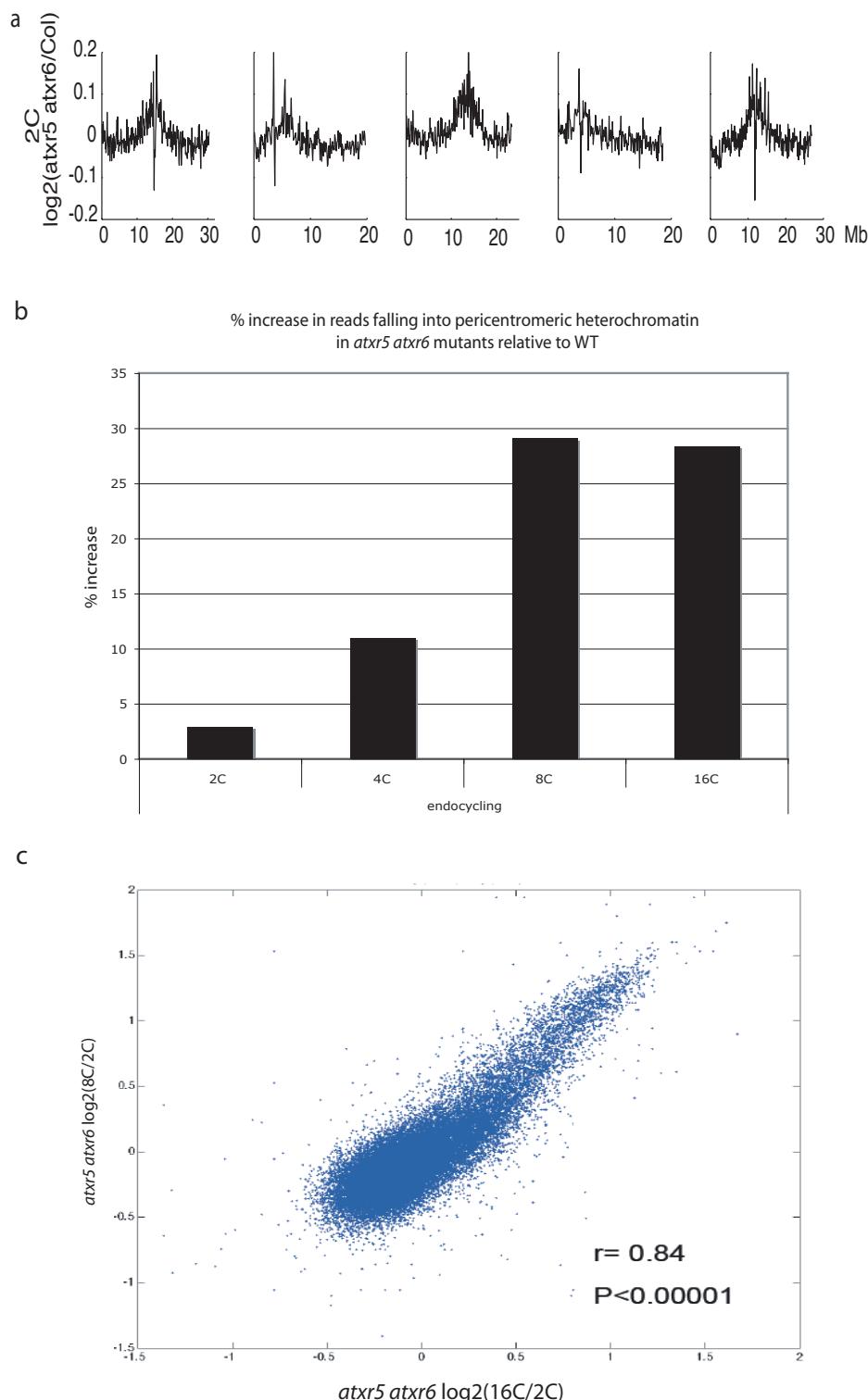


## SUPPLEMENTARY INFORMATION

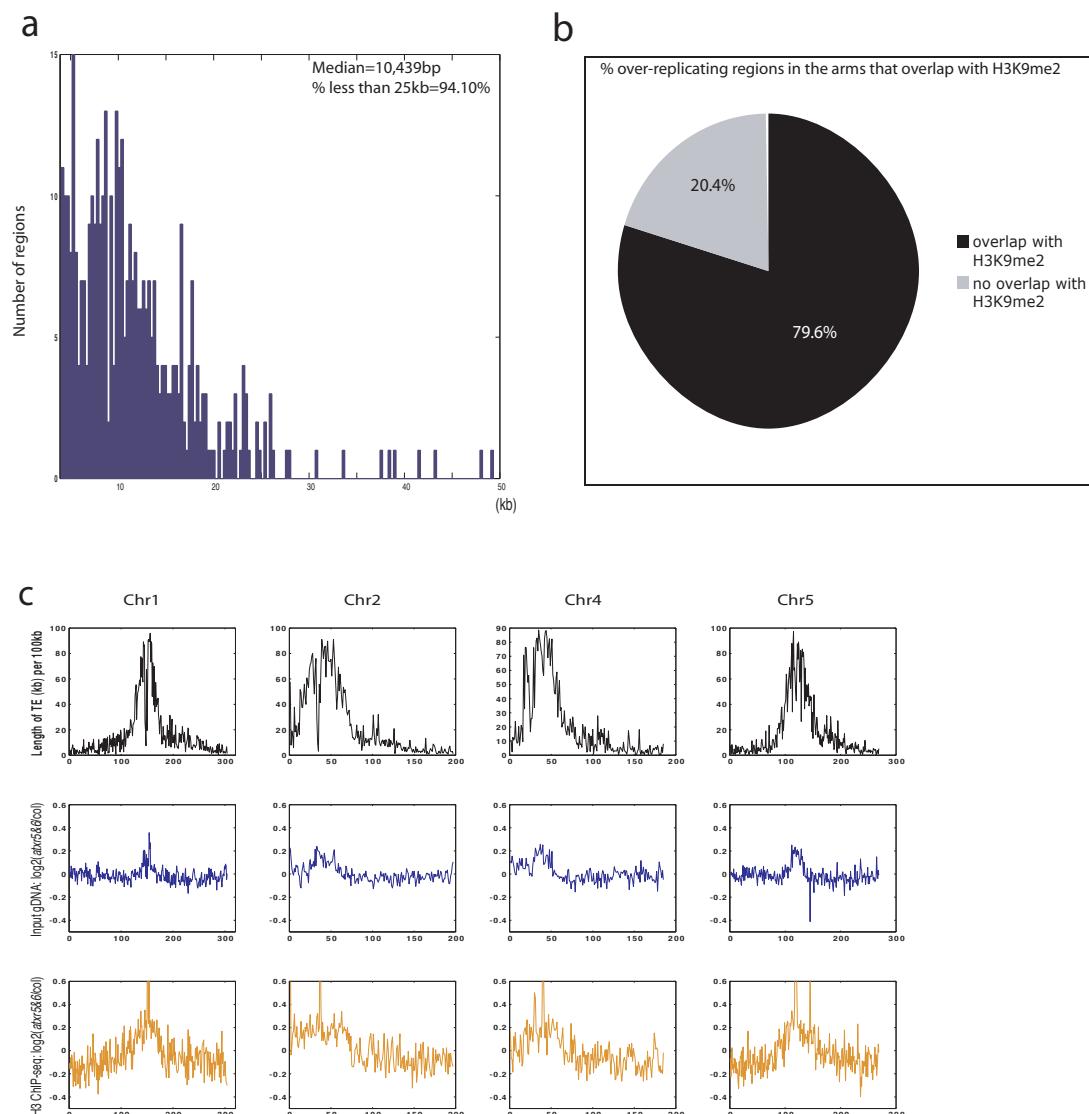


**Supplementary Figure 1. Characterization of increased DNA copy number in nuclei of different ploidy levels in *atxr5 atxr6* nuclei compared to wild-type.**

**(a)** The log<sub>2</sub> ratios of genomic DNA Illumina reads from *atxr5 atxr6* compared to wild-type 2C nuclei are plotted across the chromosomes in 100kb-sliding windows.

**(b)** Quantification of the increase in DNA copy number in *atxr5 atxr6* mutants. Percent of total Illumina reads falling into defined pericentromeric regions in nuclei with different ploidy levels in wild type and *atxr5 atxr6* mutants were computed. The percent change in these values in *atxr5 atxr6* mutants compared to wild type is shown.

**(c)** A similar set of regions show increased DNA content in 8C and 16C *atxr5 atxr6* nuclei. Normalized Illumina reads of sorted nuclei from *atxr5 atxr6* mutants were binned in 3 kb windows and log<sub>2</sub> ratios of the scores of 16C to 2C bins and 8C to 2C bins along the chromosome were calculated and compared. The P-value was calculated by shuffling the bins and re-computing Pearson correlation coefficients 100,000 times.

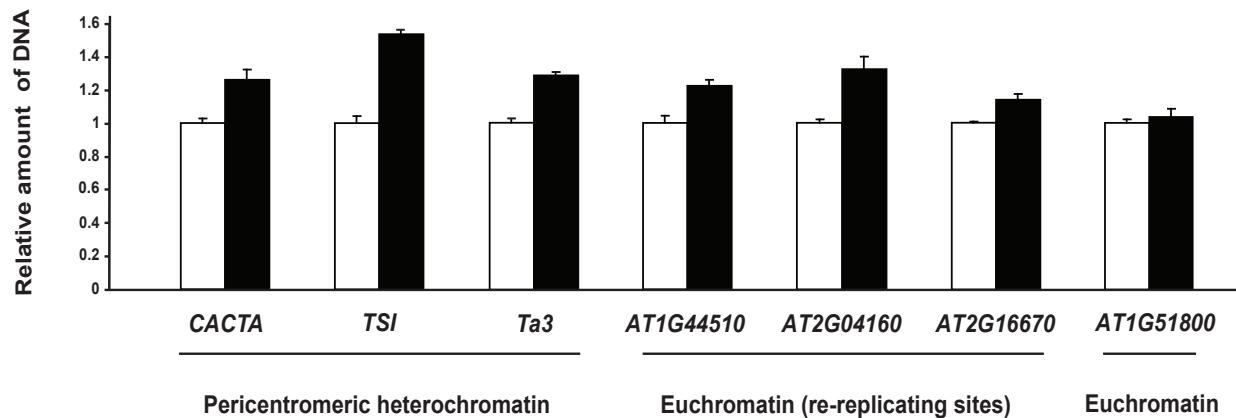


**Supplementary Figure 2. Heterochromatin is over-replicating in *atxr5 atxr6* mutants**

**(a)** Distribution of the sizes of re-replicating regions in the arms of *atxr5 atxr6* mutants.

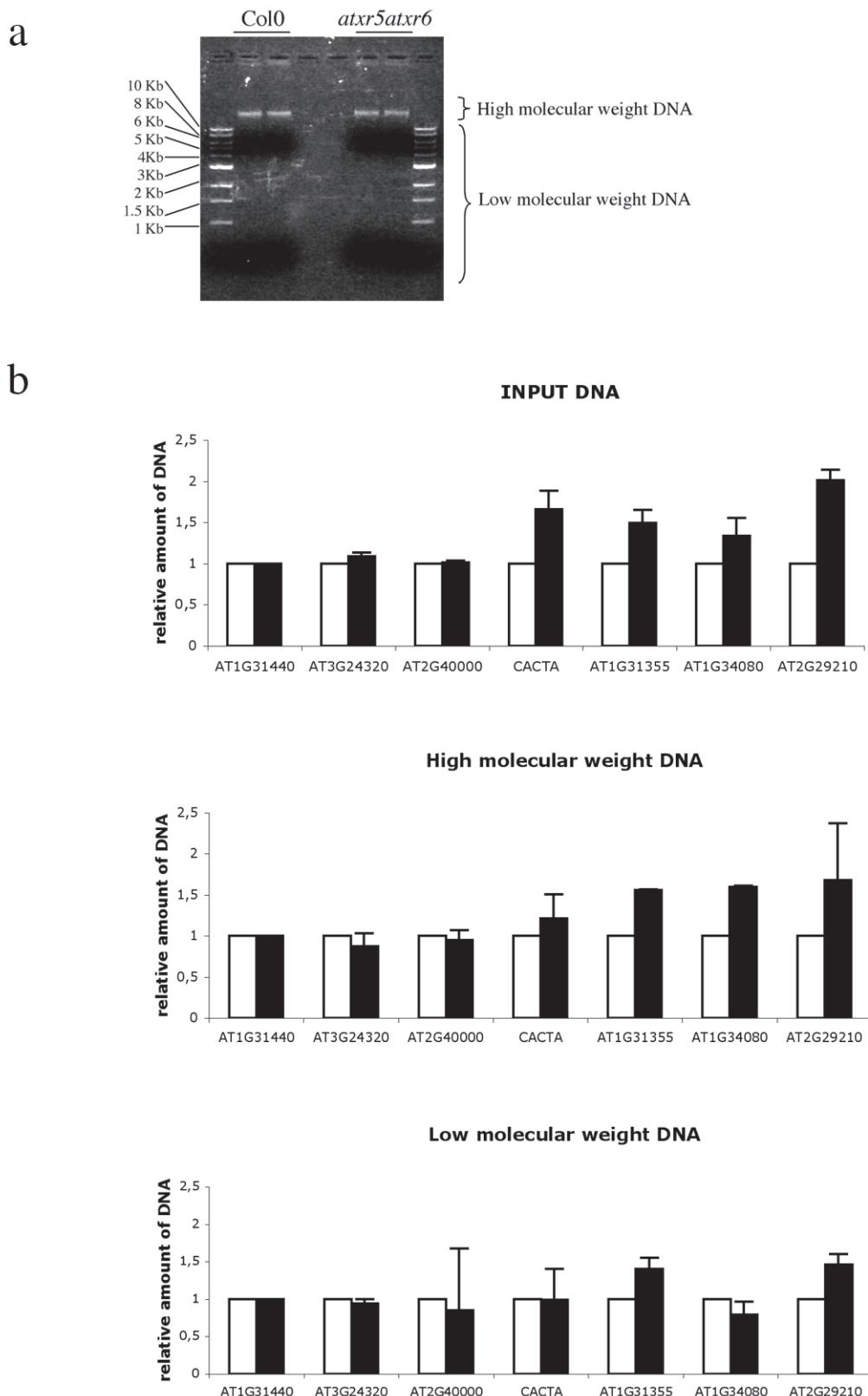
**(b)** The percentage of high copy number regions in the arms of *atxr5 atxr6* mutants that overlap with H3K9me2 regions is shown.

**(c)** Chromosomal views of log2 ratios of H3 ChIP-seq reads to INPUT genomic DNA reads in *atxr5 atxr6* mutants relative to wild type over chromosomes 1,2,4 and 5 are plotted in 100kb sliding windows (see main text for chromosome 3).



**Supplementary Figure 3. Confirmation of re-replicating sites by quantitative PCR**

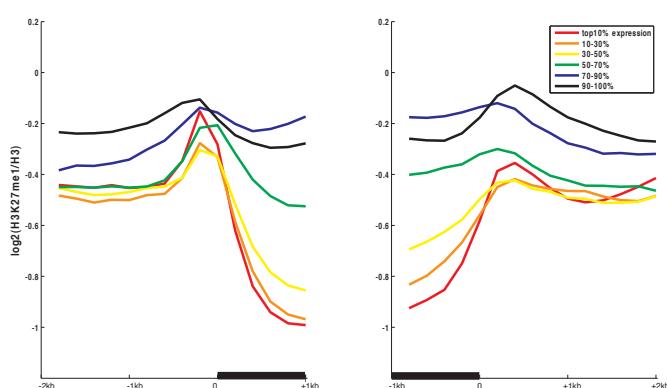
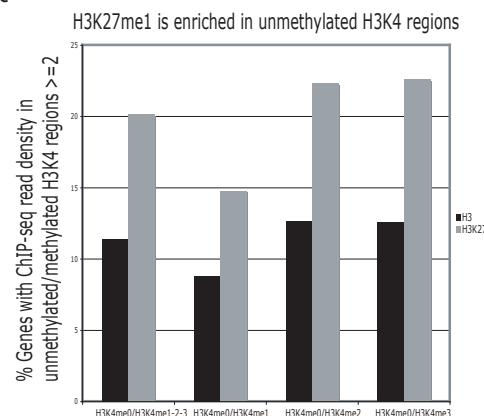
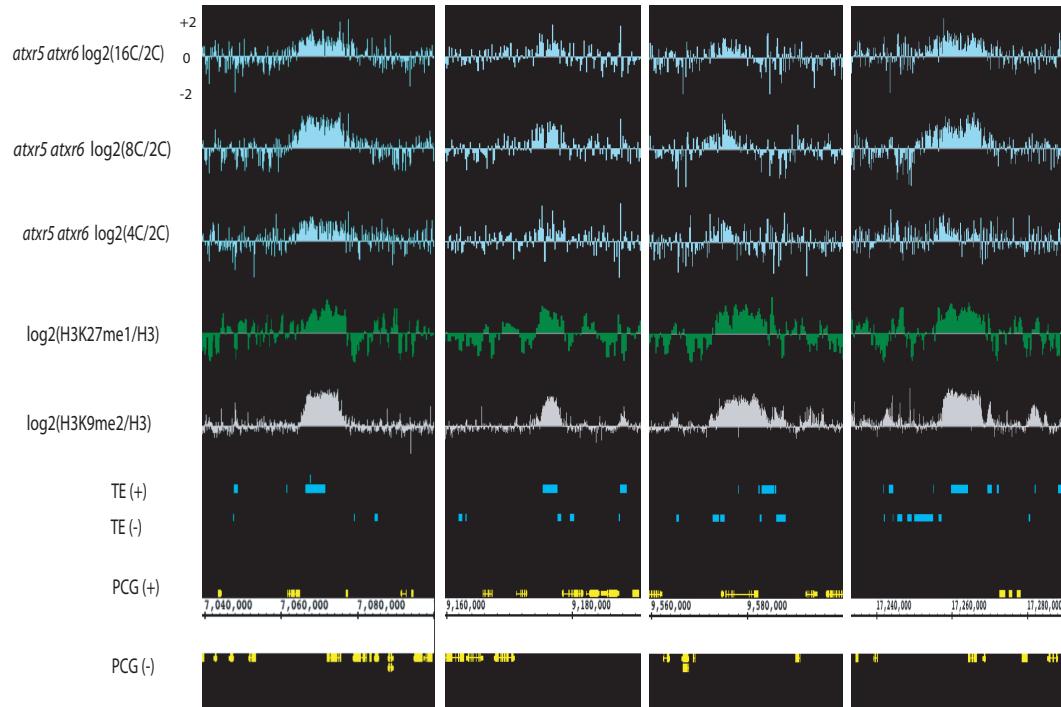
Six re-replicating sites in pericentromeric heterochromatin (*Ta3*, *TSI*, *CACTA*) and in the arms of chromosomes 1 and 2 (*AT1G44510*, *AT2G04160*, *AT2G16670*) were analyzed by qPCR on genomic DNA extracted from 16N nuclei of Col (white bars) and *atxr5 atxr6* (black bars). *At1g51800*, a non-re-replicating site in the arm of chromosome 1, was used as control. The averages and standard deviations from three independent experiments are shown. Primers for *Ta3*, *TSI*, *CACTA* are previously described<sup>2</sup> and all other primers are listed in Supplementary Table 2.



**Supplementary Figure 4. Size separation of DNA and analysis of re-replicating sites by quantitative PCR**

(a) Schematic representation of the size separation of Col and *atxr5 atxr6* DNA.

(b) Three non re-replicating sites (*AT1G31440*, *AT3G24320* and *AT2G40000*) and four re-replicating sites (*CACTA*, *AT1G31355*, *AT1G34080* and *AT2G29210*) were analyzed by qPCR on total, high molecular weight and low molecular weight genomic DNA extracted from Col (white bars) and *atxr5 atxr6* (black bars). *AT1G31440*, a non-re-replicating site in the arm of chromosome 1, was used as control. The averages and standard deviations from two independent experiments are shown. All primers are listed in Supplementary Table 2.

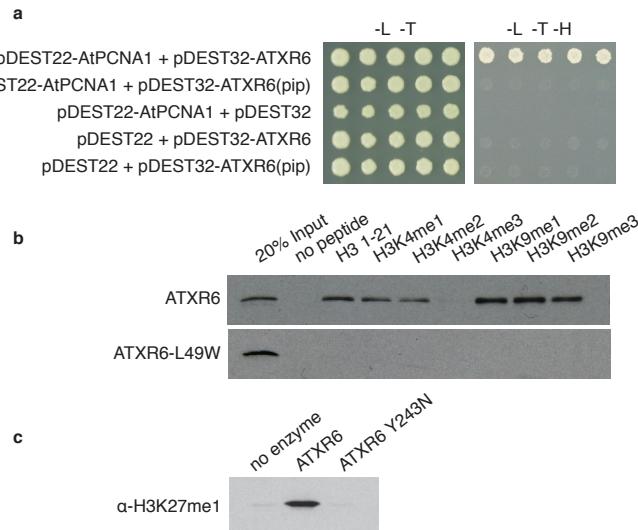
**a****c****b**

### Supplementary Figure 5. Genome-wide profiling of H3K27me1 reveals that

**H3K27me1 is a silencing mark that correlates with sites of re-replication in *atxr5* mutants, and anticorrelates with H3K4 methylation.**

(a) H3K27me1 ChIP-seq normalized to H3 ChIP-seq reads plotted over either the 5' end (left) or 3' end (right) of TAIR8 protein-coding genes. Two kilobases upstream or downstream of genes, and 1 kilobase into the genes are shown. Black=all genes, red=genes with the top 10% expression, pink=top10~30% expression, yellow=top30~50% expression, green=50~70% expression, cyan=70~90% expression, blue= lowest 10% expression.

- (b) Genome browser view of examples of re-replicating regions that are enriched in H3K27me1.
- (c) H3K27me1 anticorrelates with H3K4 methylation. Each protein-coding gene in the genome was split into regions containing either H3K4me0, -me1, -me2 or -me3, and the density of H3K27me1 and H3 ChIP-seq reads in each of these regions was computed. The % of genes where the ChIP-seq read densities were 2-fold greater in the H3K4 unmethylated regions relative to H3K4 methylated regions were calculated.



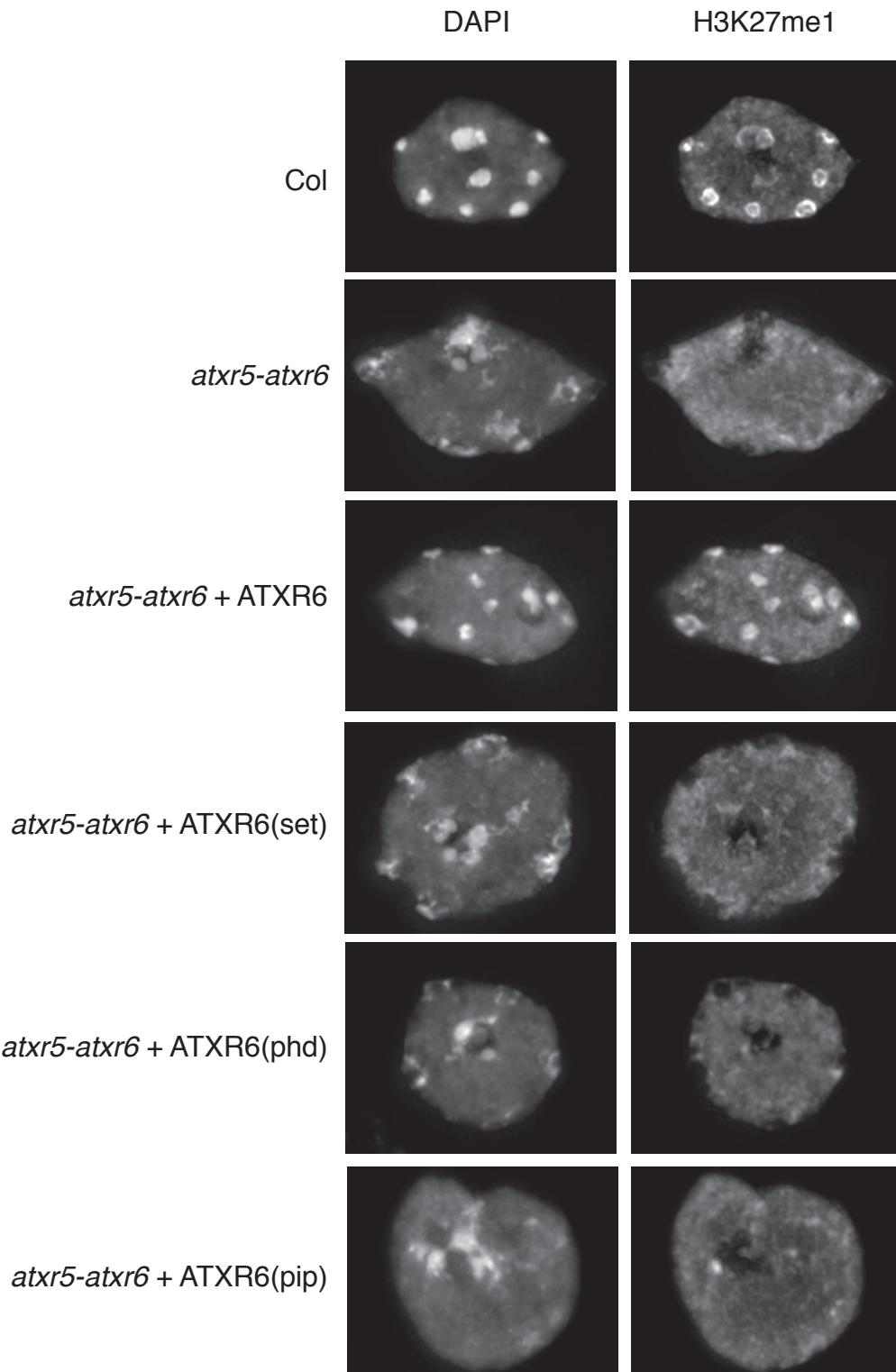
**Supplementary Figure 6. Validation of effect of the point mutations inserted to ATXR6 constructs.**

**(a)** Binding of ATXR6 to AtPCNA1 is compromised by mutations in the PIP motif.

Interaction between AtPCNA1 and WT ATXR6 or an ATXR6 mutant (Q92A, I95A, F98A, F99A) in the PIP motif (ATXR6(pip)) was assessed using the yeast-two-hybrid system (Invitrogen, Carlsbad, CA). As controls for self-activation, AtPCNA1, ATXR6, and ATXR6(pip) were co-expressed with empty vectors.

**(b)** Replacement of leucine 49 with tryptophan in the PHD domain of ATXR6 prevents binding to H3. *In vitro* histone peptide binding assay using purified GST-tagged PHD domains ATXR6 (WT and mutant) and biotinylated H3 peptides with different methylated lysines. Interaction between the peptides and the GST-PHD domains was visualized by Western blot using a GST antibody.

**(c)** A point mutation (Y243N) in the SET domain of ATXR6 impairs the methyltransferase activity. *In vitro* histone methyltransferase assay using an H3K27me1 antibody to detect the monomethylation of H3.



**Supplementary Figure 7. The PHD- and SET domains, and the PIP motif of *ATXR6* are required to restore normal H3K27me1 levels.** Immunolocalization of H3K27me1 in nuclei isolated from mature leaves of Col or *atxr5* *atxr6* mutants. T1 lines (+ ATXR6) are expressing either wild-type *ATXR6*, or different point mutants in each of the three functional elements (PIP motif, PHD- and SET domains) of the protein.

**Supplementary Table 1.** List of re-replicating regions in the arms of chromosomes.

| chromosome | start    | stop     | size  | overlap with H3K9me2 | overlap with inverted repeats | overlap with tandem repeats | Transposable element |
|------------|----------|----------|-------|----------------------|-------------------------------|-----------------------------|----------------------|
| chr1       | 181681   | 191880   | 10199 | YES                  | NO                            | NO                          |                      |
| chr1       | 236341   | 240960   | 4619  | YES                  | NO                            | YES                         |                      |
| chr1       | 266041   | 277800   | 11759 | NO                   | NO                            | YES                         |                      |
| chr1       | 337501   | 360840   | 23339 | YES                  | YES                           | YES                         | ATGP2                |
| chr1       | 389641   | 397380   | 7739  | NO                   | NO                            | NO                          | LTR/Gypsy            |
| chr1       | 406981   | 421860   | 14879 | NO                   | NO                            | YES                         |                      |
| chr1       | 981661   | 994380   | 12719 | YES                  | YES                           | NO                          |                      |
| chr1       | 1471621  | 1486620  | 14999 | YES                  | NO                            | YES                         | ATGP1                |
| chr1       | 1638961  | 1643040  | 4079  | NO                   | YES                           | YES                         | LTR/Gypsy            |
| chr1       | 1797061  | 1807920  | 10859 | NO                   | NO                            | YES                         |                      |
| chr1       | 2181841  | 2191200  | 9359  | YES                  | NO                            | YES                         | BRODYAGA1A           |
| chr1       | 2224861  | 2232900  | 8039  | NO                   | YES                           | NO                          | DNA/MuDR             |
| chr1       | 2290561  | 2303100  | 12539 | NO                   | YES                           | NO                          |                      |
| chr1       | 2453401  | 2457480  | 4079  | NO                   | YES                           | NO                          |                      |
| chr1       | 2458741  | 2466120  | 7379  | YES                  | YES                           | NO                          | ATREP3               |
| chr1       | 2559001  | 2564040  | 5039  | NO                   | YES                           | YES                         | RC/Helitron          |
| chr1       | 2783821  | 2800560  | 16739 | YES                  | NO                            | YES                         | VANDAL14             |
| chr1       | 2959561  | 2970300  | 10739 | NO                   | NO                            | YES                         | DNA/MuDR             |
| chr1       | 3058261  | 3067380  | 9119  | YES                  | NO                            | YES                         |                      |
| chr1       | 3406501  | 3417600  | 11099 | YES                  | NO                            | YES                         | RP1_AT               |
| chr1       | 3991201  | 4007880  | 16679 | NO                   | NO                            | YES                         | DNA                  |
| chr1       | 4406101  | 4411380  | 5279  | YES                  | NO                            | YES                         |                      |
| chr1       | 4677781  | 4682160  | 4379  | NO                   | NO                            | YES                         | META1                |
| chr1       | 5091361  | 5108760  | 17399 | YES                  | NO                            | YES                         | LTR/Copia            |
| chr1       | 5130061  | 5143200  | 13139 | NO                   | NO                            | YES                         | VANDAL6              |
| chr1       | 5304961  | 5312220  | 7259  | NO                   | NO                            | NO                          | HELITRON2            |
| chr1       | 5443861  | 5456400  | 12539 | YES                  | NO                            | YES                         | DNA/MuDR             |
| chr1       | 5688241  | 5711520  | 23279 | YES                  | YES                           | YES                         | ATCOPIA89            |
| chr1       | 5965861  | 5975880  | 10019 | YES                  | NO                            | YES                         | DNA/Pogo             |
| chr1       | 6193981  | 6201780  | 7799  | YES                  | YES                           | YES                         | HELITRONY1D          |
| chr1       | 6260161  | 6265680  | 5519  | YES                  | NO                            | YES                         | RC/Helitron          |
| chr1       | 6268561  | 6285240  | 16679 | YES                  | YES                           | YES                         | TAG2                 |
| chr1       | 6520261  | 6525480  | 5219  | YES                  | YES                           | NO                          |                      |
| chr1       | 6717661  | 6727980  | 10319 | YES                  | NO                            | YES                         | ATCOPIA14            |
| chr1       | 6943981  | 6948420  | 4439  | YES                  | YES                           | YES                         | LTR/Copia            |
| chr1       | 6971341  | 6984360  | 13019 | NO                   | NO                            | YES                         | RC/Helitron          |
| chr1       | 7061701  | 7080600  | 18899 | YES                  | NO                            | YES                         | ATLANTYS2            |
| chr1       | 7353481  | 7365120  | 11639 | YES                  | NO                            | YES                         | DNA/MuDR             |
| chr1       | 7862941  | 7872120  | 9179  | NO                   | YES                           | NO                          |                      |
| chr1       | 7984741  | 7990620  | 5879  | YES                  | YES                           | YES                         | HELITRONY3           |
| chr1       | 8451961  | 8467920  | 15959 | YES                  | YES                           | YES                         | RC/Helitron          |
| chr1       | 8673241  | 8685240  | 11999 | YES                  | NO                            | YES                         | DNA/MuDR             |
| chr1       | 8761021  | 8847660  | 86639 | YES                  | YES                           | YES                         | VANDAL6              |
| chr1       | 8923381  | 8938560  | 15179 | YES                  | NO                            | NO                          | DNA/MuDR             |
| chr1       | 9004801  | 9020640  | 15839 | YES                  | YES                           | YES                         | ATREP1               |
| chr1       | 9167161  | 9182100  | 14939 | YES                  | NO                            | YES                         | VANDAL2              |
| chr1       | 9569521  | 9579900  | 10379 | YES                  | YES                           | YES                         | HARBINGER            |
| chr1       | 9661201  | 9665580  | 4379  | NO                   | NO                            | NO                          | DNA/Harbinger        |
| chr1       | 9676201  | 9694020  | 17819 | YES                  | NO                            | YES                         | HELITRON1            |
| chr1       | 9701941  | 9711360  | 9419  | YES                  | NO                            | YES                         | RC/Helitron          |
| chr1       | 9904501  | 9913620  | 9119  | YES                  | NO                            | YES                         | VANDAL2              |
| chr1       | 11124781 | 11130960 | 6179  | YES                  | YES                           | YES                         | ATCOPIA95            |
| chr1       | 11144821 | 11152740 | 7919  | YES                  | NO                            | NO                          | DNA/MuDR             |
| chr1       | 11174281 | 11196540 | 22259 | YES                  | YES                           | YES                         | ATCOPIA25            |
| chr1       | 11224981 | 11243760 | 18779 | YES                  | YES                           | YES                         | ATCOPIA28            |
| chr1       | 11301301 | 11324400 | 23099 | YES                  | YES                           | YES                         | ATCOPIA88            |
| chr1       | 11341621 | 11349600 | 7979  | NO                   | NO                            | NO                          | HELITRONY1B          |
| chr1       | 17838421 | 17850840 | 12419 | YES                  | YES                           | YES                         | TAG1                 |
| chr1       | 18035641 | 18048600 | 12959 | YES                  | NO                            | YES                         | DNA/HAT              |
| chr1       | 18114421 | 18121500 | 7079  | YES                  | NO                            | YES                         | DNA                  |
| chr1       | 18156421 | 18170160 | 13739 | YES                  | YES                           | YES                         | ATREP4               |
| chr1       | 18406141 | 18426660 | 20519 | YES                  | YES                           | YES                         | RC/Helitron          |
| chr1       | 18437341 | 18443700 | 6359  | YES                  | YES                           | NO                          | DNA/En-Spm           |
| chr1       | 18806461 | 18813120 | 6659  | YES                  | YES                           | YES                         | RC/Helitron          |
| chr1       | 18842341 | 18859980 | 17639 | YES                  | NO                            | YES                         | DNA/MuDR             |
| chr1       | 18934921 | 18939900 | 4979  | YES                  | NO                            | YES                         | ATREP10D             |
| chr1       | 18962101 | 18980460 | 18359 | YES                  | YES                           | YES                         | DNA/En-Spm           |
| chr1       | 19338121 | 19356480 | 18359 | YES                  | NO                            | YES                         | ATENSPM5             |
| chr1       | 19676821 | 19685520 | 8699  | YES                  | YES                           | YES                         | DNA/MuDR             |
| chr1       | 19877821 | 19890540 | 12719 | YES                  | NO                            | NO                          | ATENSPM4             |
| chr1       | 20201461 | 20215080 | 13619 | YES                  | NO                            | YES                         | RC/Helitron          |
| chr1       | 20312641 | 20329800 | 17159 | YES                  | NO                            | YES                         | ATENSPM1             |
| chr1       | 20471761 | 20484360 | 12599 | YES                  | YES                           | YES                         | RC/Helitron          |
| chr1       | 20971561 | 20994600 | 23039 | YES                  | YES                           | YES                         | ATENSPM2             |
| chr1       | 21120841 | 21132420 | 11579 | YES                  | NO                            | YES                         | RC/Helitron          |
| chr1       | 21176761 | 21191040 | 14279 | YES                  | YES                           | YES                         | ATHATN3              |
| chr1       | 21350341 | 21354960 | 4619  | YES                  | NO                            | NO                          | DNA/HAT              |
| chr1       | 21452401 | 21468720 | 16319 | YES                  | YES                           | YES                         | ATCOPIA22            |
| chr1       | 21686641 | 21697560 | 10919 | YES                  | NO                            | NO                          | LINE?                |
| chr1       | 21769981 | 21780960 | 10979 | YES                  | NO                            | NO                          | RathE1_cons          |
| chr1       | 21799561 | 21817260 | 17699 | YES                  | NO                            | NO                          | RathE1_cons          |
| chr1       | 21832741 | 21854400 | 21659 | YES                  | NO                            | NO                          | ATCOPIA87            |
| chr1       | 21992941 | 22003260 | 10319 | YES                  | YES                           | YES                         | ATCOPIA87            |
| chr1       | 22095781 | 22113240 | 17459 | YES                  | YES                           | YES                         | ARNOLDY1             |
| chr1       | 22492741 | 22501560 | 8819  | YES                  | NO                            | YES                         | ATCOPIA5             |
| chr1       | 23173741 | 23185920 | 12179 | YES                  | YES                           | YES                         | HELITRONY3           |
| chr1       | 23368141 | 23373840 | 5699  | YES                  | NO                            | YES                         | RC/Helitron          |
| chr1       | 24273241 | 24283380 | 10139 | YES                  | NO                            | YES                         | ATCOPIA8             |
| chr1       | 24882301 | 24886380 | 4079  | YES                  | YES                           | NO                          | ATCOPIA15            |
| chr1       | 25447261 | 25461060 | 13799 | YES                  | NO                            | YES                         | RC/Helitron          |
| chr1       | 25809841 | 25815660 | 5819  | NO                   | NO                            | YES                         | TAG1                 |
| chr1       | 25992661 | 26002800 | 10139 | YES                  | YES                           | YES                         | ATGP1                |
| chr1       | 26274421 | 26284980 | 10559 | YES                  | YES                           | NO                          | ATREP4               |

|      |          |          |            |     |     |             |               |
|------|----------|----------|------------|-----|-----|-------------|---------------|
| chr1 | 26369521 | 26373600 | 4079 YES   | NO  | YES | ATCOPIA11   | LTR/Copia     |
| chr1 | 27118501 | 27136440 | 17939 YES  | NO  | YES | TAG3N1      | DNA/HAT       |
| chr1 | 27427921 | 27438120 | 10199 YES  | YES | YES | HELITRONY1D | RC/Helitron   |
| chr1 | 27865501 | 27872220 | 6719 NO    | YES | NO  |             |               |
| chr1 | 28173961 | 28188780 | 14819 YES  | NO  | YES | ATDNAI27T9C | DNA/MuDR      |
| chr1 | 28370341 | 28376520 | 6179 YES   | NO  | YES | VANDAL17    | DNA/MuDR      |
| chr1 | 28836421 | 28845480 | 9059 NO    | YES | YES | LIMPET1     | DNA/MuDR      |
| chr1 | 30132961 | 30139440 | 6479 YES   | NO  | YES |             |               |
| chr1 | 30306001 | 30313380 | 7379 NO    | NO  | YES |             |               |
| chr2 | 901      | 108780   | 107879 YES | YES | YES | VANDAL6     | DNA/MuDR      |
| chr2 | 112261   | 121500   | 9239 YES   | YES | NO  | HELITRONY1B | RC/Helitron   |
| chr2 | 122641   | 185340   | 62699 YES  | YES | YES | ATMU1       | DNA/MuDR      |
| chr2 | 187321   | 204840   | 17519 YES  | NO  | NO  | ATREP10B    | RC/Helitron   |
| chr2 | 206401   | 213360   | 6959 YES   | NO  | YES |             |               |
| chr2 | 214861   | 223380   | 8519 NO    | NO  | NO  | ATREP10D    | RC/Helitron   |
| chr2 | 225181   | 232980   | 7799 YES   | YES | NO  | DT1         | DNA/Mariner   |
| chr2 | 234661   | 258480   | 23819 YES  | YES | YES | ATLINEIII   | LINE/L1       |
| chr2 | 267601   | 301080   | 33479 YES  | NO  | YES | ATREP17     | DNA/MuDR      |
| chr2 | 305461   | 354780   | 49319 YES  | YES | YES | ATHATN4     | DNA/HAT       |
| chr2 | 357601   | 364920   | 7319 YES   | NO  | NO  | ATREP15     | RC/Helitron   |
| chr2 | 366901   | 390180   | 23279 YES  | NO  | YES | RathE1_cons | RathE1_cons   |
| chr2 | 400801   | 408240   | 7439 YES   | YES | YES | ATHPOGON3   | DNA/Pogo      |
| chr2 | 414541   | 436500   | 21959 YES  | NO  | YES | ATTIRTA1    | DNA/Tc1       |
| chr2 | 473041   | 494160   | 21119 YES  | YES | YES | SIMPLEGUY1  | DNA/Harbinger |
| chr2 | 504781   | 509880   | 5099 YES   | NO  | YES |             |               |
| chr2 | 514861   | 542880   | 28019 YES  | YES | YES | TA11        | LINE/L1       |
| chr2 | 552481   | 565200   | 12719 YES  | NO  | YES | ATREP10A    | RC/Helitron   |
| chr2 | 583921   | 588120   | 4199 YES   | NO  | NO  |             |               |
| chr2 | 607201   | 620700   | 13499 YES  | NO  | YES | ATREP15     | RC/Helitron   |
| chr2 | 629461   | 639960   | 10499 YES  | NO  | YES | ATTIR16T3A  | DNA           |
| chr2 | 652681   | 657060   | 4379 YES   | NO  | YES | ATREP15     | RC/Helitron   |
| chr2 | 660481   | 668580   | 8099 YES   | NO  | YES | HELITRONY1E | RC/Helitron   |
| chr2 | 675061   | 697260   | 22199 YES  | YES | YES | ATREP10D    | RC/Helitron   |
| chr2 | 716641   | 721260   | 4619 YES   | NO  | NO  | ATLINE2     | LINE/L1       |
| chr2 | 734881   | 742440   | 7559 YES   | NO  | YES | ATREP11A    | RC/Helitron   |
| chr2 | 744181   | 752820   | 8639 YES   | YES | YES | ATTIRTA1    | DNA/Tc1       |
| chr2 | 754501   | 767040   | 12539 YES  | YES | YES | ATREP3      | RC/Helitron   |
| chr2 | 787621   | 794700   | 7079 YES   | NO  | YES | ATREP2      | RC/Helitron   |
| chr2 | 815641   | 833460   | 17819 YES  | YES | YES | ATGP10      | LTR/Gypsy     |
| chr2 | 838081   | 849780   | 11699 YES  | NO  | YES | ATCOPIA36   | LTR/Copia     |
| chr2 | 851041   | 862680   | 11639 YES  | NO  | YES | ATREP17     | DNA/MuDR      |
| chr2 | 864121   | 873840   | 9719 YES   | YES | YES | ATIS112A    | DNA/Harbinger |
| chr2 | 880381   | 898320   | 17939 YES  | YES | YES | HELITRONY1B | RC/Helitron   |
| chr2 | 941641   | 949800   | 8159 NO    | NO  | YES |             |               |
| chr2 | 953281   | 967440   | 14159 YES  | YES | YES | ATREP15     | RC/Helitron   |
| chr2 | 982261   | 999000   | 16739 YES  | NO  | YES | ATLINE1A    | LINE/L1       |
| chr2 | 1014481  | 1055940  | 41459 YES  | YES | YES | HELITRONY3  | RC/Helitron   |
| chr2 | 1066501  | 1082340  | 15839 YES  | NO  | YES | ATLINE1_3A  | LINE/L1       |
| chr2 | 7227481  | 7243020  | 15539 YES  | YES | YES | ATCOPIA70   | LTR/Copia     |
| chr2 | 8023441  | 8048820  | 25379 YES  | YES | YES | ATREP11     | RC/Helitron   |
| chr2 | 8083561  | 8088300  | 4739 YES   | YES | YES | HELITRONY3A | RC/Helitron   |
| chr2 | 8202241  | 8208480  | 6239 YES   | YES | YES | ATREP10D    | RC/Helitron   |
| chr2 | 8571841  | 8581140  | 9299 YES   | NO  | NO  | ATCOPIA69   | LTR/Copia     |
| chr2 | 9047761  | 9058980  | 11219 YES  | NO  | NO  |             |               |
| chr2 | 9064021  | 9072360  | 8339 YES   | NO  | YES | LIMPET1     | DNA/MuDR      |
| chr2 | 9194101  | 9210840  | 16739 YES  | YES | YES | ATCOPIA76   | LTR/Copia     |
| chr2 | 9268441  | 9276420  | 7979 YES   | YES | NO  | BRODYAGA2   | DNA/MuDR      |
| chr2 | 9659221  | 9668580  | 9359 YES   | YES | YES | ARNOLDY2    | DNA/MuDR      |
| chr2 | 9926101  | 9936960  | 10859 YES  | YES | NO  | TSCL        | LINE?         |
| chr2 | 10002961 | 10016280 | 13319 YES  | NO  | YES | VANDAL21    | DNA/MuDR      |
| chr2 | 10811281 | 10818780 | 7499 YES   | YES | YES | ATREP9      | RC/Helitron   |
| chr2 | 10992481 | 11004420 | 11939 YES  | NO  | YES | HELITRONY1E | RC/Helitron   |
| chr2 | 11127541 | 11148060 | 20519 YES  | YES | YES | ATHATN7     | DNA/HAT       |
| chr2 | 11332201 | 11342400 | 10199 YES  | NO  | YES | HARBINGER   | DNA/Harbinger |
| chr2 | 12304741 | 12315840 | 11099 YES  | YES | YES | HELITRONY3  | RC/Helitron   |
| chr2 | 12561961 | 12572460 | 10499 YES  | NO  | YES | ATREP2A     | RC/Helitron   |
| chr2 | 13098361 | 13106520 | 8159 YES   | NO  | YES | ATDNAI27T9C | DNA/MuDR      |
| chr2 | 13227061 | 13235700 | 8639 YES   | NO  | YES | TSCL        | LINE?         |
| chr2 | 13450381 | 13460340 | 9959 YES   | NO  | YES |             |               |
| chr2 | 13664521 | 13672320 | 7799 YES   | YES | NO  | ATHPOGON1   | DNA/Pogo      |
| chr2 | 13867861 | 13879920 | 12059 YES  | YES | YES | ATMU9       | DNA/MuDR      |
| chr2 | 14414761 | 14419980 | 5219 YES   | YES | YES | ATENSPM1    | DNA/En-Spm    |
| chr2 | 15079681 | 15088020 | 8339 YES   | NO  | NO  |             |               |
| chr2 | 15144001 | 15148320 | 4319 YES   | NO  | NO  |             |               |
| chr2 | 15169081 | 15176760 | 7679 NO    | NO  | YES |             |               |
| chr2 | 15598081 | 15605520 | 7439 YES   | YES | YES | ATMU7       | DNA/MuDR      |
| chr2 | 15695101 | 15704760 | 9659 YES   | NO  | NO  | HELITRONY1D | RC/Helitron   |
| chr2 | 15853981 | 15858480 | 4499 YES   | YES | YES | ATREP5      | RC/Helitron   |
| chr2 | 17209441 | 17220960 | 11519 YES  | NO  | YES | ATREP1      | RC/Helitron   |
| chr2 | 18747601 | 18751680 | 4079 NO    | NO  | NO  |             |               |
| chr2 | 19103101 | 19111260 | 8159 NO    | NO  | YES |             |               |
| chr2 | 19476661 | 19487280 | 10619 YES  | NO  | NO  |             |               |
| chr2 | 19595101 | 19605300 | 10199 YES  | NO  | YES |             |               |
| chr2 | 19650541 | 19660500 | 9959 NO    | NO  | NO  |             |               |
| chr3 | 35881    | 47340    | 11459 YES  | YES | YES | RP1_AT      | DNA           |
| chr3 | 255661   | 265500   | 9839 YES   | NO  | NO  |             |               |
| chr3 | 267721   | 273000   | 5279 NO    | NO  | NO  |             |               |
| chr3 | 327601   | 337440   | 9839 NO    | NO  | YES |             |               |
| chr3 | 444121   | 457980   | 13859 NO   | NO  | YES |             |               |
| chr3 | 517441   | 532200   | 14759 YES  | YES | YES |             |               |
| chr3 | 1161721  | 1172820  | 11099 YES  | YES | YES | ATDNAI27T9C | DNA/MuDR      |
| chr3 | 1227781  | 1235040  | 7259 YES   | NO  | YES |             |               |
| chr3 | 1606861  | 1615140  | 8279 YES   | NO  | NO  | ATLANTYS3   | LTR/Gypsy     |
| chr3 | 1849561  | 1860480  | 10919 YES  | NO  | YES |             |               |
| chr3 | 1958701  | 1972740  | 14039 YES  | YES | YES | RathE2_cons | RathE2_cons   |
| chr3 | 1982221  | 1991040  | 8819 YES   | NO  | YES | ATCOPIA6    | LTR/Copia     |

|      |          |          |            |     |     |             |               |
|------|----------|----------|------------|-----|-----|-------------|---------------|
| chr3 | 2089081  | 2099400  | 10319 YES  | NO  | YES | ATTIRTA1    | DNA/Tc1       |
| chr3 | 2362861  | 2368200  | 5339 YES   | NO  | YES | VANDAL13    | DNA/MuDR      |
| chr3 | 2719021  | 2727120  | 8099 NO    | YES | YES | VANDAL16    | DNA/MuDR      |
| chr3 | 2764861  | 2774760  | 9899 YES   | NO  | YES | ATLANTYS3   | LTR/Gypsy     |
| chr3 | 2808541  | 2820660  | 12119 YES  | NO  | YES | TSCL        | LINE?         |
| chr3 | 3111061  | 3117360  | 6299 YES   | NO  | NO  | ATGP3       | LTR/Gypsy     |
| chr3 | 3493741  | 3503340  | 9599 YES   | NO  | YES | VANDAL21    | DNA/MuDR      |
| chr3 | 3805081  | 3815940  | 10859 YES  | NO  | NO  | VANDAL17    | DNA/MuDR      |
| chr3 | 4921021  | 4934160  | 13139 YES  | YES | YES | VANDAL17    | DNA/MuDR      |
| chr3 | 5092501  | 5096880  | 4379 NO    | NO  | YES | ATREP1      | RC/Helitron   |
| chr3 | 5275081  | 5290200  | 15119 YES  | NO  | YES | ATGP1       | LTR/Gypsy     |
| chr3 | 5588341  | 5602680  | 14339 YES  | YES | YES | ATREP5      | RC/Helitron   |
| chr3 | 5780821  | 5784840  | 4019 NO    | NO  | NO  | VANDAL8     | DNA/MuDR      |
| chr3 | 5806201  | 5819340  | 13139 YES  | NO  | YES | ATCOPA28    | DNA/Copia     |
| chr3 | 7137541  | 7145700  | 8159 YES   | YES | YES | ATHILA6A    | LTR/Gypsy     |
| chr3 | 7274161  | 7281180  | 7019 YES   | NO  | YES | ATGP7       | LTR/Gypsy     |
| chr3 | 7443781  | 7448280  | 4499 NO    | NO  | YES | VANDAL2     | DNA/MuDR      |
| chr3 | 7652941  | 7657920  | 4979 NO    | NO  | NO  | ATCOPA66    | LTR/Copia     |
| chr3 | 7665001  | 7681800  | 16799 YES  | YES | YES | ATHAT10     | DNA/HAT       |
| chr3 | 7796761  | 7813260  | 16499 YES  | YES | YES | VANDAL14    | DNA/MuDR      |
| chr3 | 8209021  | 8216100  | 7079 YES   | NO  | YES | ATLINE2     | LINE/L1       |
| chr3 | 8406901  | 8414040  | 7139 YES   | NO  | YES | RathE3_cons | RathE3_cons   |
| chr3 | 8538661  | 8544060  | 5399 YES   | NO  | NO  | ATREP5      | RC/Helitron   |
| chr3 | 8842981  | 8859240  | 16259 YES  | NO  | YES | ATGP2N      | LTR/Gypsy     |
| chr3 | 8897161  | 8905860  | 8699 NO    | NO  | YES | ATTIR16T3A  | DNA           |
| chr3 | 8924761  | 8946240  | 21479 YES  | YES | YES | ATREP10D    | RC/Helitron   |
| chr3 | 9723601  | 9736800  | 13199 YES  | NO  | YES | ATLINE1_3A  | LINE/L1       |
| chr3 | 9784501  | 9790620  | 6119 YES   | NO  | YES | ATLINE1     | LINE/L1       |
| chr3 | 10060321 | 10065480 | 5159 NO    | YES | NO  | ATLINE1     | LINE/L1       |
| chr3 | 10066921 | 10083840 | 16919 YES  | NO  | YES | ATLINE1     | LINE/L1       |
| chr3 | 10115401 | 10122660 | 7259 YES   | NO  | YES | ATLINE1     | LINE/L1       |
| chr3 | 10143241 | 10153680 | 10439 YES  | NO  | YES | ATLINE1     | LINE/L1       |
| chr3 | 17398861 | 17411280 | 12419 YES  | YES | YES | ATLINE1     | LINE/L1       |
| chr3 | 17668261 | 17678280 | 10019 YES  | NO  | NO  | ATLINE1     | LINE/L1       |
| chr3 | 18635101 | 18646380 | 11279 YES  | NO  | YES | ATLINE1     | LINE/L1       |
| chr3 | 19581841 | 19595100 | 13259 YES  | NO  | YES | ATLINE1     | LINE/L1       |
| chr3 | 20211901 | 20219220 | 7319 YES   | YES | YES | ATLINE1     | LINE/L1       |
| chr3 | 20471461 | 20487840 | 16379 YES  | YES | YES | ATLINE1     | LINE/L1       |
| chr3 | 21393421 | 21398280 | 4859 NO    | YES | NO  | ATLINE1     | LINE/L1       |
| chr3 | 22243021 | 22256700 | 13679 YES  | NO  | YES | VANDAL6     | DNA/MuDR      |
| chr3 | 22523041 | 22532940 | 9899 YES   | NO  | NO  | ATLANTYS2   | LTR/Gypsy     |
| chr3 | 22588201 | 22594200 | 5999 YES   | NO  | YES | VANDAL6     | DNA/MuDR      |
| chr3 | 22653301 | 22662000 | 8699 YES   | YES | YES | BRODYAGA2   | DNA/MuDR      |
| chr3 | 23113021 | 23132280 | 19259 YES  | YES | YES | ATLANTYS3   | LTR/Gypsy     |
| chr3 | 23306221 | 23316120 | 9899 NO    | NO  | YES | ATLINE1     | LINE/L1       |
| chr4 | 901      | 26160    | 25259 YES  | YES | YES | AT9TSD1     | DNA/MuDR      |
| chr4 | 31921    | 136680   | 104759 YES | YES | YES | VANDAL22    | DNA/MuDR      |
| chr4 | 143281   | 202680   | 59399 YES  | YES | YES | ATREP9      | RC/Helitron   |
| chr4 | 203881   | 215280   | 11399 NO   | NO  | NO  | ATREP5      | RC/Helitron   |
| chr4 | 221581   | 368040   | 146459 YES | YES | YES | BOMZ2H2     | DNA/MuDR      |
| chr4 | 381841   | 394860   | 13019 YES  | NO  | YES | VANDAL1     | DNA/MuDR      |
| chr4 | 397681   | 417060   | 19379 YES  | YES | YES | ATENSPM9    | DNA/En-Spm    |
| chr4 | 418321   | 436680   | 18359 YES  | YES | NO  | ATHATN9     | DNA/HAT       |
| chr4 | 437941   | 463800   | 25859 YES  | NO  | YES | VANDAL17    | DNA/MuDR      |
| chr4 | 466441   | 471060   | 4619 YES   | YES | YES | ATREP5      | RC/Helitron   |
| chr4 | 475501   | 486840   | 11339 YES  | NO  | YES | ATHATN1     | DNA/HAT       |
| chr4 | 507601   | 519840   | 12239 NO   | NO  | YES | ATREP15     | RC/Helitron   |
| chr4 | 521221   | 552000   | 30779 YES  | NO  | YES | ATLINE1     | LINE/L1       |
| chr4 | 564661   | 571200   | 6539 NO    | NO  | YES | TAG2        | DNA/HAT       |
| chr4 | 573241   | 586920   | 13679 YES  | NO  | YES | ATLINEIII   | LINE/L1       |
| chr4 | 592501   | 604320   | 11819 YES  | YES | YES | HELITRONY1D | RC/Helitron   |
| chr4 | 624721   | 677100   | 52379 YES  | YES | YES | ATREP3      | RC/Helitron   |
| chr4 | 679261   | 695040   | 15779 YES  | YES | YES | ATSINE2A    | SINE          |
| chr4 | 726541   | 737520   | 10979 YES  | YES | YES | BRODYAGA2   | DNA/MuDR      |
| chr4 | 743821   | 761220   | 17399 YES  | YES | YES | ATREP11     | RC/Helitron   |
| chr4 | 769021   | 812340   | 43319 YES  | NO  | NO  | ATLINE1     | LINE/L1       |
| chr4 | 829381   | 845460   | 16079 YES  | YES | YES | ATTIR16T3A  | DNA           |
| chr4 | 852481   | 900420   | 47939 YES  | YES | YES | ATLINE1A    | LINE/L1       |
| chr4 | 901921   | 913740   | 11819 NO   | NO  | YES | HELITRON1   | RC/Helitron   |
| chr4 | 927901   | 947760   | 19859 YES  | NO  | YES | RathE1_cons | RathE1_cons   |
| chr4 | 958501   | 963180   | 4679 YES   | NO  | YES | ATREP4      | RC/Helitron   |
| chr4 | 964321   | 985680   | 21359 YES  | NO  | YES | RathE1_cons | RathE1_cons   |
| chr4 | 986881   | 1001400  | 14519 YES  | YES | NO  | ATREP5      | RC/Helitron   |
| chr4 | 1002901  | 1010340  | 7439 YES   | NO  | NO  | RathE1_cons | RathE1_cons   |
| chr4 | 1012081  | 1050480  | 38399 YES  | YES | YES | HELITRONY3  | RC/Helitron   |
| chr4 | 1056661  | 1072740  | 16079 YES  | NO  | YES | ATIS112A    | DNA/Harbingei |
| chr4 | 1073881  | 1100100  | 26219 YES  | YES | YES | ATREP5      | RC/Helitron   |
| chr4 | 1101181  | 1120440  | 19259 YES  | YES | YES | ATREP10D    | RC/Helitron   |
| chr4 | 1122841  | 1145700  | 22859 YES  | YES | YES | HELITRONY2  | RC/Helitron   |
| chr4 | 1147981  | 1166940  | 18959 NO   | NO  | NO  | ATREP7      | RC/Helitron   |
| chr4 | 1187941  | 1212480  | 24539 YES  | YES | YES | ATREP5      | RC/Helitron   |
| chr4 | 1221241  | 1241160  | 19919 YES  | YES | YES | BRODYAGA2   | DNA/MuDR      |
| chr4 | 1254301  | 1280280  | 25979 YES  | NO  | YES | TSCL        | LINE?         |
| chr4 | 1283701  | 1297320  | 13619 YES  | YES | YES | ATIS112A    | DNA/Harbingei |
| chr4 | 1298641  | 1307220  | 8579 YES   | YES | YES | ATREP10B    | RC/Helitron   |
| chr4 | 1308421  | 1319160  | 10739 YES  | NO  | YES | ATCOPA2     | LTR/Copia     |
| chr4 | 1323121  | 1344780  | 21659 YES  | YES | YES | ATDNA2T9C   | DNA/MuDR      |
| chr4 | 1357261  | 1375920  | 18659 YES  | YES | YES | ATREP3      | RC/Helitron   |
| chr4 | 1445341  | 1482780  | 37439 YES  | YES | YES | VANDAL2     | DNA/MuDR      |
| chr4 | 6376141  | 6381120  | 4979 YES   | NO  | YES | ATREP14     | RC/Helitron   |
| chr4 | 6526201  | 6542760  | 16559 YES  | YES | YES | ATGP1       | LTR/Gypsy     |
| chr4 | 6913321  | 6923040  | 9719 YES   | NO  | NO  | ATCOPA22    | LTR/Copia     |
| chr4 | 6944521  | 6960600  | 16079 YES  | NO  | YES | ATREP15     | RC/Helitron   |
| chr4 | 7135201  | 7144500  | 9299 YES   | YES | YES | VANDAL21    | DNA/MuDR      |
| chr4 | 7243741  | 7251180  | 7439 YES   | NO  | YES | HELITRONY1E | RC/Helitron   |
| chr4 | 7297621  | 7303500  | 5879 YES   | NO  | NO  | ATLINE1_1   | LINE/L1       |

|      |          |          |           |     |     |             |             |
|------|----------|----------|-----------|-----|-----|-------------|-------------|
| chr4 | 7353181  | 7358580  | 5399 YES  | YES | NO  | ATDNA127T9A | DNA/MuDR    |
| chr4 | 7417261  | 7429560  | 12299 YES | YES | YES | ATREP3      | RC/Helitron |
| chr4 | 7506661  | 7516860  | 10199 NO  | YES | YES | HELITRONY1C | RC/Helitron |
| chr4 | 7755001  | 7762920  | 7919 YES  | NO  | YES | ATHILA6A    | LTR/Gypsy   |
| chr4 | 8139721  | 8147640  | 7919 YES  | NO  | YES | ATREP4      | RC/Helitron |
| chr4 | 8668081  | 8674200  | 6119 YES  | NO  | YES | ATLINE1A    | LINE/L1     |
| chr4 | 8702761  | 8709420  | 6659 YES  | NO  | NO  |             |             |
| chr4 | 8897221  | 8909520  | 12299 YES | NO  | YES | ATLINE1_2   | LINE/L1     |
| chr4 | 8958661  | 8965620  | 6959 YES  | YES | YES | VANDAL6     | DNA/MuDR    |
| chr4 | 9174421  | 9199080  | 24659 YES | YES | YES | ATREP3      | RC/Helitron |
| chr4 | 9249121  | 9261600  | 12479 NO  | NO  | YES |             |             |
| chr4 | 9458821  | 9463800  | 4979 YES  | NO  | YES | HELITRONY1D | RC/Helitron |
| chr4 | 9465301  | 9475140  | 9839 YES  | NO  | YES |             |             |
| chr4 | 9482101  | 9495840  | 13739 YES | YES | YES | ATCOPIA4    | LTR/Copia   |
| chr4 | 9505081  | 9516960  | 11879 YES | NO  | YES | ATGP2       | LTR/Gypsy   |
| chr4 | 9793021  | 9801000  | 7979 YES  | NO  | YES | SIMPLEHAT1  | DNA/HAT     |
| chr4 | 9951481  | 9959880  | 8399 YES  | NO  | YES | VANDAL8     | DNA/MuDR    |
| chr4 | 10800961 | 10811400 | 10439 YES | NO  | YES | HELITRONY1E | RC/Helitron |
| chr4 | 11109661 | 11123040 | 13379 YES | YES | YES | ATGP9LTR    | LTR/Gypsy   |
| chr4 | 11204341 | 11215440 | 11099 YES | YES | YES | VANDAL6     | DNA/MuDR    |
| chr4 | 11413861 | 11422380 | 8519 YES  | NO  | YES |             |             |
| chr4 | 11667661 | 11673180 | 5519 NO   | NO  | YES |             |             |
| chr4 | 11818741 | 11827980 | 9239 YES  | NO  | NO  | ATGP3       | LTR/Gypsy   |
| chr4 | 11844241 | 11849340 | 5099 YES  | NO  | YES | ATLINEIII   | LINE/L1     |
| chr4 | 11915161 | 11922180 | 7019 NO   | YES | YES | ATCOPIA23   | LTR/Copia   |
| chr4 | 12085681 | 12093000 | 7319 YES  | NO  | NO  | BRODYAGA1   | DNA/MuDR    |
| chr4 | 12885841 | 12892320 | 6479 NO   | NO  | YES |             |             |
| chr4 | 13027501 | 13036260 | 8759 NO   | YES | YES |             |             |
| chr4 | 13869301 | 13874520 | 5219 NO   | NO  | YES | VANDAL1     | DNA/MuDR    |
| chr4 | 14565361 | 14571060 | 5699 NO   | NO  | YES |             |             |
| chr4 | 15155101 | 15165060 | 9959 NO   | YES | YES |             |             |
| chr4 | 15305761 | 15313440 | 7679 NO   | NO  | YES |             |             |
| chr4 | 15561721 | 15565860 | 4139 YES  | YES | YES | ATLANTYS3   | LTR/Gypsy   |
| chr4 | 16276741 | 16285080 | 8339 YES  | NO  | YES | ATHILA6A    | LTR/Gypsy   |
| chr4 | 17142301 | 17148780 | 6479 NO   | NO  | YES | VANDAL17    | DNA/MuDR    |
| chr4 | 17621041 | 17628840 | 7799 NO   | NO  | NO  |             |             |
| chr4 | 17989381 | 17998020 | 8639 NO   | NO  | NO  |             |             |
| chr4 | 18069181 | 18083520 | 14339 NO  | NO  | YES | ATREPS      | RC/Helitron |
| chr4 | 18265201 | 18278040 | 12839 YES | NO  | YES | ATHILA      | LTR/Gypsy   |
| chr5 | 54961    | 78180    | 23219 YES | NO  | YES | ATCOPIA27   | LTR/Copia   |
| chr5 | 127561   | 141660   | 14099 YES | NO  | NO  |             |             |
| chr5 | 234901   | 243720   | 8819 NO   | NO  | NO  |             |             |
| chr5 | 320941   | 329880   | 8939 NO   | NO  | NO  |             |             |
| chr5 | 1373101  | 1383180  | 10079 NO  | NO  | NO  |             |             |
| chr5 | 1410121  | 1415460  | 5339 YES  | NO  | NO  |             |             |
| chr5 | 1813321  | 1821660  | 8339 YES  | YES | YES | HELITRON1   | RC/Helitron |
| chr5 | 2035981  | 2042940  | 6959 YES  | NO  | YES |             |             |
| chr5 | 2083621  | 2091900  | 8279 NO   | NO  | YES |             |             |
| chr5 | 2102821  | 2112120  | 9299 YES  | NO  | NO  | ATLINE1_2   | LINE/L1     |
| chr5 | 2150941  | 2155020  | 4079 NO   | NO  | NO  |             |             |
| chr5 | 2257321  | 2264100  | 6779 YES  | NO  | YES |             |             |
| chr5 | 2268361  | 2273760  | 5399 NO   | NO  | NO  |             |             |
| chr5 | 2372521  | 2397360  | 24839 YES | NO  | YES | ATLINE1_1   | LINE/L1     |
| chr5 | 2398921  | 2412600  | 13679 YES | NO  | YES |             |             |
| chr5 | 2455201  | 2468820  | 13619 YES | YES | YES |             |             |
| chr5 | 2592001  | 2596500  | 4499 NO   | NO  | YES |             |             |
| chr5 | 2817961  | 2828400  | 10439 NO  | YES | NO  |             |             |
| chr5 | 3031381  | 3049020  | 17639 NO  | YES | YES | HELITRON2   | RC/Helitron |
| chr5 | 3153541  | 3181320  | 27779 YES | NO  | YES |             |             |
| chr5 | 3248281  | 3287400  | 39119 YES | YES | YES | HELITRONY3  | RC/Helitron |
| chr5 | 3363001  | 3379740  | 16739 YES | NO  | YES | VANDAL22    | DNA/MuDR    |
| chr5 | 3701281  | 3723480  | 22199 YES | NO  | NO  | HELITRONY3  | RC/Helitron |
| chr5 | 4057861  | 4062060  | 4199 NO   | NO  | NO  |             |             |
| chr5 | 4154941  | 4159800  | 4859 NO   | NO  | NO  |             |             |
| chr5 | 4311841  | 4330440  | 18599 YES | NO  | YES | ATLINE2     | LINE/L1     |
| chr5 | 4526581  | 4530900  | 4319 YES  | NO  | NO  | ATLINEIII   | LINE/L1     |
| chr5 | 4786381  | 4804020  | 17639 YES | YES | YES | ATLANTYS3   | LTR/Gypsy   |
| chr5 | 4979221  | 4993260  | 14039 YES | NO  | YES |             |             |
| chr5 | 5002501  | 5018040  | 15539 YES | NO  | YES | ATREP9      | RC/Helitron |
| chr5 | 5093461  | 5105460  | 11999 YES | NO  | YES | ARNOLDY1    | DNA/MuDR    |
| chr5 | 5642761  | 5650860  | 8099 YES  | NO  | YES | VANDAL8     | DNA/MuDR    |
| chr5 | 5966161  | 5971200  | 5039 YES  | YES | YES | HELITRONY3  | RC/Helitron |
| chr5 | 6225661  | 6235200  | 9539 YES  | YES | YES | BRODYAGA1A  | DNA/MuDR    |
| chr5 | 6387661  | 6392460  | 4799 YES  | NO  | YES |             |             |
| chr5 | 6630421  | 6635760  | 5339 YES  | YES | YES | ATDNA127T9A | DNA/MuDR    |
| chr5 | 6678421  | 6689580  | 11159 NO  | YES | NO  |             |             |
| chr5 | 6969181  | 6974820  | 5639 YES  | NO  | YES |             |             |
| chr5 | 7074841  | 7083600  | 8759 YES  | NO  | YES | ATREP10A    | RC/Helitron |
| chr5 | 7778821  | 7785120  | 6299 NO   | NO  | NO  |             |             |
| chr5 | 7856881  | 7867140  | 10259 NO  | YES | NO  | ATCOPIA30   | LTR/Copia   |
| chr5 | 7937161  | 7956360  | 19199 YES | NO  | YES | ATMU2       | DNA/MuDR    |
| chr5 | 8082001  | 8087580  | 5579 YES  | YES | YES | ATREP5      | RC/Helitron |
| chr5 | 8147521  | 8163060  | 15539 YES | YES | YES | ATCOPIA95   | LTR/Copia   |
| chr5 | 8171161  | 8189460  | 18299 YES | YES | YES | HELITRONY3  | RC/Helitron |
| chr5 | 8295181  | 8303520  | 8339 NO   | NO  | NO  | ATHATN6     | DNA/HAT     |
| chr5 | 8454961  | 8466180  | 11219 NO  | NO  | YES |             |             |
| chr5 | 8501581  | 8506200  | 4619 YES  | NO  | YES | ATENSPM2    | DNA/En-Spm  |
| chr5 | 8543881  | 8558400  | 14519 YES | NO  | YES | ATHILA6B    | LTR/Gypsy   |
| chr5 | 8571601  | 8597700  | 26099 YES | YES | YES | ATREP3      | RC/Helitron |
| chr5 | 8643121  | 8648280  | 5159 NO   | NO  | YES |             |             |
| chr5 | 8881561  | 8904720  | 23159 YES | NO  | NO  | ATMU3N1     | DNA/MuDR    |
| chr5 | 8924041  | 8939220  | 15179 YES | NO  | YES | ATCOPIA27   | LTR/Copia   |
| chr5 | 16272601 | 16284600 | 11999 YES | YES | YES | ATLINEIII   | LINE/L1     |
| chr5 | 16714201 | 16727520 | 13319 YES | NO  | NO  | ATLINE1_6   | LINE/L1     |
| chr5 | 16845961 | 16852200 | 6239 YES  | NO  | NO  |             |             |
| chr5 | 16949101 | 16955220 | 6119 NO   | YES | YES | ATHILA7A    | LTR/Gypsy   |

|      |          |          |           |     |     |             |             |
|------|----------|----------|-----------|-----|-----|-------------|-------------|
| chr5 | 17089501 | 17100000 | 10499 YES | NO  | YES | ATREP10B    | RC/Helitron |
| chr5 | 17612221 | 17626800 | 14579 YES | NO  | YES | ENDO VIR1   | LTR/Copia   |
| chr5 | 17905741 | 17918640 | 12899 YES | NO  | YES | VANDAL6     | DNA/MuDR    |
| chr5 | 17980621 | 17990940 | 10319 YES | YES | YES | ATREP5      | RC/Helitron |
| chr5 | 18133681 | 18151380 | 17699 YES | YES | YES | VANDAL14    | DNA/MuDR    |
| chr5 | 18204301 | 18221040 | 16739 YES | NO  | YES | ATENSPM5    | DNA/En-Spm  |
| chr5 | 18273301 | 18278580 | 5279 YES  | NO  | NO  | ATLINE1_1   | LINE/L1     |
| chr5 | 18443641 | 18455400 | 11759 YES | YES | YES | ATREP15     | RC/Helitron |
| chr5 | 18486781 | 18498240 | 11459 YES | YES | YES | VANDAL6     | DNA/MuDR    |
| chr5 | 18536041 | 18541380 | 5339 YES  | YES | YES | HELITRONY1D | RC/Helitron |
| chr5 | 18944881 | 18957840 | 12959 YES | NO  | YES | ATCOPIA58   | LTR/Copia   |
| chr5 | 19371661 | 19383540 | 11879 YES | NO  | YES | ATREP5      | RC/Helitron |
| chr5 | 19409701 | 19419540 | 9839 NO   | NO  | YES | ATREP15     | RC/Helitron |
| chr5 | 19905481 | 19909740 | 4259 YES  | NO  | YES | ATHILA6A    | LTR/Gypsy   |
| chr5 | 20801881 | 20810100 | 8219 YES  | NO  | NO  |             |             |
| chr5 | 21967321 | 21974520 | 7199 NO   | NO  | YES |             |             |
| chr5 | 22213561 | 22223340 | 9779 YES  | NO  | NO  |             |             |
| chr5 | 22235581 | 22246320 | 10739 YES | NO  | YES |             |             |
| chr5 | 22694881 | 22702320 | 7439 NO   | YES | NO  | ATREP10D    | RC/Helitron |
| chr5 | 24033421 | 24049140 | 15719 YES | NO  | YES | VANDAL17    | DNA/MuDR    |
| chr5 | 24332461 | 24342540 | 10079 YES | NO  | NO  | BRODYAGA2   | DNA/MuDR    |
| chr5 | 24710641 | 24719280 | 8639 YES  | YES | YES | ATREP15     | RC/Helitron |
| chr5 | 24874681 | 24881640 | 6959 NO   | NO  | YES |             |             |
| chr5 | 25597621 | 25603080 | 5459 NO   | NO  | NO  |             |             |
| chr5 | 26144101 | 26149800 | 5699 YES  | NO  | NO  |             |             |
| chr5 | 26512201 | 26520060 | 7859 NO   | NO  | YES | ATDNAI27T9A | DNA/MuDR    |

**Supplementary Table 2.** Primers used for qPCR experiments to measure DNA quantity.

**For qPCR in Supplementary Figure3 the following primers were used:**

| gene      | Primers         | Sequence                  |
|-----------|-----------------|---------------------------|
| AT1G44510 | 2709-CHR1-2-F1  | GCCTAGAGGTATAAAGCCGGTTG   |
|           | 2710-CHR1-2-R1  | CCACACCGGTCTCTGTCTTCAG    |
| AT2G04160 | 2713-CHR2-1-F1  | GTGAGCTGTGTGGCTGGAAGGAC   |
|           | 2714-CHR2-1-R1  | CTTGGATCGCTTGACCCTATAAAG  |
| AT2G16670 | 2721-CHR2-3-F1  | GGCGTCGGAACAACCTCAGTGTGTC |
|           | 2722-CHR2-3-R1  | GGGCTCCAATAGTTGATGGGC     |
| At1g51800 | 2436-1g51800-F2 | ACTTACCTCCTCTGCTCAACGC    |
|           | 2437-1g51800-R2 | CAGTCAATCTGTTACGCCG       |

**For qPCR in Supplementary Figure4 the following primers were used:**

| gene      | Primers | Sequence                |
|-----------|---------|-------------------------|
| AT1G31440 | JP7583  | CCTGTACCAGCCACCTGAAT    |
|           | JP7584  | GGGAACTCAGTCTCGCTGTC    |
| AT3G24320 | JP7220  | CAAGCATGGAAAATAATGC     |
|           | JP7221  | TTGTTGCAGATACCATGAAGC   |
| AT2G40000 | JP7429  | GCCGACCAAACGAGATCTATAG  |
|           | JP7430  | CTTCTCCAGCAAGTAAACATCG  |
| CACTA     | JP8158  | TGTGTGGAAGGGTCTGTGGACTT |
|           | JP8159  | AACTTACATGTTGCGGGCACGAG |
| AT1G31355 | JP7581  | GGGAAGTGCAGACAGACCTT    |
|           | JP7582  | AGGAGGCAATTGTGTGAAGC    |
| AT1G34080 | JP6479  | CAAGGCGAAGTCTGCTAAC     |
|           | JP6480  | TCAAGTTCTCGCGGATTTC     |
| AT2G29210 | JP6485  | GGTCGCGGTACCTATTAGA     |
|           | JP6486  | GAGAACGGTGACGCCTAGC     |