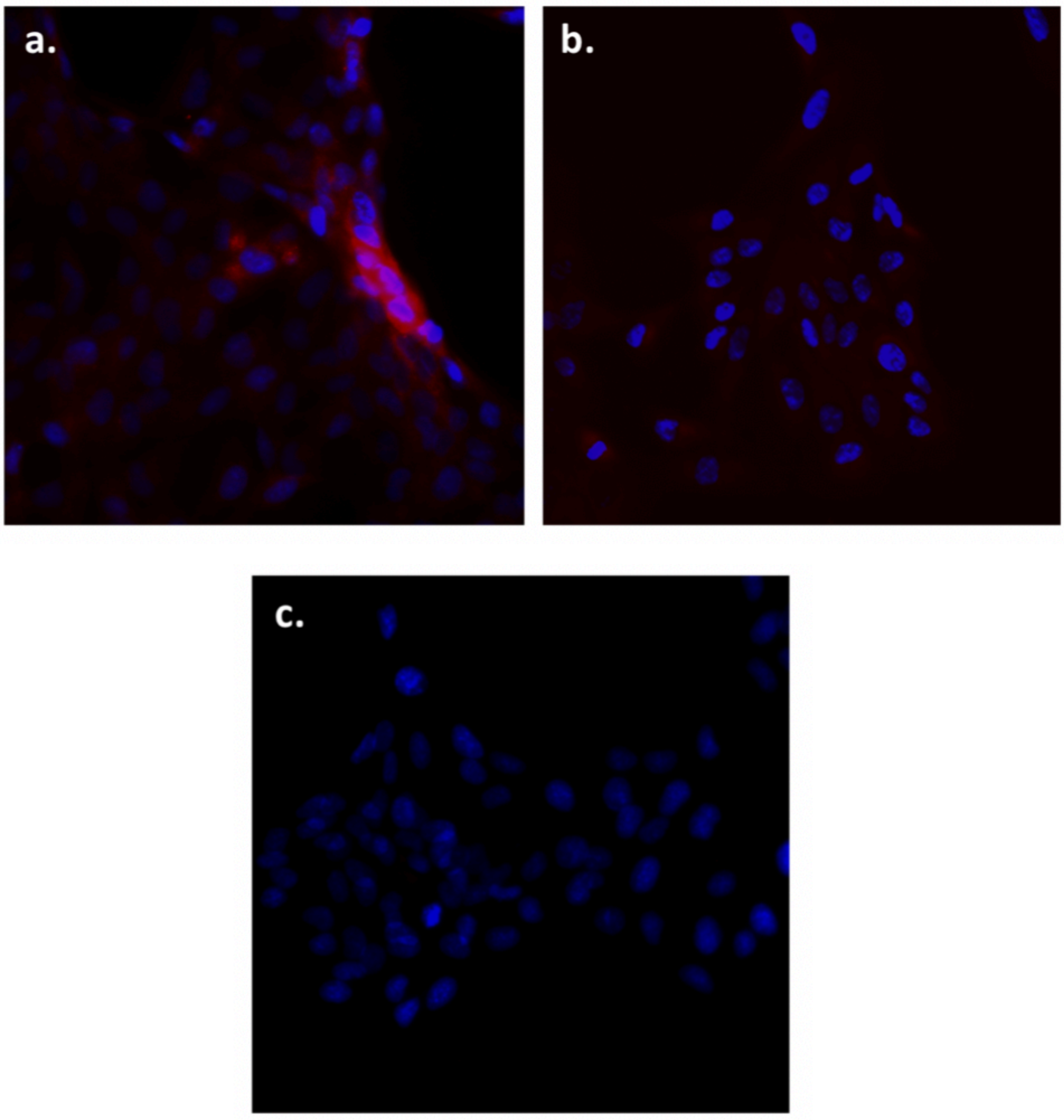




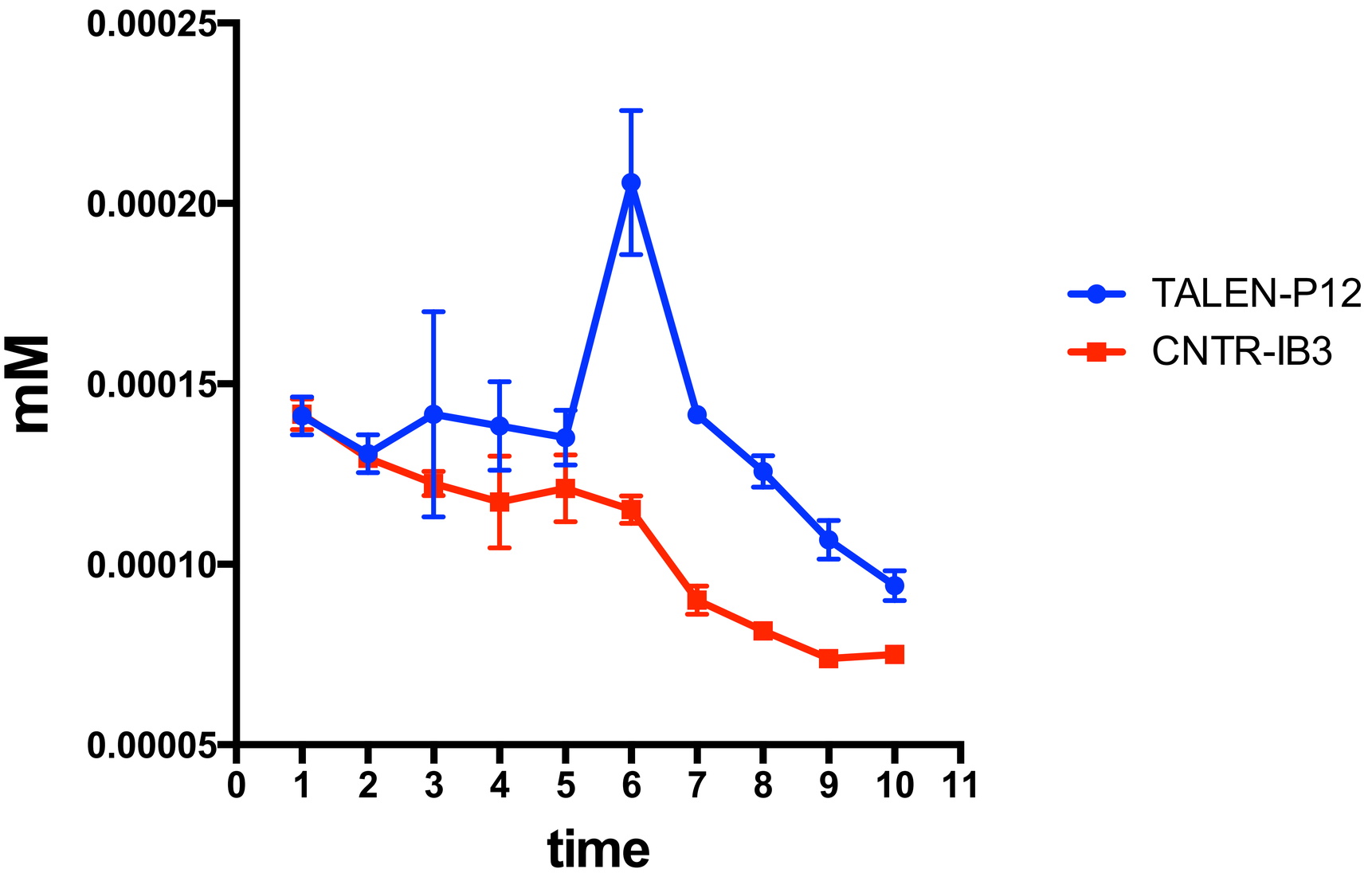
Supplementary Figure 1. Vector maps for HD-Ad-K18CFTR-TALEN and HD-Ad-UBCLacZ- TALEN. Restriction enzyme PacI was used to linearize the plasmid DNA for viral vector production.



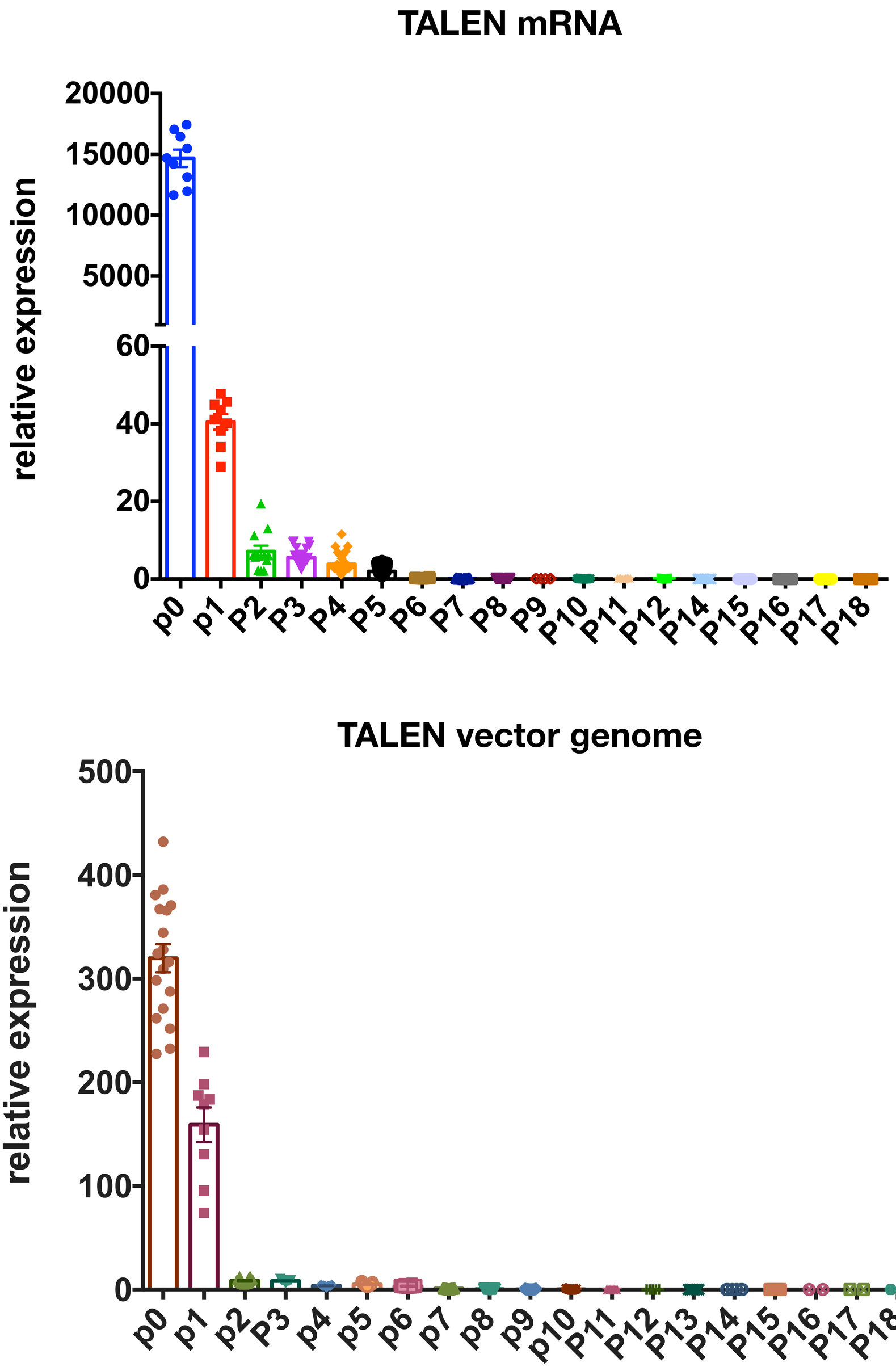
Supplementary Figure 2. Schematic diagram of experimental designs and time courses for data collection.



Supplementary Figure 3. Immunodetection of human CFTR expression. A. Immunofluorescent staining for CFTR (red) in IB3-1 cells transduced with 100MOI of HD-Ad-K18CFTR vector and cultured for 3 days. B. Immunofluorescent staining for un-transduced IB3-1 cells. C. No- antibody control. Cell nuclei were labeled using DAPI.



Supplementary Figure 4. Iodide efflux assay for IB3-1 cells transduced with HD-Ad-K18CFTR- TALEN vector and passed for 12 generations. CNTR-IB3, cells without transduction. For iodide efflux assay, IB3-1 cells were seeded in 6 well plates and incubated for 1 hour in iodide loading buffer (135 mMNaI, 4 mM KNO3, 2 mM Ca(NO3).4H2O, 2 mM Mg(NO3).6H2O, 11 mM Glucose, 20 mMHepes). Iodide efflux was started by adding forskolin (40uM) and measured at 1 min intervals using an iodide sensitive electrode (thermoFisher, waltham, MA).



Supplementary Figure 5. Top, qPCR analysis for TALEN mRNA level at each passage for 18 passages.IB3-1 cells transduced with 100MOI of HD-Ad-K18CFTR-TALEN were passaged at an 1:7 ratio for 10 generations, for each passage, total RNA was extracted from 1X10^6 cells for