MicroRNA ‘sponges’ are conditional genetic constructs inserted in *Drosophila melanogaster* genome coding for complementary oligonucleotides targeting specific miRNAs.

(A) The ‘sponge’ conditional construct was inserted into the *attP40* locus (left arm, 25C6) on the 2nd chromosome in a site-specific manner using phage phiC31 integrase. The same construct was inserted into the *attP2* locus (left arm, 68A4) on the 3rd chromosome (Loya et al. 2009; Fulga et al. 2014).

(B) The ‘sponge’ insert is comprised of 20 repeats of a complementary sequence to the target miRNA. Repeats are separated from each other by a random sequence of 4 nucleotides. The ‘sponge’ sequences are located in a RNA transcript that also codes for the fluorescent protein mCherry. Ten repeats of the Gal4 binding sequence, *uas*, are upstream of the mCherry open reading frame. An *attB* sequence is present to allow site-specific integration via recombination induced by phage phiC31 integrase with an *attP* site. Gypsy insulators insure minimal interactions of the whole construct with the surrounding sequence environment.

(C) Under physiological conditions, a miRNA recognizes a specific population of mRNAs based, in part, on the recognition of a specific sequence in the 3'UTR region of the mRNA. The seed sequence, between 6 and 8 nucleotides, is bound by the miRNAs to reduce gene expression. The miRNA-SP was built with sequence complementarity with the miRNA to interfere with its normal interactions with mRNA targets.