This plasmids encodes a fusion GAG-CAS9-VPR protein. Even fused with GAG, CAS9-VPR remains active which permits the use of this plasmid for transient transfection experiments.

Expressed with gRNAs and appropriate auxiliary plasmids (GAG POL, envelopes, gRNAs) into producer cells (HEK293T) this construct allows production of VLPs incorporating GAG-CAS9-VPR/gRNAs RNPs and able to deliver them into recipient cells for targeted transcriptional activation.

We have tested incorporation of 4 different gRNAs into a single VLP prep, each of them being designed on the putative promoter region with intervals of 80-150 nts. All four gRNAs constructs were cotransfected in producer cells

(For transactivation experiments based on GagCAS9-VPR VLPs, it may also be possible to produce transactivating VLPs loaded with one or two gRNA and to combine resulting particles to investigate different VLPs mixtures. However we have not tested this procedure).