ERRATUM TO

The GAL4 System: A Versatile System for the Manipulation and Analysis of Gene Expression

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In Chapter 02 titled "The GAL4 System: A Versatile System for the Manipulation and Analysis of Gene Expression", there was an error with the formatting in figures 3 and 4. This has been changed to as follows:

The updated online version of the original chapter can be found at
http://dx.doi.org/10.1007/978-1-4939-6371-3_2

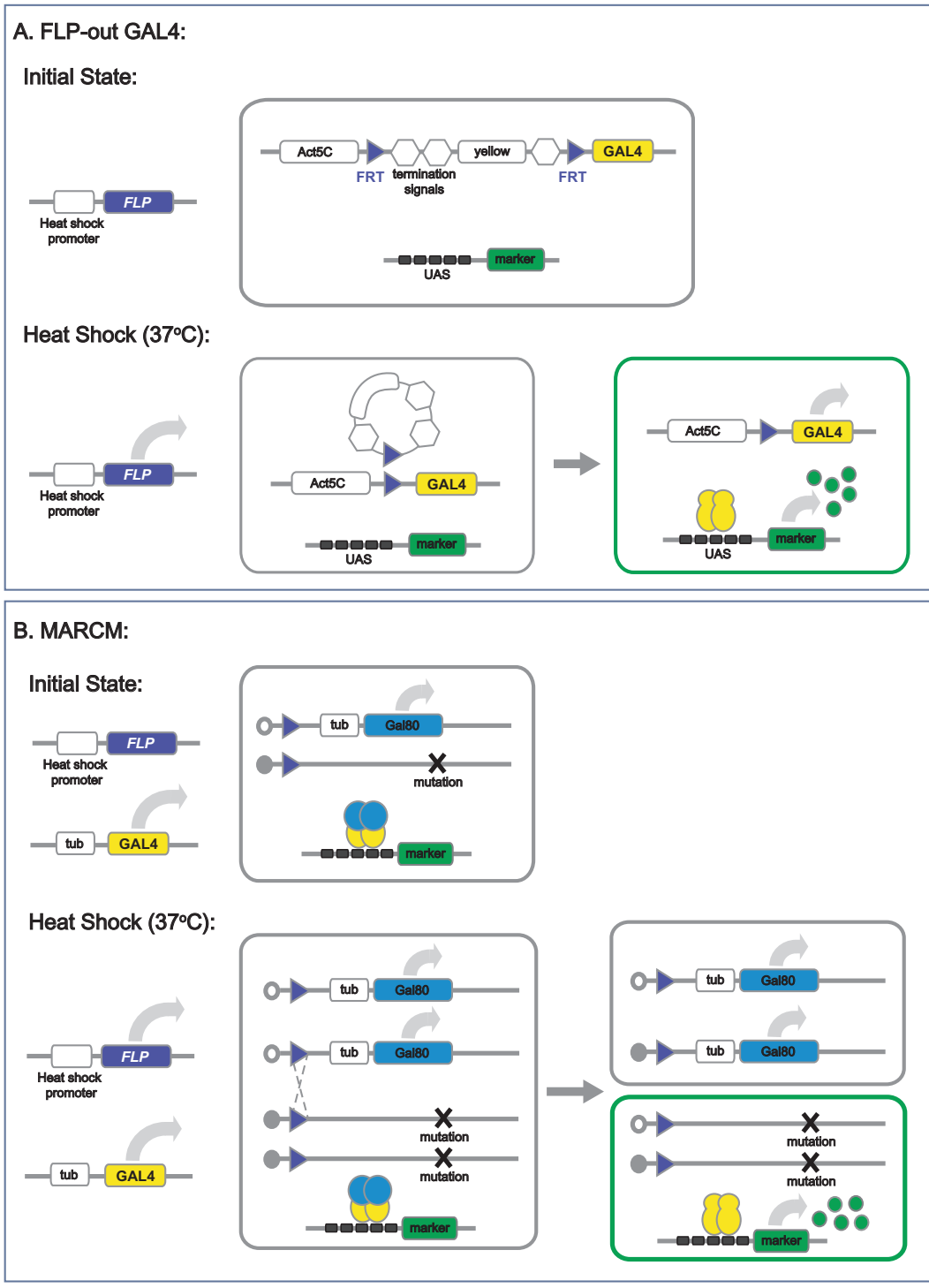

Fig. 3 Clonal analysis. (**a**) Expression of UAS constructs in clones can be achieved using FLP-out GAL4. Heat shock at 37 °C induces expression of a heat shock-inducible FLP recombinase. The recombinase acts on the FLP-out cassette catalyzing recombination between direct FRT repeats. Recombination removes the yellow marker and the transcription termination signals, allowing the expression of GAL4 under control of the Actin promoter. (**b**) Positively marked mutant clones can be made using MARCM. Heat shock at 37 °C induces expression of FLP recombinase that catalyzes recombination between FRTs on homologous chromosomes carrying either the mutation of interest or a tubGAL80 construct. Segregation of the GAL80 from the mutation into different daughter cells relieves repression of a GAL4 inducible marker in the mutant cells, labeling the mutant clone

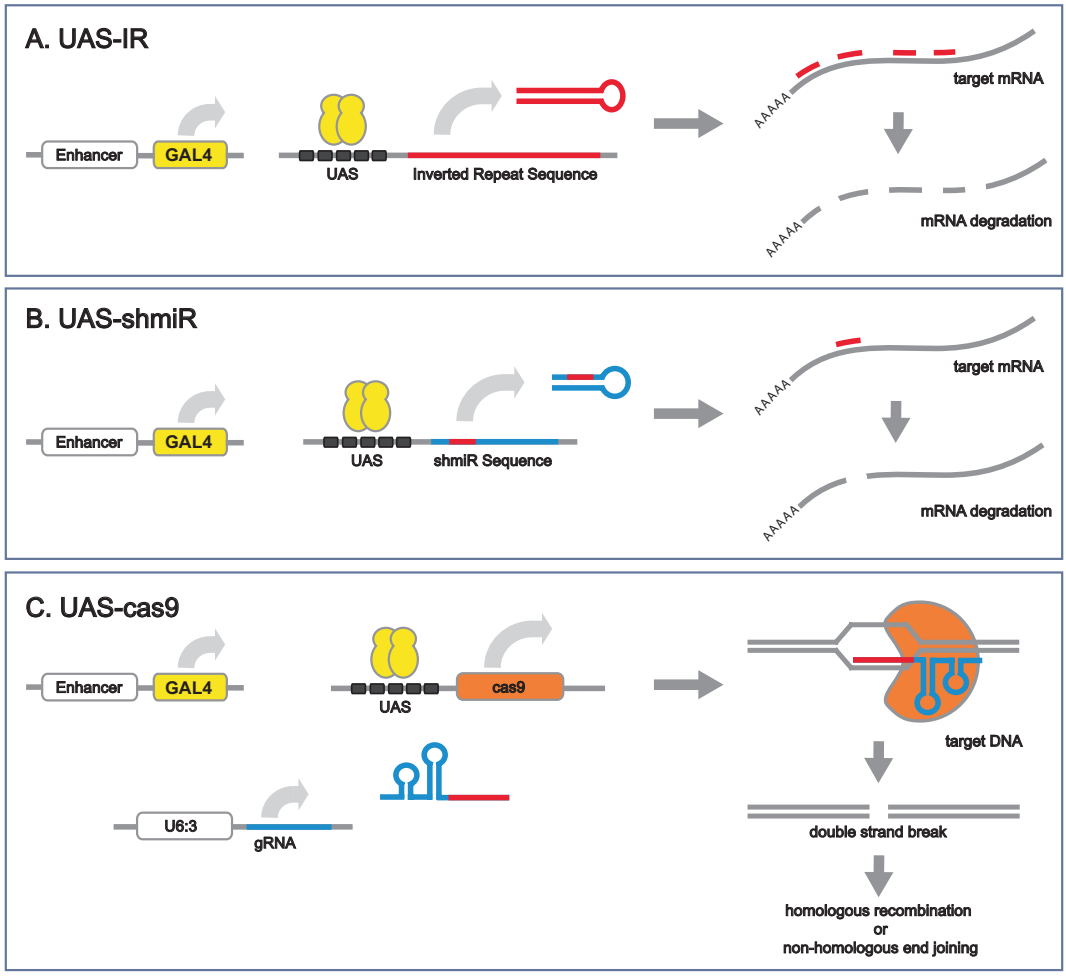

Fig. 4 Repressing genes using the GAL4 system. (**a**) RNAi-based gene knockdown can be achieved by expressing inverted repeats complementary to the gene of interest. These repeats will fold into a long double-stranded RNA that will be processed to produce multiple siRNAs against the target gene. (**b**) More specific knockdown can be achieved using UAS-shmiR constructs. A single targeting siRNA is cloned into the miR-1 backbone. Processing by cellular machinery produces only that siRNA. (**c**) Tissue-specific gene knock-outs can be achieved using a GAL4-dependent version of Cas9 and the CRISPR/Cas9 gene targeting. A ubiquitously expressed chimeric gRNA targeting the gene of interest is expressed in conjunction with UAS-*cas9* resulting in biallelic gene targeting where Cas9 is driven