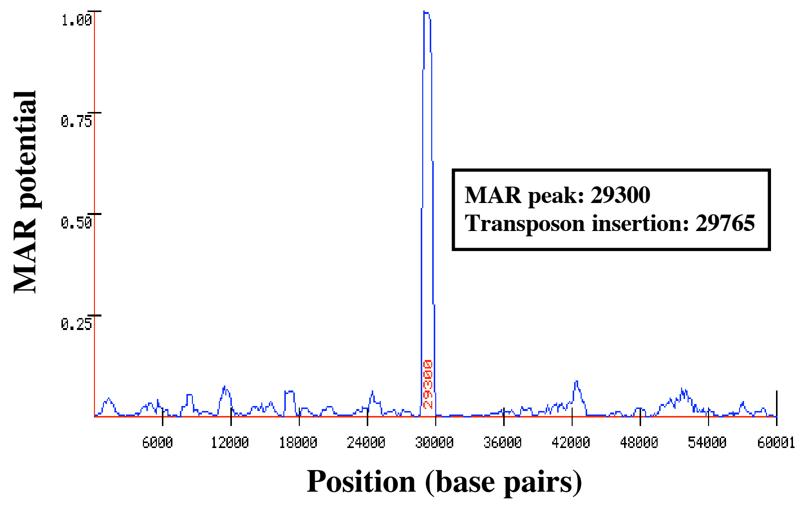

MAR potential
1.00
0.75
0.50
0.25
29300
MAR peak: 29300
Transposon insertion: 29765
6000
12000
18000
24000
30000
36000
42000
48000
54000
60001
Position (base pairs)

Supplementary Materials and Methods

Plasmids and PCR. The LexA gene was PCR-amplified from plasmid pEG202 using primers 5' gct ga*c cgc gg*a tca tga aag cgt taa cgg cca ggc and 5' agg tg*c tcg ag*c cag tcg ccg ttg cg, digested with *Sac*II and *Xho*I and inserted into the respective sites in the pFV4a expression vector containg the carp β-actin promoter. A double-stranded oligo encoding the SV40 T antigen nuclear localization signal was inserted downstream of LexA, followed by an in-frame insertion of 44 amino acids (exluding the initiator methionine) of the SAF-box, PCR-amplified using primers 5' gct ata *ctc gag* agt tcc tcg cct gtt aat gta aaa and 5' gct ata *ctc gag* cta ctc gtc gtc cag cgc agc c and digested with *Xho*I. The sequence containing the LexA operator site was inserted into pT/zeo322 using PCR mutagenesis. The tetracycline repressor-LexA fusion was constructed by PCR amplification of LexA using primers 5' gtt ca*g cta gc*g aaa gcg tta acg gcc agg caa c and 5' gtt ca*g gat cc*t tac agc cag tcg ccg ttg cg and insertion into the CMV promoter-driven TetR expression vector pUHD141-1 with *Nhe*I and *Bam*HI. The TetR/NLS/N-57 construct was made by PCR amplification of 56 amino acids (exluding the initiator methionine) of the N-terminal HTH domain of the SB transposase using primers 5' gtt ca*g cta gc*a ggt ggt ggt ggt ggt ggt ggt ggt ggt ggt gga aaa tca aaa gaa atc and 5' gtt ca*g gat cc*t agc ggt atg acg gct gcg tgg, and insertion into pUHD141-1 with *Nhe*I and *Bam*HI. This construct was designed to contain a glycine-bridge between the fusion partners to form a flexible linker between the two functional folding units. The TetR/SB fusion was constructed by replacing a *Sac*II-*Nco*I fragment of FV4a-SB with a corresponding restriction fragment of TetR/NLS/N-57. The SB/E2C fusion was made by PCR amplification of the SB transposase gene with primers 5' gct ata *ccg cgg* atc atg gga aaa

tca aaa gaa atc agc and 5’ gct ata *ctc gag* acc tcc gcc acc acc tcc gcc acc tcc tcc gta ttt ggt agc att gcc ttt aaa ttg, cutting with *Sac*II and *Xho*I and cloning together with an *Xho*I/*Apa*I-cut E2C gene fragment amplified with 5’ gct ata *ctc gag* gcc cag gcg gcc ctg gag ccc ggg gag aag ccc and 5’ gct ata *ggg ccc* tca gcc ggc ctg gcc act agt ttt ttt acc ggt g. The E2C/SB fusion was constructed by inserting E2C amplified with 5’ gct ata *ccg cgg* act atg gcc cag gcg gcc ctc gag ccc and 5’ gct ata *gct agc* ccg gcc tgg cca cta gtt ttt tta ccg gtg and cut with *Sac*II/*Nhe*I into the corresponding sites of FV4a-TetR/SB. The Jazz/SB fusion was done in a similar way, by inserting PCR-amplified, HA-tagged Jazz gene with 5’ gct ata *ccg cgg* act atg tat cca tat gat gtt cca gat tat gca agc gat g and 5’ gct ata *gct agc* tcg aga tca ttt tgc ctc aaa tg.