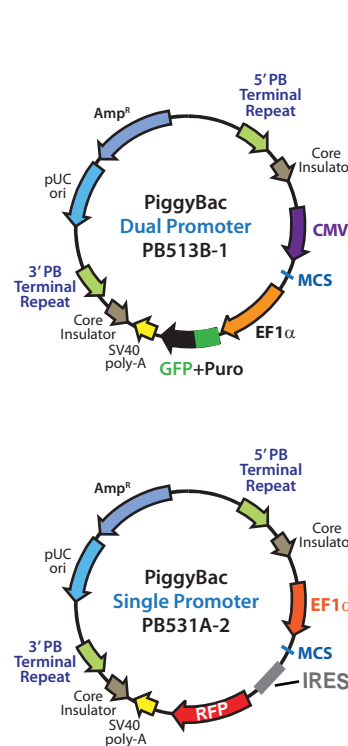
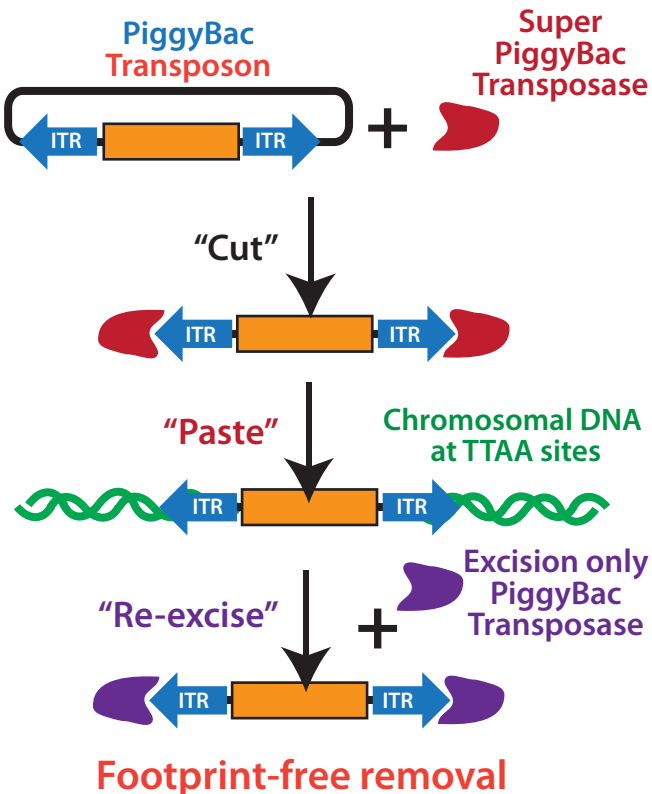


PiggyBac Transposon System

Instant, reversible and inducible transgenesis

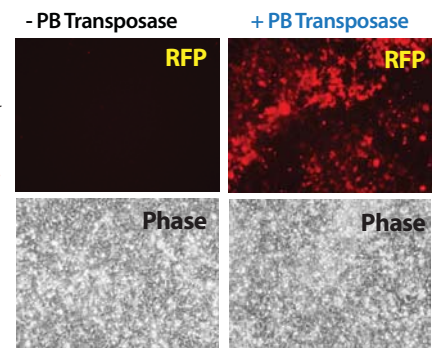
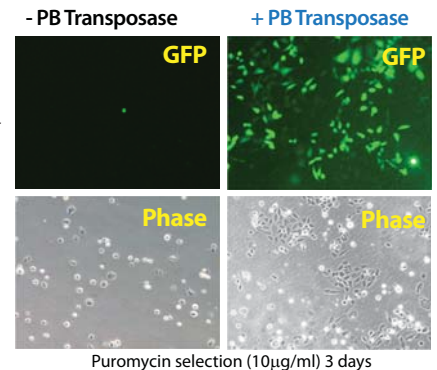
The PiggyBac (PB) transposon is a mobile genetic element that efficiently transposes between vectors and chromosomes via a "cut and paste" mechanism. During transposition, the Super PB transposase recognizes transposon-specific inverted terminal repeat sequences (ITRs) located on both ends of the transposon vector and moves the contents from the original sites and efficiently integrates them into TTAA chromosomal sites. The powerful activity of the piggyBac transposon system enables genes of interest between the two ITRs in the PB vector to be easily mobilized into target genomes. The piggyBac system can also integrate large cargos, integrate 10 to 100 kb easily.

Cut and Paste Integration using a Single Transfection



Highlights

- One transfection makes transgenic cell lines
- Effective in Human, Mouse and Rat cells
- No cargo limit - integrate 10-100kb
- Reversible integrations, footprint-free excision
- All-in-one inducible vector



The unique features of PiggyBac transposons are that there is no cargo limit and it is also reversible. Genomes containing an inserted PiggyBac vector can be transiently re-transfected with the Excision only PB transposase expression vector. The Excision only PB transposase will remove the transposons from the genome, footprint-free.



PiggyBac Transposon System

Integrate multiple PB vectors simultaneously

The Super PiggyBac transposase transient expression vector and PB513B-1+PB531A-2 were co-transfected with Super PiggyBac transposase (PB210PA-1) into Human 293 cells and puromycin selection applied for 7 days (2ug/ml). The transposed cells were Puro resistant, GFP positive and RFP positive. Easily make novel cell lines and animal models with PiggyBac multiplexed transpositions.

The resulting cell line was **GFP⁺**, **Puromycin Resistant** and **RFP⁺**.

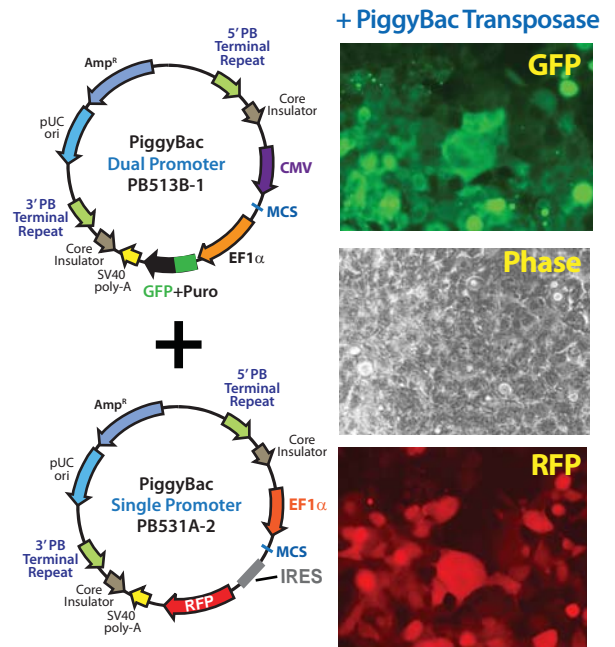
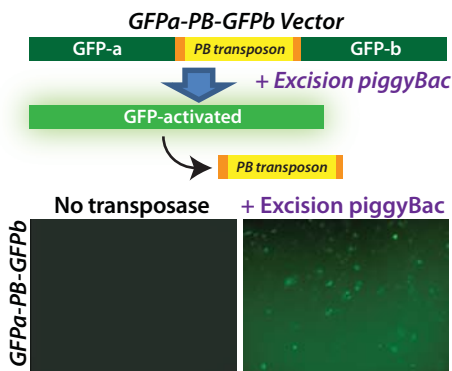
PiggyBac Transposon Re-excision with PBx

Integrated piggyBac transposons can be successfully removed, footprint-free using the engineered "Excision only" piggyBac transposase expression construct (PB220PA-1). This engineered piggyBac transposase has two major advantages: 1) Integration deficiency and 2) Retains Excision capabilities. To seamlessly remove piggyBac transposons, you simply transfect your stably transposed cell line with the Excision only piggyBac transposase expression construct to mobilize and excise the integrated transposons. The Excision only PBx transposase cannot integrate transposons (top panel) but is capable of excising transposons (lower panel).

Integration Deficient PBx



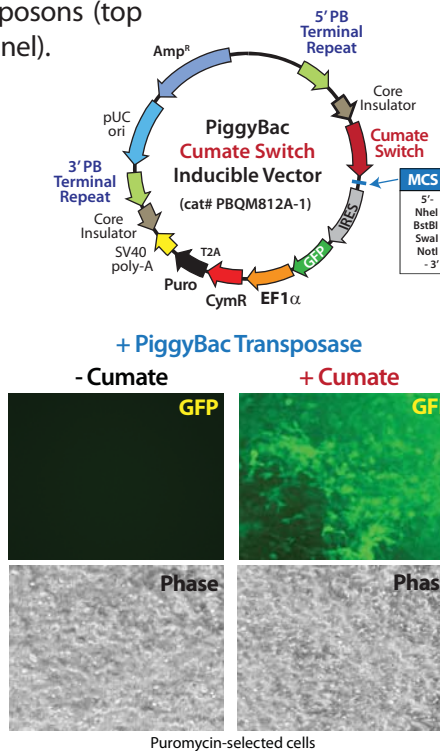
Excision Capable PBx



PiggyBac Inducible All-in-one Vector

The inducible PiggyBac vector features the ultra-tight cumate switch combined with the EF1-CymR repressor-T2A-Puro cassette to establish stable cell lines. Expression of your cDNA or microRNA of interest can be switched on simply by adding cumate to the cells. The all-in-one single vector format offers superior control of induction with no background leakiness.

Absolutely leak-proof



We Also Offer Custom Services - have SBI design and build a custom piggyBac vector for you.

System Biosciences offers a wide-range of custom services to support your research, allowing you to spend less time making tools, and more time making discoveries. To learn more, visit our website at www.systembio.com/service or call us at 888-266-5066.



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