MAR peak: 29300
Transposon insertion: 29765
Supplementary Materials and Methods

Plasmids and PCR. The LexA gene was PCR-amplified from plasmid pEG202 using primers 5’ gct gag cgc gga tca tga aag cgt taa cgg cca ggc and 5’ agg tgc tcg agc cag tcg ccg ttg cg, digested with SacII and XhoI and inserted into the respective sites in the pFV4a expression vector containing 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 (excluding the initiator methionine) of the SAF-box, PCR-amplified using primers 5’ get ata ctc gag agt tcc tcg cct gtt aat gta aaa and 5’ get ata ctc gag cta ctc gtc gtc ggc agc agc c and digested with XhoI. 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 cag cta gcg aaa ggc tta acg gcc agg cag c and 5’ gtt cag gat cct tac agc cag tcg ccg ttg cg and insertion into the CMV promoter-driven TetR expression vector pUHD141-1 with NheI and BamHI. The TetR/NLS/N-57 construct was made by PCR amplification of 56 amino acids (excluding the initiator methionine) of the N-terminal HTH domain of the SB transposase using primers 5’ gtt cag cta gca ggt ggt ggt ggt ggt ggt ggt ggt ggt gga aaa tca aaa gaa atc and 5’ gtt cag gat cct agc ggt atg acg gct gcg tgg, and insertion into pUHD141-1 with NheI and BamHI. 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 SacII-NcoI 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 age and 5’ get ata ctc gag acc tcc gcc acc acc tcc gcc acc tcc tcc gta ttt ggt agc att gcc ttt aaa ttg, cutting with SacII and XhoI and cloning together with an XhoI/ApaI-cut E2C gene fragment amplified with 5’ get ata ctc gag gcc cag gcc cct gcc gag ccc ggg gag aag ccc and 5’ get ata ggg ccc tca gcc ggc ctg gcc actagt ttt ttt acc ggt g.

The E2C/SB fusion was constructed by inserting E2C amplified with 5’ get ata cgg cgg act atg gcc cag gcc gcc etc gag gcc and 5’ get ata get age ccg gcc tgg cca eta gtt ttt tta ccc gttg and cut with SacII/NheI 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’ get ata cgg cgg act atg tat cca tat gat gtt cca gat tat gcc age gat g and 5’ get ata get age tcc aga tca ttt tgc ctc aaa tg.