

Supplemental Figures and Legends

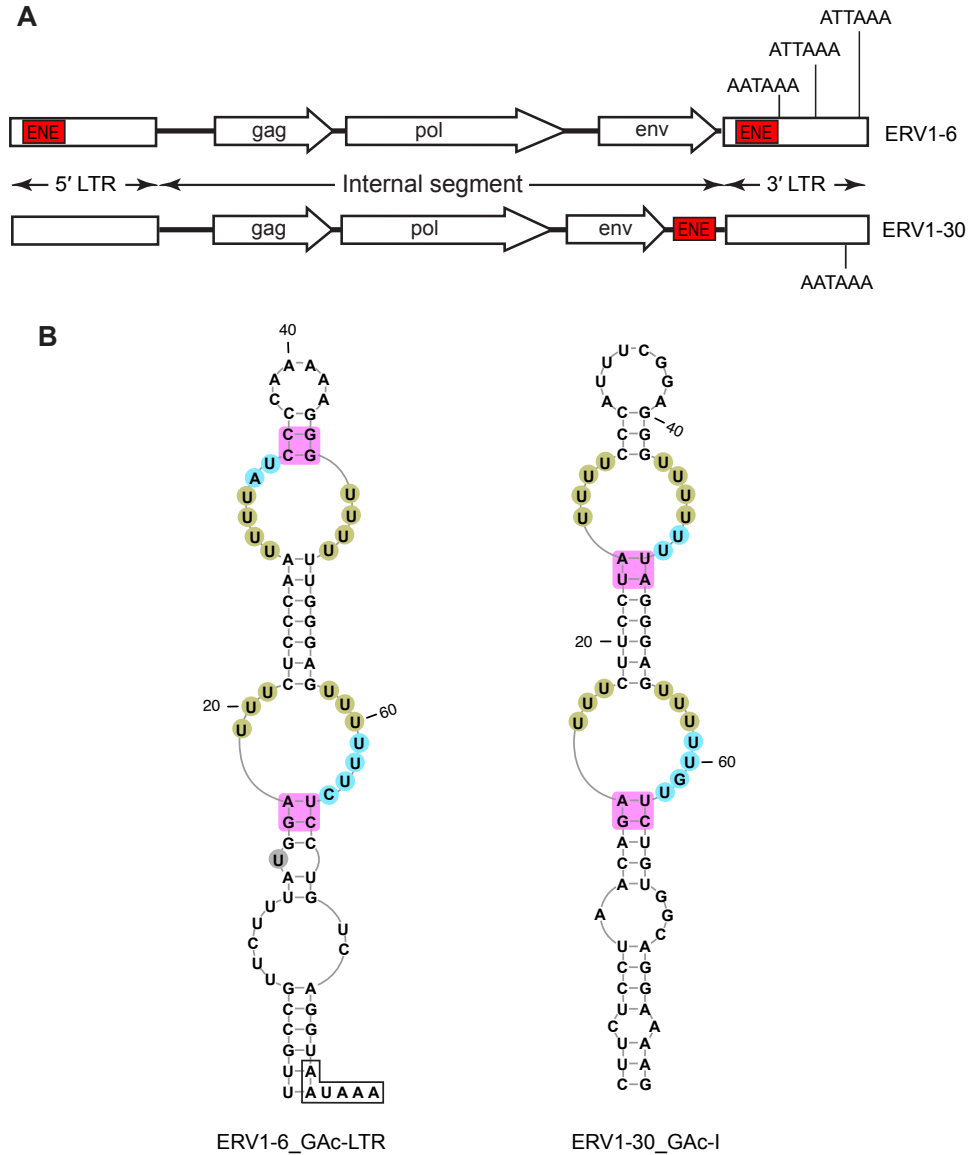


Figure S1. ENEs identified in stickleback ERVs, Related to Figure 2

(A) Schematic of two ERVs with the position of ENEs and possible polyadenylation signals shown. (B) Predicted secondary structures of stickleback ENEs. A polyadenylation signal in ERV1-6_GAc-LTR is boxed. Nucleotide shading is as described in Figure 2.

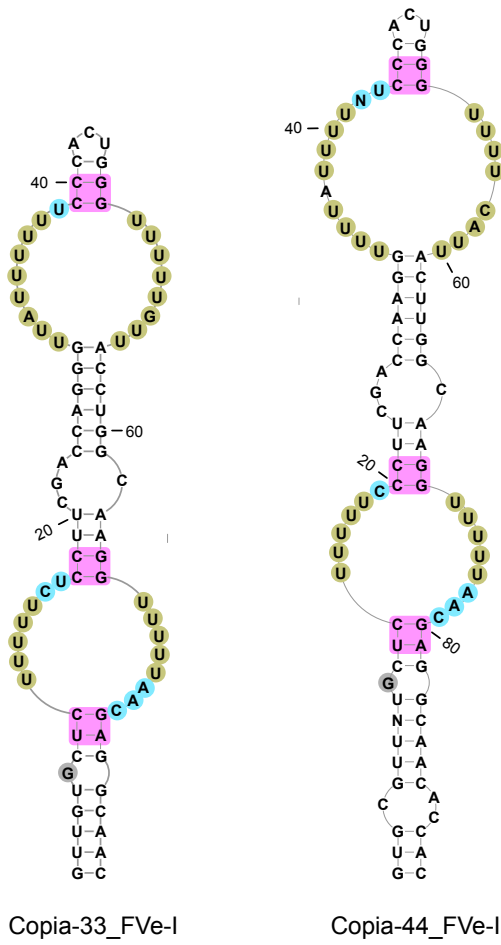


Figure S2. *Fragaria* ENEs, Related to Figure 2

Nucleotide shading is as described in Figure 2. Note that the upper domain of Copia-33_FVe-I may form an A•A-G triple, while that of Copia-44_FVe-I may include two noncanonical triples, U•A-C and U•A-A, with an A bulge.

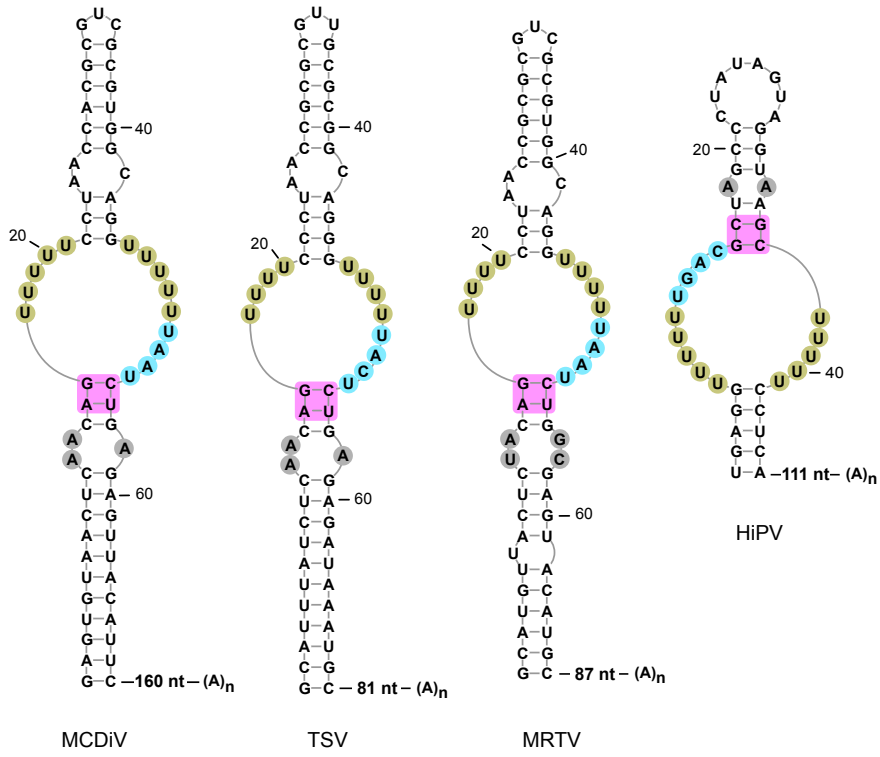


Figure S3. ENes from Dicistroviruses, Related to Figure 3
 Nucleotide shading is as described in Figure 2.

Supplemental Tables

Table S1. hAT transposons included in the phylogenetic tree shown in Figure 7

TEs with experimentally-demonstrated transposition activity are in bold.

TE name	Organism	Evidence for introns in the transposase gene	References
Ac	<i>Zea mays</i>	cDNA sequencing	(Kunze et al., 1987)
Crypt1	<i>Cryphonectria parasitica</i>	RT-PCR	(Linder-Basso et al., 2001)
Dart	<i>Oryza sativa</i>	RT-PCR	(Fujino et al., 2009; Smith et al., 2012)
Folyt1	<i>Fusarium oxysporum</i>	RT-PCR	(Gomez-Gomez et al., 1999)
Mx	<i>Zea mays</i>	predicted	(Xu and Dooner, 2005)
<i>restless</i>	<i>Tolypocladium inflatum</i>	cDNA sequencing	(Kempken and Kuck, 1996)
Tag1	<i>Arabidopsis thaliana</i>	cDNA sequencing	(Liu and Crawford, 1998)
Tag2	<i>Arabidopsis thaliana</i>	cDNA sequencing	(Henk et al., 1999)
Tam3	<i>Antirrhinum majus</i>	cDNA sequencing	(Hehl et al., 1991)
TCUP	<i>Zea mays</i>	RT-PCR	(Smith et al., 2012)
Thelma13	<i>Silene latifolia</i>	cDNA sequencing	(Pritham et al., 2003)
Br1	<i>Brassica rapa</i>	Bioinformatics prediction	This paper
hAT-3	<i>Sorghum bicolor</i>	Bioinformatics prediction	This paper
ZhAT3	<i>Zea mays</i>	Bioinformatics prediction	This paper
hAT-15	<i>Zea mays</i>	Bioinformatics prediction	This paper
Mn1	<i>Morus notabilis</i>	Bioinformatics prediction	This paper
Si1	<i>Setaria italica</i>	Bioinformatics prediction	This paper
TWIFB1	<i>Oryza sativa</i>	EST-based annotation	(Itoh et al., 2007)
TWIFBIG	<i>Oryza sativa</i>	Bioinformatics prediction	This paper

Supplemental References

Fujino, K., Matsuda, Y., and Sekiguchi, H. (2009). Transcriptional activity of rice autonomous transposable element Dart. *J. Plant Physiol.* *166*, 1537-1543.

Gomez-Gomez, E., Anaya, N., Roncero, M.I., and Hera, C. (1999). Folyt1, a new member of the hAT family, is active in the genome of the plant pathogen *Fusarium oxysporum*. *Fungal Genet. Biol.* *27*, 67-76.

Hehl, R., Nacken, W.K., Krause, A., Saedler, H., and Sommer, H. (1991). Structural analysis of Tam3, a transposable element from *Antirrhinum majus*, reveals homologies to the Ac element from maize. *Plant Mol. Biol.* *16*, 369-371.

Henk, A.D., Warren, R.F., and Innes, R.W. (1999). A new Ac-like transposon of *Arabidopsis* is associated with a deletion of the RPS5 disease resistance gene. *Genetics* *151*, 1581-1589.

Itoh, T., Tanaka, T., Barrero, R.A., Yamasaki, C., Fujii, Y., Hilton, P.B., Antonio, B.A., Aono, H., Apweiler, R., Bruskiewich, R., Bureau, T., Burr, F., Costa de Oliveira, A., Fuks, G., Habara, T., *et al.* (2007). Curated genome annotation of *Oryza sativa* ssp. *japonica* and comparative genome analysis with *Arabidopsis thaliana*. *Genome Res.* *17*, 175-183.

Kempken, F., and Kuck, U. (1996). restless, an active Ac-like transposon from the fungus *Tolypocladium inflatum*: structure, expression, and alternative RNA splicing. *Mol. Cell. Biol.* *16*, 6563-6572.

Kunze, R., Stochaj, U., Laufs, J., and Starlinger, P. (1987). Transcription of transposable element Activator (Ac) of *Zea mays* L. *EMBO J.* *6*, 1555-1563.

Linder-Basso, D., Foglia, R., Zhu, P., and Hillman, B.I. (2001). Crypt1, an active Ac-like transposon from the chestnut blight fungus, *Cryphonectria parasitica*. *Mol. Genet. Genomics* *265*, 730-738.

Liu, D., and Crawford, N.M. (1998). Characterization of the putative transposase mRNA of Tag1, which is ubiquitously expressed in *Arabidopsis* and can be induced by *Agrobacterium*-mediated transformation with dTag1 DNA. *Genetics* *149*, 693-701.

Pritham, E.J., Zhang, Y.H., Feschotte, C., and Kesseli, R.V. (2003). An Ac-like transposable element family with transcriptionally active Y-linked copies in the white campion, *Silene latifolia*. *Genetics* *165*, 799-807.

Smith, A.M., Hansey, C.N., and Kaeppler, S.M. (2012). TCUP: a novel hAT transposon active in maize tissue culture. *Front. Plant Sci.* *3*, 6.

Xu, Z., and Dooner, H.K. (2005). Mx-rMx, a family of interacting transposons in the growing hAT superfamily of maize. *Plant Cell* *17*, 375-388.