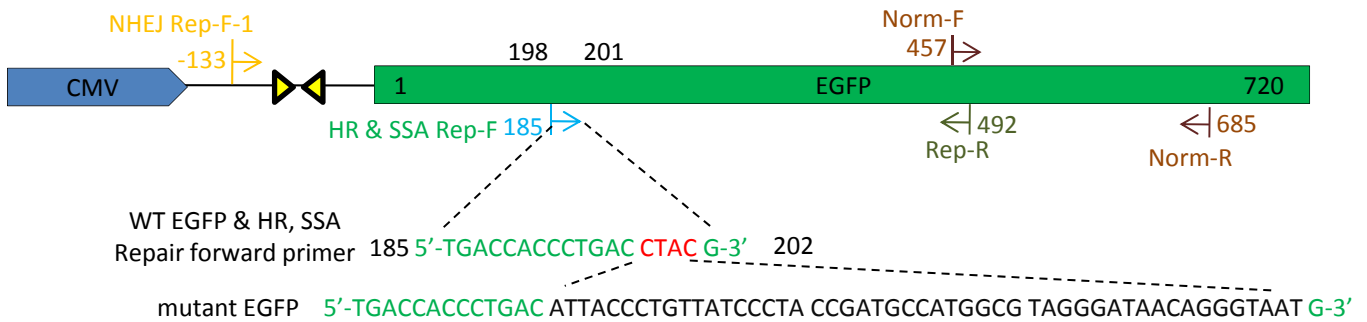


**B** Repair primer design:



**Supplementary information, Figure S2** Visual-plus-quantitative assay systems for homologous recombination (HR), non-homologous end joining (NHEJ) and single-strand annealing (SSA) repairs. The contents of this figure are reproduced from our previous publication (Liu et al., 39:489-502, 2012, *Journal of Genetics and Genomics*), to facilitate a review of our work. (A) Structures of the HR, SSA and NHEJ constructs. Plasmid 5'-*Egfp* containing the 1<sup>st</sup> to 444<sup>th</sup> base pairs (bp) of wild-type (WT) *Egfp* was used as a repair donor. Two *I-SceI* sites in opposing orientations were used to replace the 198<sup>th</sup> to 201<sup>st</sup> bp of *Egfp* to generate the mutant *Egfp*. The two opposite *I-SceI* recognition sequences are blue; the inter-space sequence between the two *I-SceI* sequences are black; the new start codon ATG is red; and the red arrows indicate the *I-SceI* recognition sites. HR: the mutant *Egfp* is expressed by the CMV promoter and terminated by the SV40 polyA sequence; the yellow triangle indicates the *I-SceI* recognition site; and 198-201 is the 4 bp sequence of WT *Egfp*. SSA: 5'-*Egfp* is expressed by the CMV promoter and terminated by the SV40 polyA sequence and the mutant *Egfp* has no promoter. NHEJ: the distance between the two opposite *I-SceI* sites and the start codon of *Egfp* is 20 bp. (B) The three pairs of primers used in quantitative real-time PCR (qPCR) to quantitatively measure the HR, NHEJ and SSA repair frequencies. The normalizing primers, forward 457-481 and reverse 666-685, of *Egfp* are brown. HR and SSA repair primers: the forward primer 185-202 of WT *Egfp* is green and covers the mutation site in the mutant *Egfp*, such as the substitution of 4 bp (198-201) of the WT *Egfp* sequence in red with 50 bp DNA (two *I-SceI* sites) in black, and the reverse primer 471-492 in dark green. NHEJ repair primers: the forward primer -133 to -110 is orange and the reverse primer is the same as the one used in the HR and SSA repair systems.