



Figure S1: Coupling of a DNA double-strand-break-inducing system and a FACS-optimized LOH reporter system on Chr4.

Illustration of the strain bearing the BFP/GFP LOH reporter system (Loll-Krippleber *et al.* 2015) on the left arm of Chr4 with the inducible DNA-DSB system (Feri *et al.* 2016). DNA-DSB can be targeted on either haplotype, depending on the location of the *I-SceI*- target sequence associated to the *URA3* auxotrophic marker. Upon addition of tetracycline (or other derivative molecules, including anhydrotetracycline) the tetracycline promoter (P_{TET}) is activated thus the coding sequence of the *I-SceI* megaendonuclease is expressed (associated to the hygromycin resistance marker (*HYGb*), subsequently permitting to induce locus specific DNA-DSB at its target sequence. The BFP/GFP LOH reporter system is utilized to visualize long-tract LOH events which encompass this artificial heterozygous locus, composed of the BFP (associated to the histidine auxotrophy marker, *HIS1*) located on a homologue and the GFP (associated to the arginine auxotrophy marker, *ARG4*) on the second homologue. The strains constructed in this study derive from the SC5314 reference strain possessing a recessive deleterious allele, *gpi16^{R536*}* located on Chr4B between the *I-SceI* target sequence and the LOH reporter system (Feri *et al.* 2016). Such alleles have been previously shown to impact the directionality of LOH events thus, to overcome this limitation all strains used in this study possess an additional functional *GPI16* allele integrated at the *RPS1* locus on Chr1.