

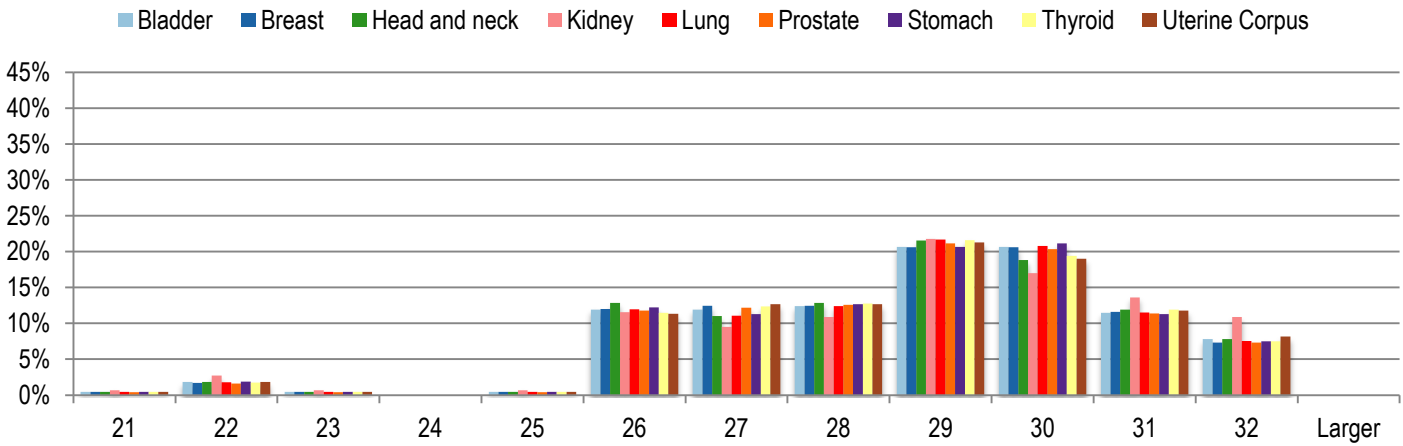
**Unique somatic and malignant expression patterns
implicate PIWI-interacting RNAs in cancer-type
specific biology**

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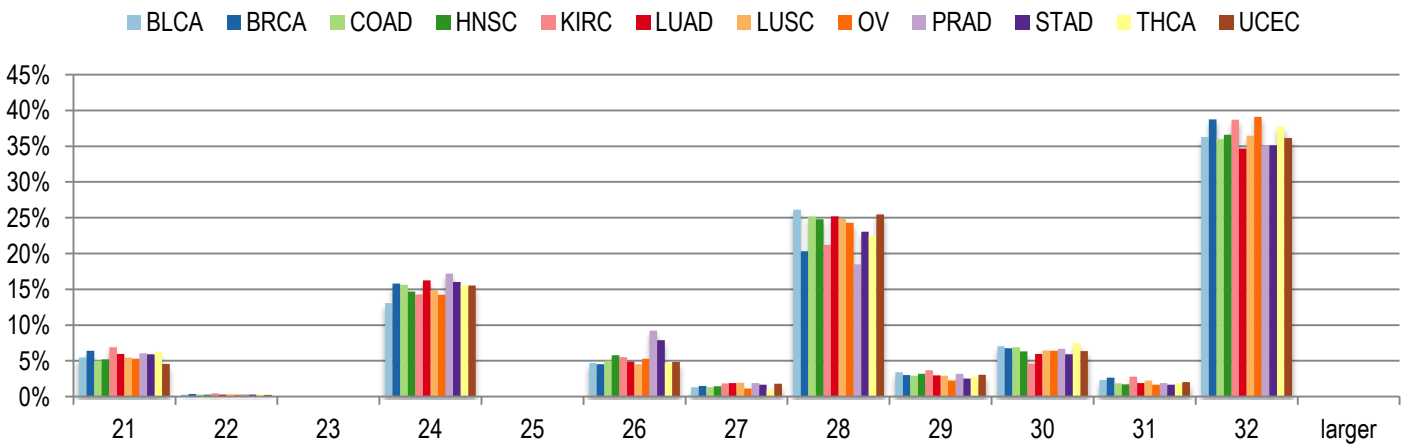
Supplementary Figures

Supplementary Figure 1: Size distribution of expressed piRNA in different tissues

A

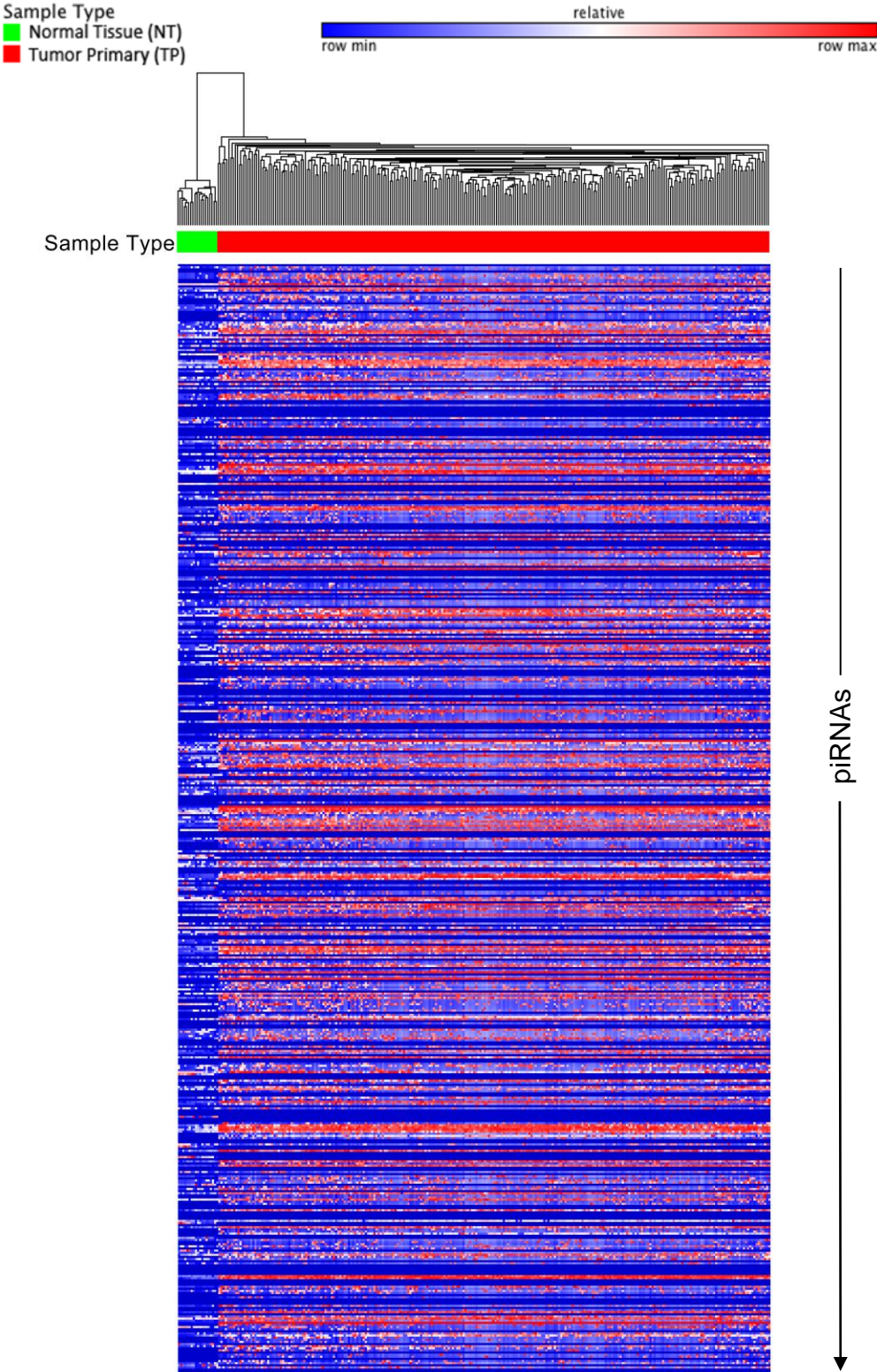


B



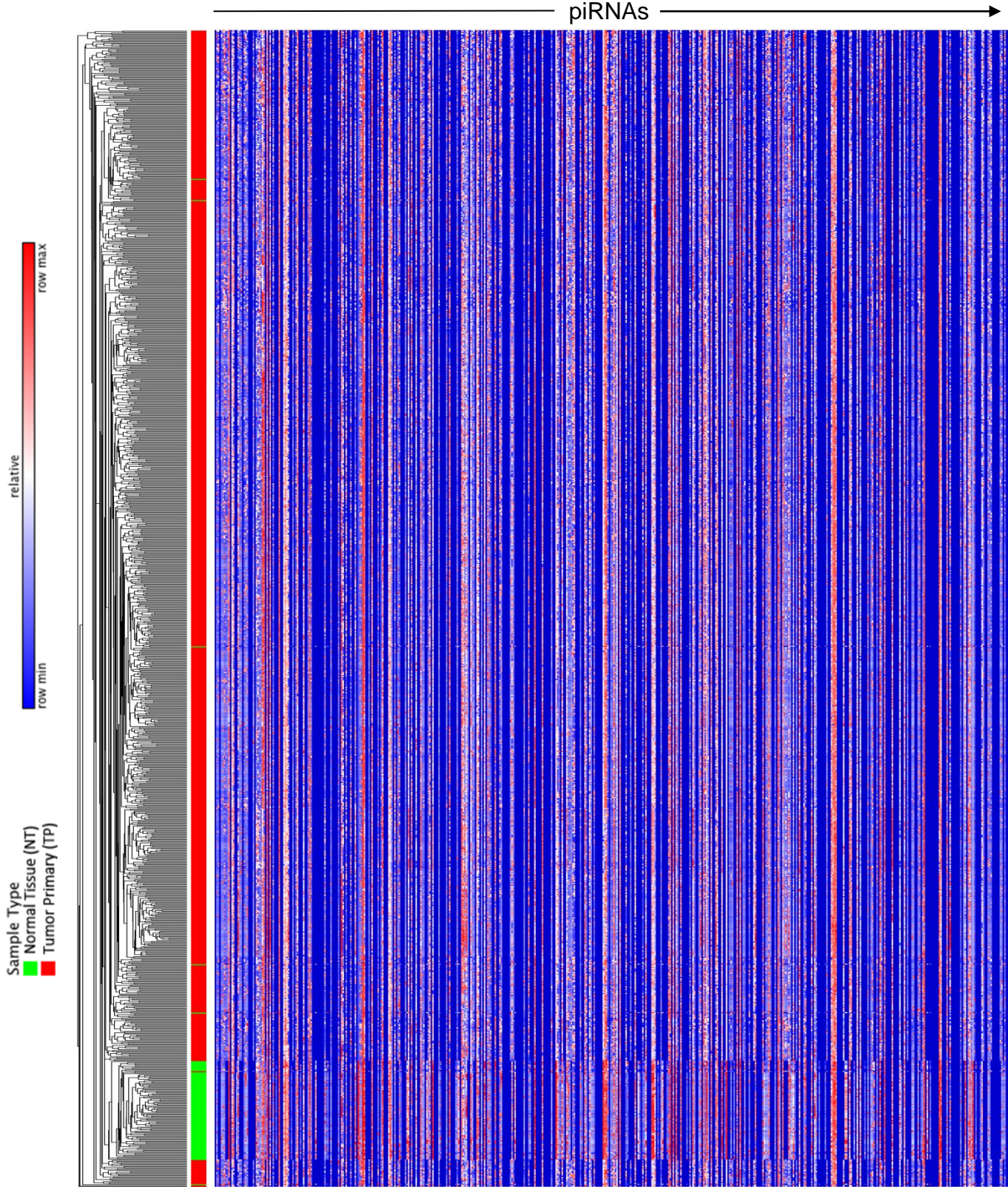
The percentages of piRNAs for each corresponding size (21-32 nt) was determined in each tissue type for: A) non-malignant and B) tumors.

Supplementary Figure 2: Clustering analysis of normal and tumoural samples from BLCA



Unsupervised hierarchical clustering (Euclidean distance, average distance) of rank-normalized piRNA expression obtained from 19 samples derived from bladder non-malignant tissue and 260 BLCA tissues.

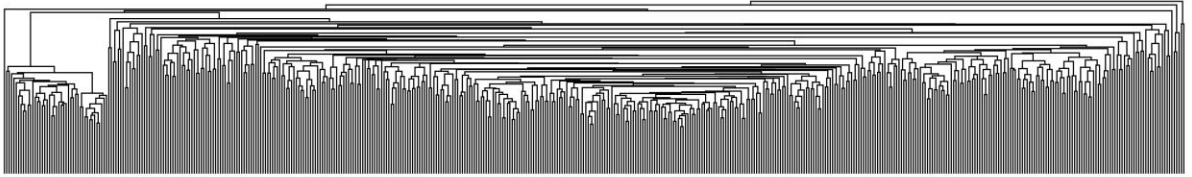
Supplementary Figure 3: Clustering analysis of normal and tumoural samples from BRCA



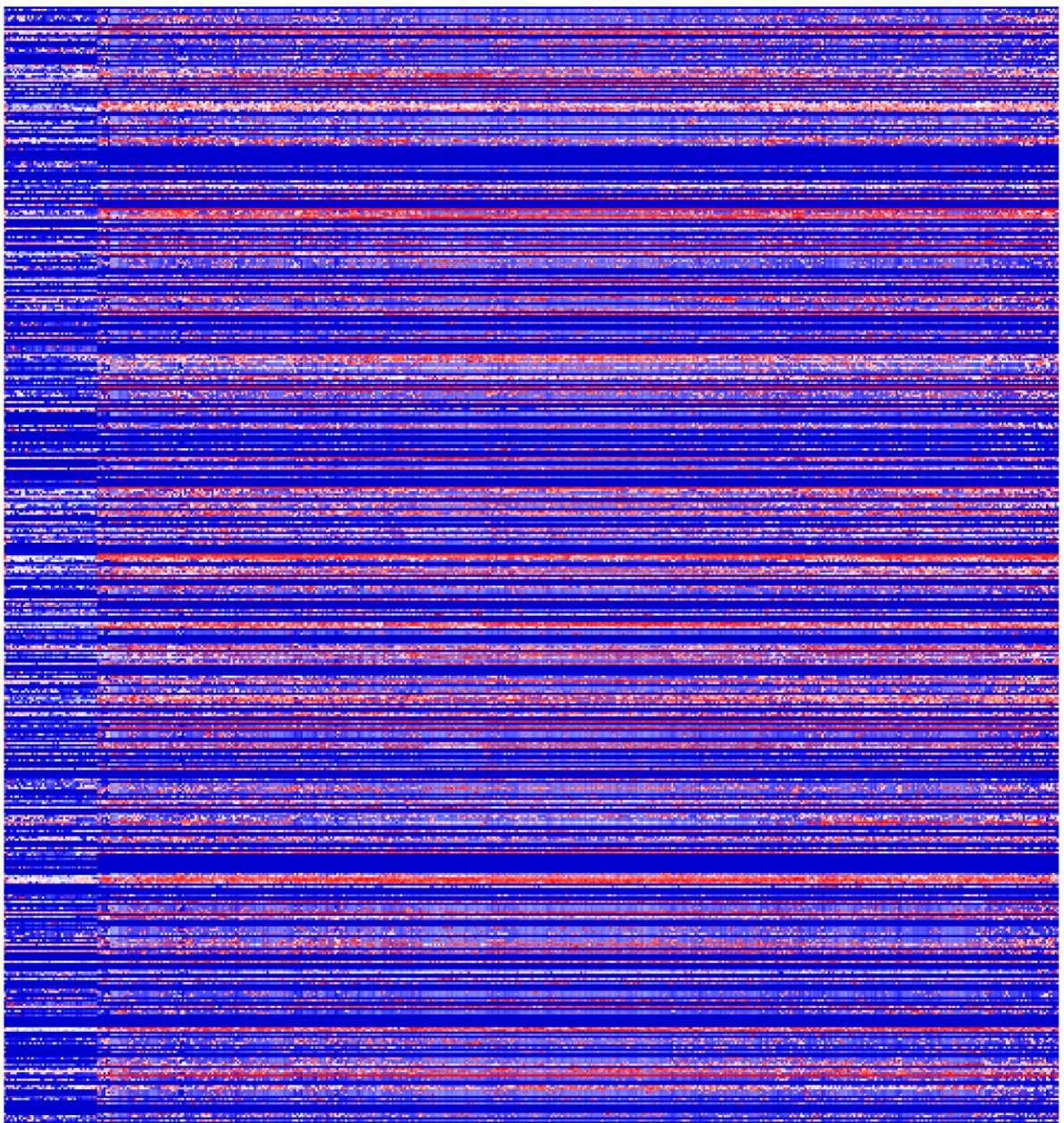
Unsupervised hierarchical clustering (Euclidean distance, average distance) of rank-normalized piRNA expression obtained from 103 samples derived from breast non-malignant tissue and 1,043 BRCA tumours.

Supplementary Figure 4: Clustering analysis of normal and tumoural samples from HNSC

Sample Type
■ Normal Tissue (NT)
■ Tumor Primary (TP)



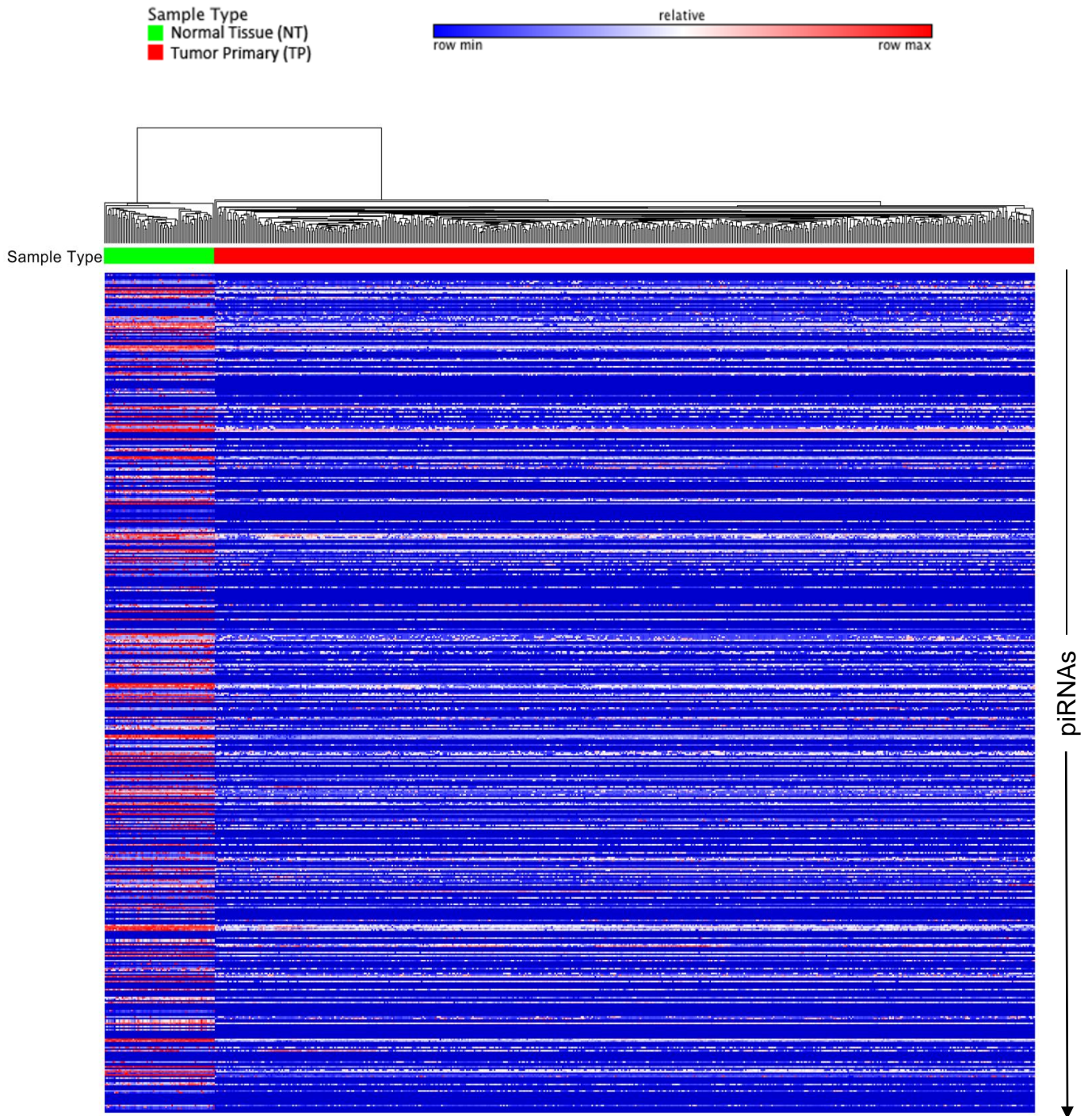
Sample Type



piRNAs

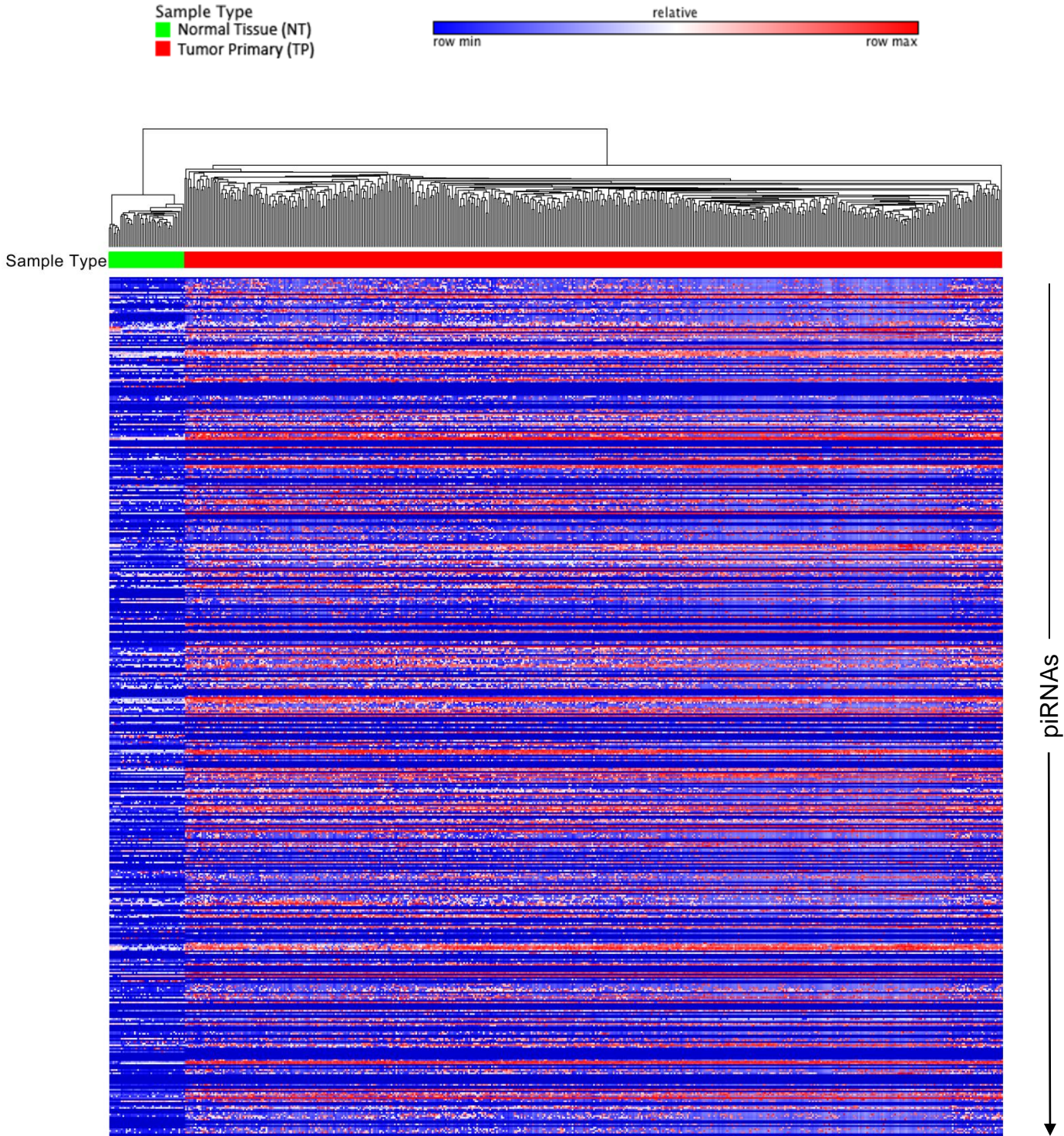
Unsupervised hierarchical clustering (Euclidean distance, average distance) of rank-normalized piRNA expression obtained from 43 samples derived from head and neck (different anatomical locations) non-malignant tissue and 455 HNSC tumours.

Supplementary Figure 5: Clustering analysis of normal and tumoural samples from KIRC



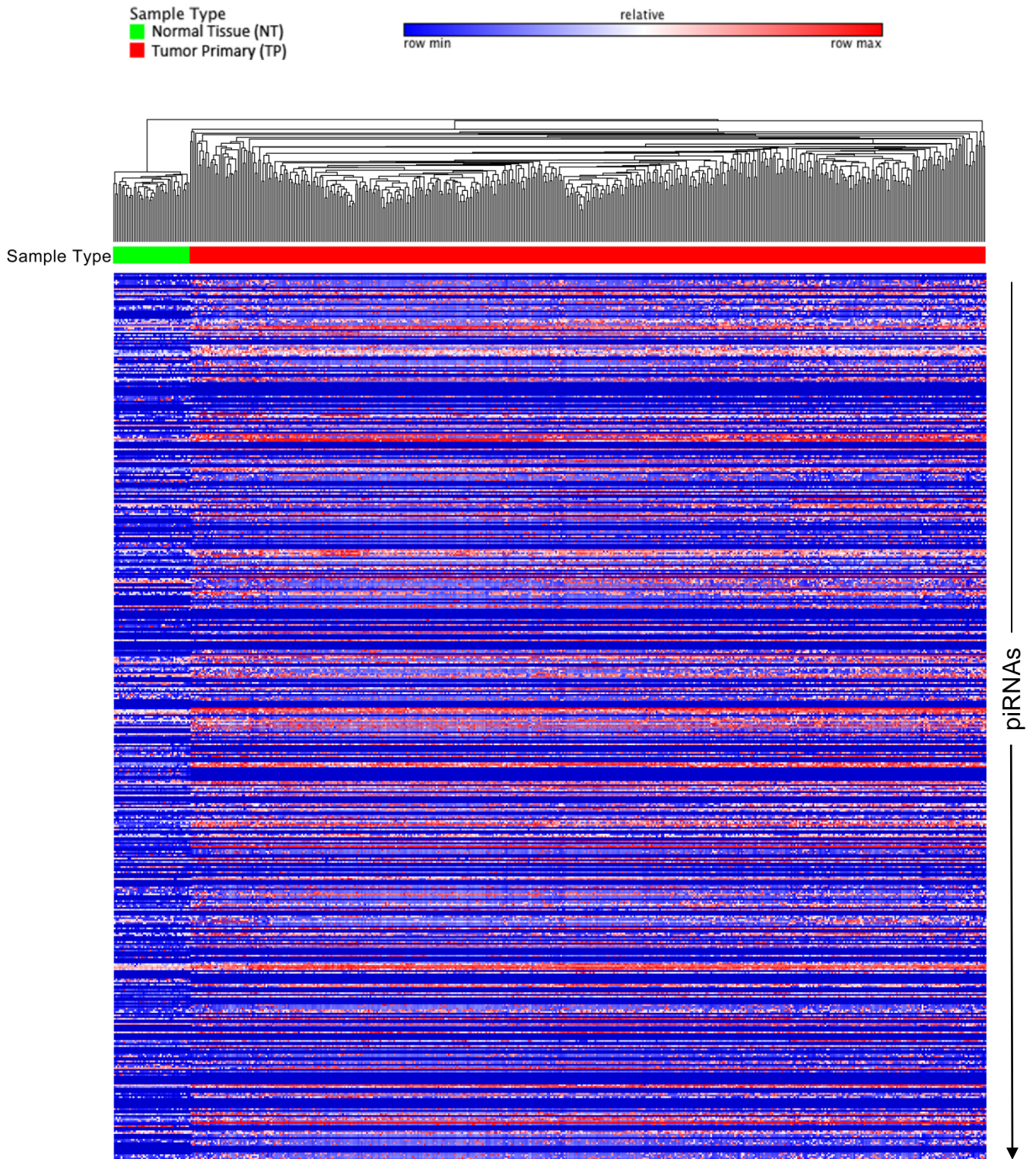
Unsupervised hierarchical clustering (Euclidean distance, average distance) of rank-normalized piRNA expression obtained from 71 samples derived from kidney non-malignant tissue and 529 KIRC tumours.

Supplementary Figure 6: Clustering analysis of normal and tumoural samples from LUAD



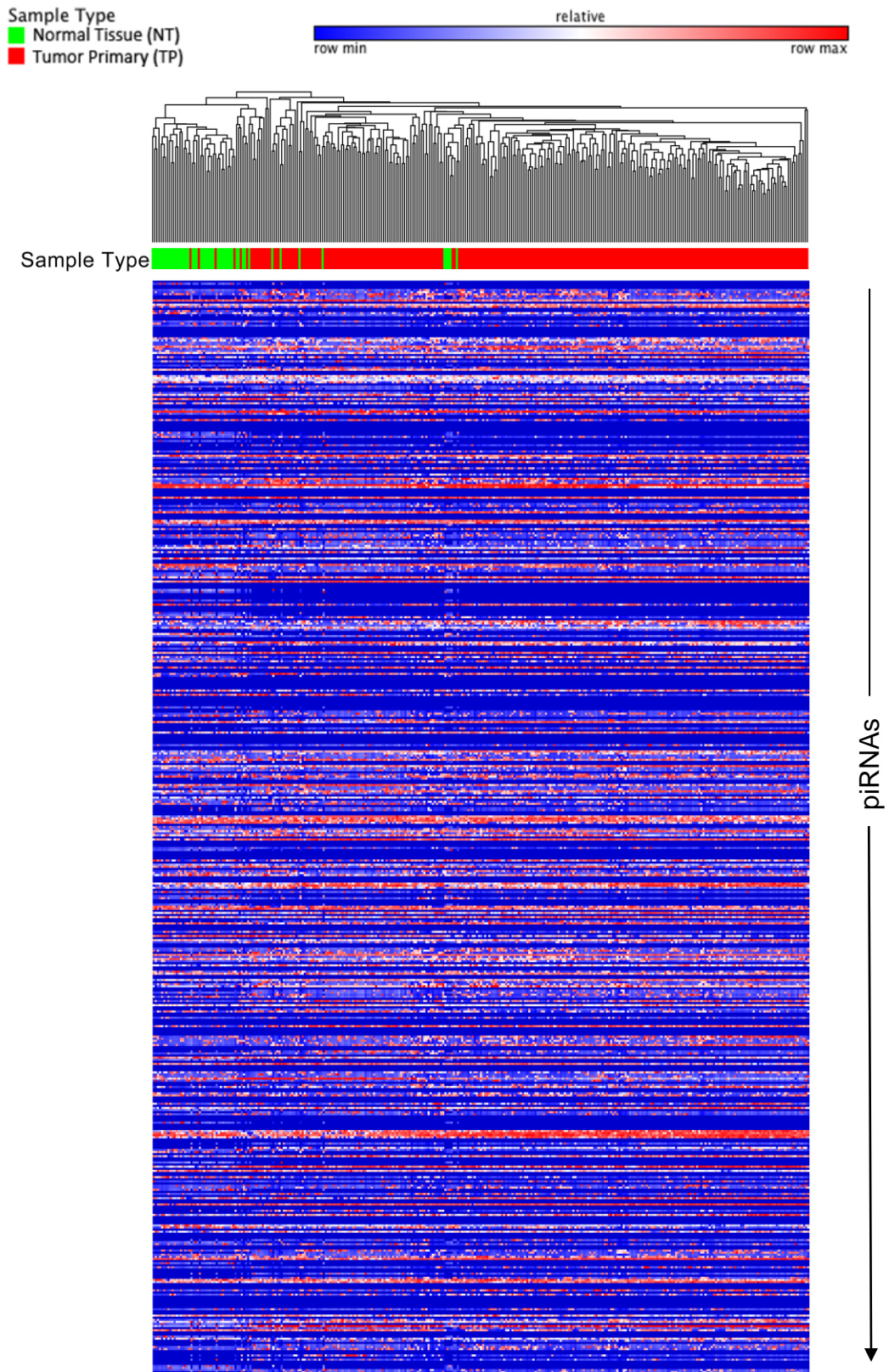
Unsupervised hierarchical clustering (Euclidean distance, average distance) of rank-normalized piRNA expression obtained from 46 samples derived from lung non-malignant tissue and 497 LUAD tumours.

Supplementary Figure 7: Clustering analysis of normal and tumoural samples from LUSC



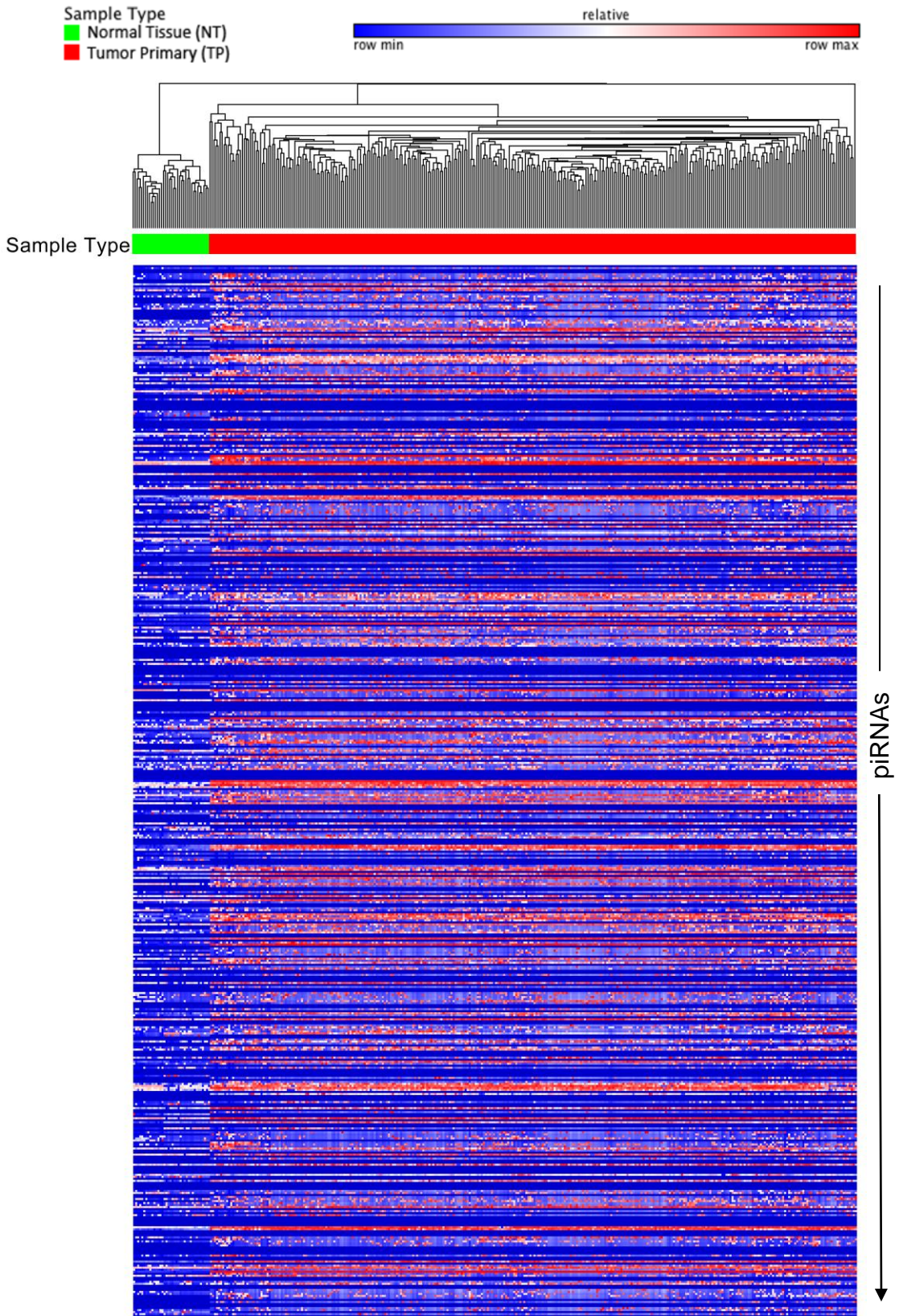
Unsupervised hierarchical clustering (Euclidean distance, average distance) of rank-normalized piRNA expression obtained from 45 samples derived from lung non-malignant tissue and 467 LUSC tumours.

Supplementary Figure 8: Clustering analysis of normal and tumoural samples from PRAD



Unsupervised hierarchical clustering (Euclidean distance, average distance) of rank-normalized piRNA expression obtained from 50 samples derived from prostate non-malignant tissue and 263 PRAD tumours.

Supplementary Figure 9: Clustering analysis of normal and tumoural samples from STAD

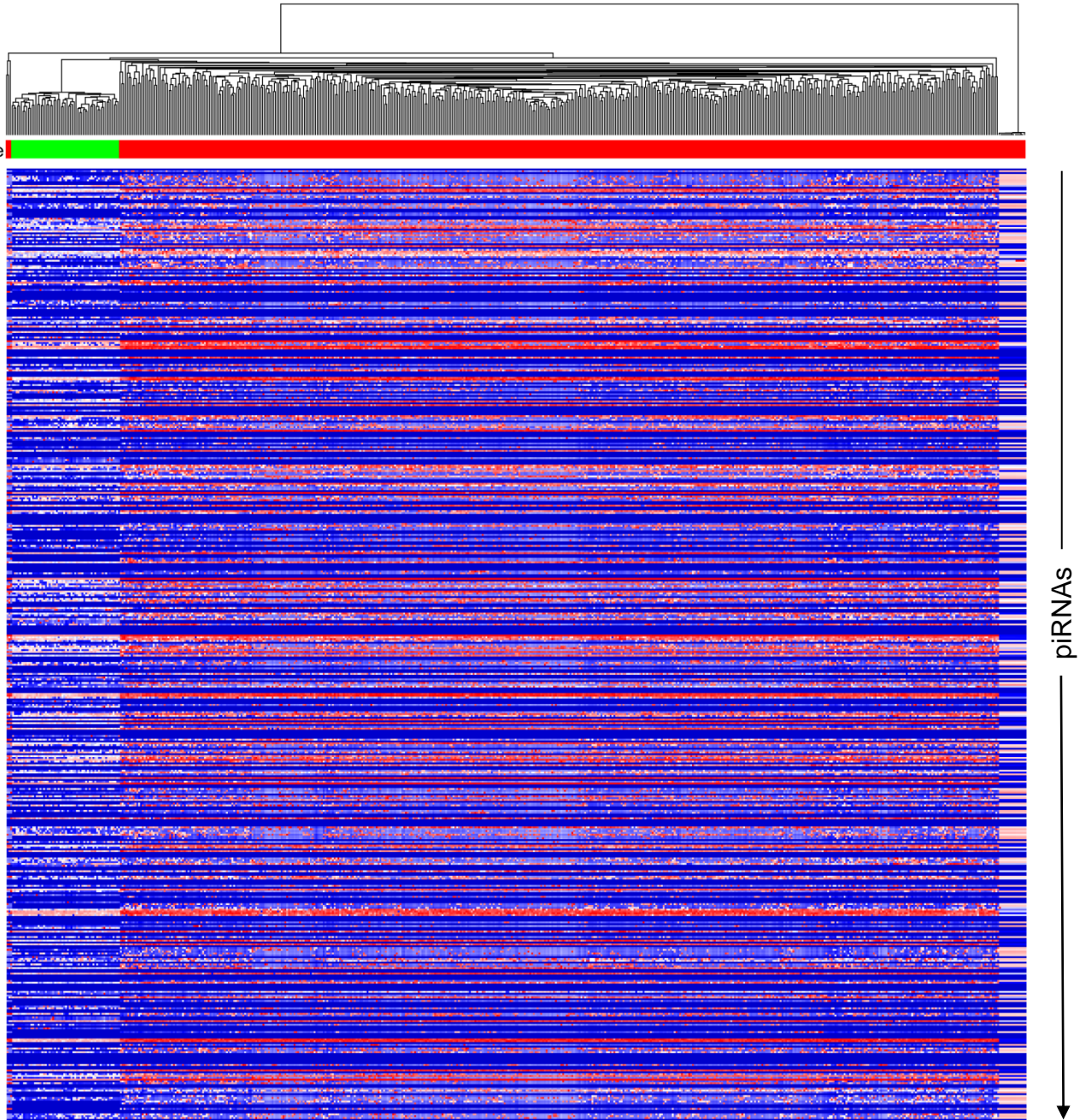


Unsupervised hierarchical clustering (Euclidean distance, average distance) of rank-normalized piRNA expression obtained from 38 samples derived from prostate non-malignant tissue and 320 STAD tumours.

Supplementary Figure 10: Clustering analysis of normal and tumoural samples from THCA

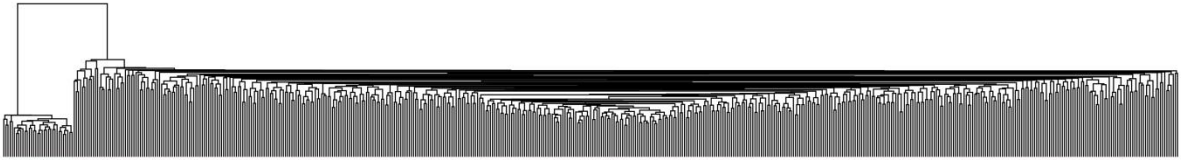
Sample Type
■ Normal Tissue (NT)
■ Tumor Primary (TP)

relative
row min row max

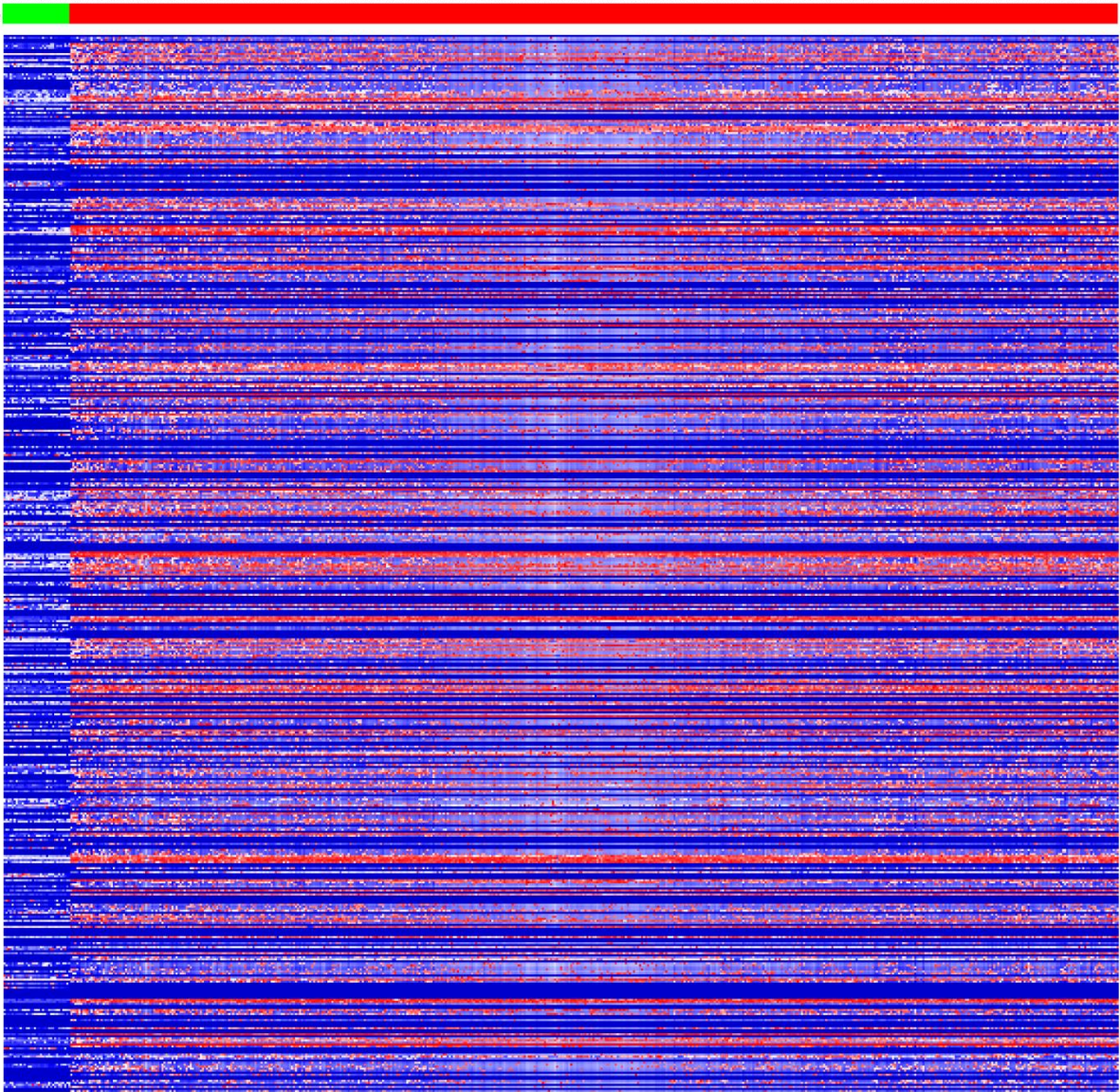


Unsupervised hierarchical clustering (Euclidean distance, average distance) of rank-normalized piRNA expression obtained from 59 samples derived from thyroid non-malignant tissue and 499 THCA tumours.

Supplementary Figure 11: Clustering analysis of normal and tumoural samples from UCEC



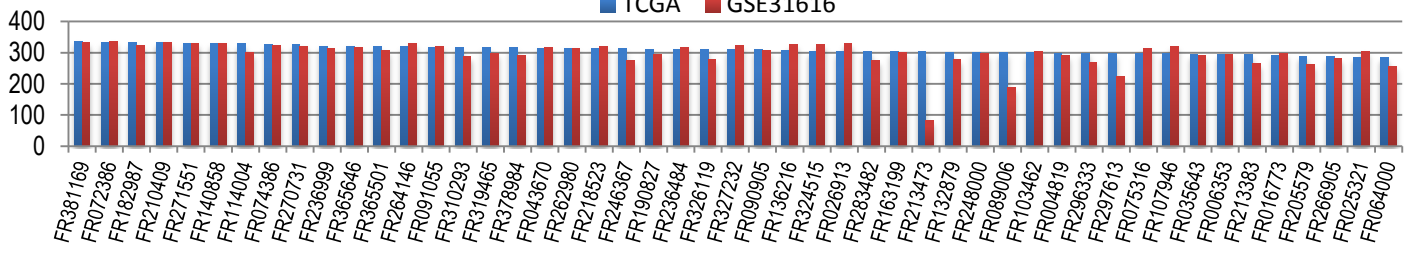
Sample Type



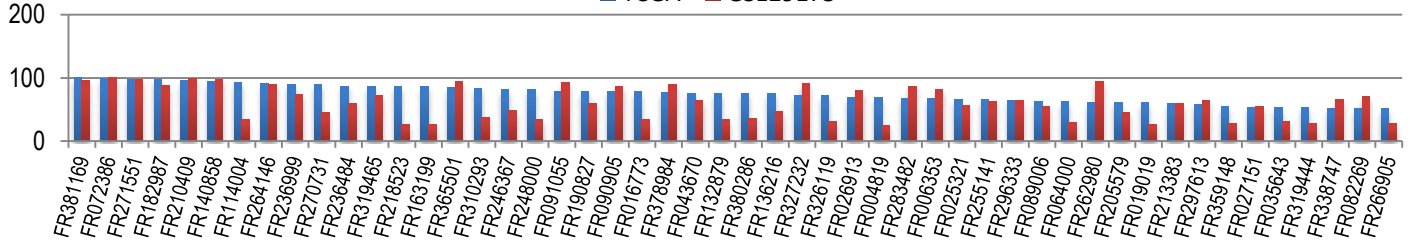
Unsupervised hierarchical clustering (Euclidean distance, average distance) of rank-normalized piRNA expression obtained from 33 samples derived from uterine non-malignant tissue and 518 UCEC tumours.

Supplementary Figure 12: TCGA vs independent cohort validation

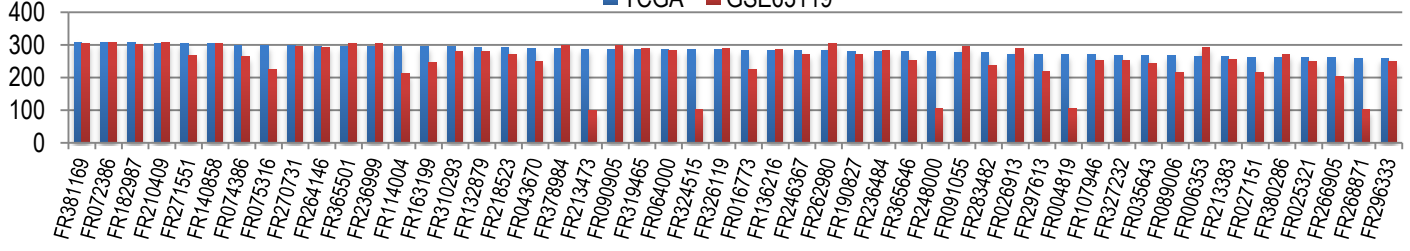
BLCA



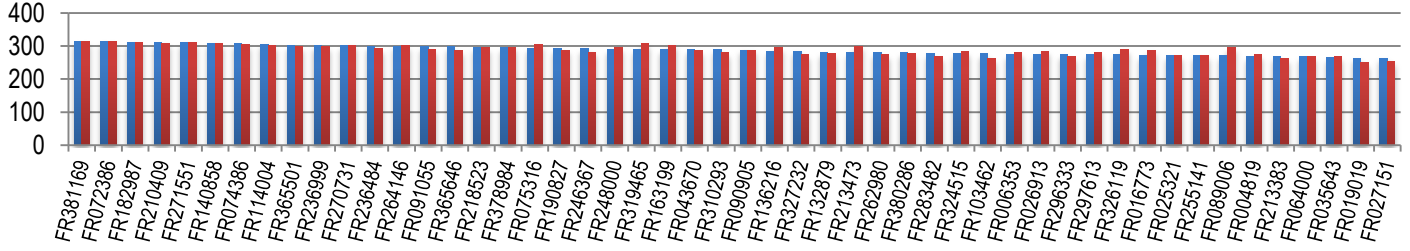
BRCA



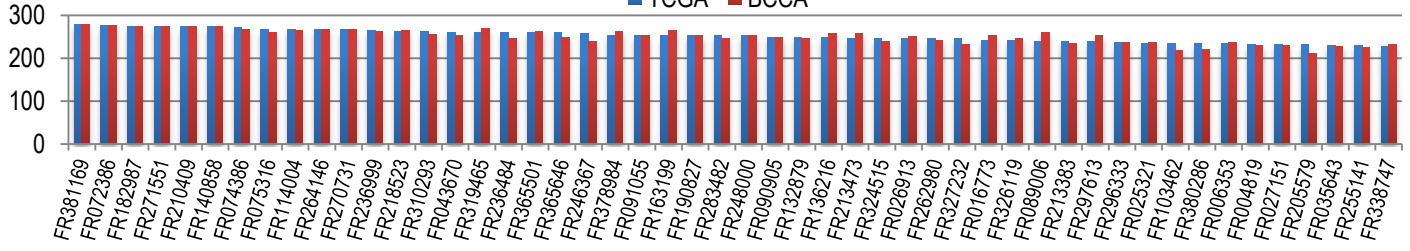
COAD



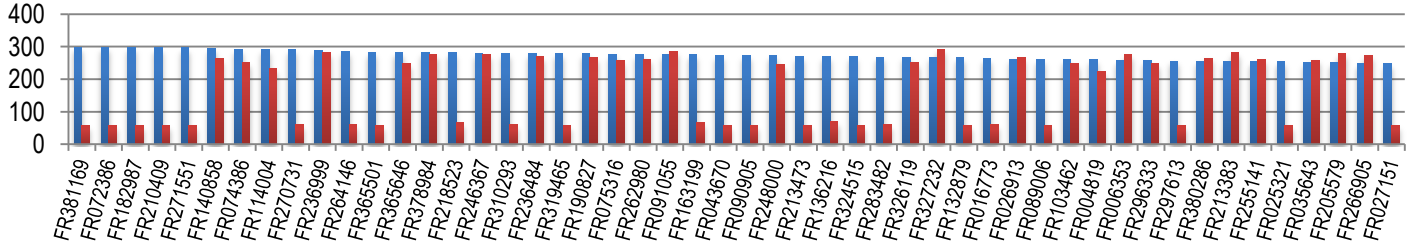
LUAD



LUSC



STAD

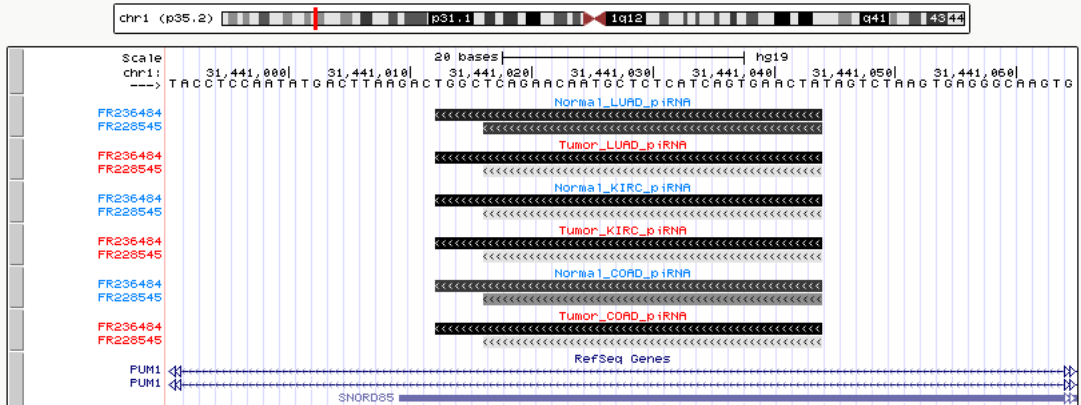


Supplementary Figure 13: Custom UCSC piRNA expression tracks.

UCSC Genome Browser on Human Feb. 2009 (GRCh37/hg19) Assembly

move <<< << < > >> >>> zoom in 1.5x 3x 10x base zoom out 1.5x 3x 10x 100x

chr1:31,440,991-31,441,065 75 bp. go



move start < 2.0 > Click on a feature for details. Click or drag in the base position track to zoom in. Click side bars for track options. Drag side bars or labels up or down to reorder tracks. Drag tracks left or right to new position. move end < 2.0 >

track search default tracks default order hide all manage custom tracks track hubs configure reverse resize refresh

Use drop-down controls below and press refresh to alter tracks displayed. Tracks with lots of items will automatically be displayed in more compact modes.

collapse all expand all

Custom Tracks refresh

| | | | | | |
|-------------------|------------------|-------------------|------------------|-------------------|------------------|
| Normal_LUSC_piRNA | Tumor_LUSC_piRNA | Normal_LUAD_piRNA | Tumor_LUAD_piRNA | Normal_KIRC_piRNA | Tumor_KIRC_piRNA |
| hide ▼ | hide ▼ | full ▼ | full ▼ | full ▼ | full ▼ |
| Normal_COAD_piRNA | Tumor_COAD_piRNA | Normal_BRCA_piRNA | Tumor_BRCA_piRNA | Normal_UCEC_piRNA | Tumor_UCEC_piRNA |
| full ▼ | full ▼ | hide ▼ | hide ▼ | hide ▼ | hide ▼ |
| Normal_THCA_piRNA | Tumor_THCA_piRNA | Normal_BLCA_piRNA | Tumor_BLCA_piRNA | Normal_STAD_piRNA | Tumor_STAD_piRNA |
| hide ▼ | hide ▼ | hide ▼ | hide ▼ | hide ▼ | hide ▼ |
| Normal_PRAD_piRNA | Tumor_PRAD_piRNA | Normal_HNSC_piRNA | Tumor_HNSC_piRNA | Tumor_OVCA_piRNA | |
| hide ▼ | hide ▼ | hide ▼ | hide ▼ | hide ▼ | |

The average expression values for expressed piRNA (n=276 in normals and n=635 in tumours) were calculated and rank normalized for each normal and tumour tissue type, and used along with piRNA genomic coordinates to create custom tracks for display in the UCSC Genome Browser on the latest built (GRCh37/hg19, Feb. 2009). Expression levels are illustrated on a colour scale ranging from light gray to black indicating low and high expression values, respectively. The colour scales for each tissue type are defined by the piRNA with the lowest average expression (i.e. rank=1) and the highest average expression (rank=276 for normals and rank=635 for tumours). These publically available tracks contain rank normalized expression data for 11 normal tissue types and 12 tumour tissue types.

Supplementary Tables

| | | | | | | | | | | | |
|----------|----------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| FR149623 | 0 | | | | | | | | | | |
| FR157967 | 0 | | | | | | | | | | |
| FR162144 | 0 | | | | | | | | | | |
| FR162734 | 0 | | | | | | | | | | |
| FR188833 | 0 | | | | | | | | | | |
| FR190827 | 0 | | | | | | | | | | |
| FR191737 | 0 | | | | | | | | | | |
| FR197104 | 0 | | | | | | | | | | |
| FR197889 | 0 | | | | | | | | | | |
| FR202919 | 0 | | | | | | | | | | |
| FR203981 | 0 | | | | | | | | | | |
| FR205579 | 0 | | | | | | | | | | |
| FR207412 | 0 | | | | | | | | | | |
| FR210409 | 0 | | | | | | | | | | |
| FR213383 | 0 | | | | | | | | | | |
| FR218523 | 0 | | | | | | | | | | |
| FR218973 | 0 | | | | | | | | | | |
| FR224609 | 0 Exclusively expressed in tumor | 0.9426 | 1.193 | 0.2374 | | 0.8412 | 0.9682 | | 0.9002 | 0.6636 | 1.0564 |
| FR228545 | 0 | | | | | | | | | | |
| FR232277 | 0 | | | | | | | | | | |
| FR233520 | 0 | | | | | | | | | | |
| FR233702 | 0 | | | | | | | | | | |
| FR233730 | 0 | | | | | | | | | | |
| FR238825 | 0 | | | | | | | | | | |
| FR242079 | 0 | | | | | | | | | | |
| FR243752 | 0 | | | | | | | | | | |
| FR246367 | 0 | | | | | | | | | | |
| FR248000 | 0 | | | | | | | | | | |
| FR252722 | 0 | | | | | | | | | | |
| FR262980 | 0 | | | | | | | | | | |
| FR263507 | 0 | | | | | | | | | | |
| FR264146 | 0 | | | | | | | | | | |
| FR266905 | 0 | | | | | | | | | | |
| FR270731 | 0 | | | | | | | | | | |
| FR271504 | 0 | | | | | | | | | | |
| FR271551 | 0 | | | | | | | | | | |
| FR274916 | 0 Exclusively expressed in tumor | 1.8736 | 0.988 | 0.2154 | | 1.0523 | 0.7361 | 0.8171 | 0.7126 | | 1.1864 |
| FR277415 | 0 Exclusively expressed in tumor | 3.6799 | 1.8366 | 0.2154 | 1.391 | 1.8961 | 2.0262 | 4.1132 | 1.1444 | 0.54 | 3.4276 |
| FR278590 | 0 | | | | | | | | | | |
| FR279668 | 0 | | | | | | | | | | |
| FR283482 | 0 | | | | | | | | | | |
| FR284409 | 0 Exclusively expressed in tumor | 1.394 | 0.9532 | | | 0.8906 | | 0.4786 | 0.8264 | 0.6318 | 1.6216 |
| FR284952 | 0 | | | | | | | | | | |
| FR291903 | 0 | | | | | | | | | | |
| FR292218 | 0 | | | | | | | | | | |
| FR293713 | 0 | | | | | | | | | | |
| FR294567 | 0 Exclusively expressed in tumor | 1.342 | 0.9384 | 0.3978 | 0.9839 | 1.0981 | 1.4045 | | 1.1916 | 0.4962 | 1.941 |

| | | | | | | | | | | | | |
|----------|----------|---------------------------------|--------|--------|--------|--------|--------|---------|--------|---------|--------|--------|
| FR296333 | 0 | | | | | | | | | | | |
| FR302680 | 0 | | | | | | | | | | | |
| FR306048 | 0 | | | | | | | | | | | |
| FR312701 | 0 | | | | | | | | | | | |
| FR315253 | 0 | | | | | | | | | | | |
| FR315324 | 0 | Exclusively expressed in tumors | 1.2762 | | 1.4268 | 0.8414 | | | 0.8627 | 2.9076 | 1.4269 | |
| FR319300 | 0 | | | | | | | | | | | |
| FR323470 | 0 | | | | | | | | | | | |
| FR324253 | 0 | | | | | | | | | | | |
| FR324541 | 0 | Exclusively expressed in tumors | 0.4867 | | 0.5462 | | 0.4911 | | | | | 0.4174 |
| FR327232 | 0 | | | | | | | | | | | |
| FR328873 | 0 | | | | | | | | | | | |
| FR338565 | 0 | | | | | | | | | | | |
| FR344796 | 0 | | | | | | | | | | | |
| FR348796 | 0 | | | | | | | | | | | |
| FR349959 | 0 | | | | | | | | | | | |
| FR352363 | 0 | Exclusively expressed in tumors | 0.8581 | 1.2651 | 0.6879 | | | 1.6456 | | | 1.046 | 2.5322 |
| FR353662 | 0 | | | | | | | | | | | |
| FR357447 | 0 | Exclusively expressed in normal | 4.9945 | 8.8665 | 1.0549 | 8.8919 | 5.9772 | 14.3143 | 1.8613 | 12.7507 | 1.0344 | 5.7415 |
| FR357773 | 0 | | | | | | | | | | | |
| FR359148 | 0 | | | | | | | | | | | |
| FR361464 | 0 | | | | | | | | | | | |
| FR365646 | 0 | | | | | | | | | | | |
| FR372135 | 0 | | | | | | | | | | | |
| FR378984 | 0 | | | | | | | | | | | |
| FR380227 | 0 | | | | | | | | | | | |
| FR380286 | 0 | | | | | | | | | | | |
| FR381169 | 0 | | | | | | | | | | | |
| FR381182 | 0 | Exclusively expressed in tumors | 1.1096 | 2.0097 | 0.2 | 1.0998 | 1.0961 | 1.4533 | 0.658 | 1.4259 | 1.0574 | 4.1158 |
| FR384068 | 0 | | | | | | | | | | | |
| FR389105 | 0 | Exclusively expressed in tumors | 1.2126 | 1.601 | 0.189 | | 0.8014 | 0.8041 | 1.3119 | | 0.4838 | 1.3257 |
| FR391445 | 0 | | | | | | | | | | | |
| FR393260 | 0 | Exclusively expressed in tumors | 0.6339 | 0.7349 | | | 0.6137 | 0.6283 | | 0.691 | 0.7798 | 0.7328 |
| FR019089 | 8.92E-16 | | | | | | | | | | | |
| FR217789 | 8.92E-16 | | | | | | | | | | | |
| FR236999 | 8.92E-16 | | | | | | | | | | | |
| FR245310 | 8.92E-16 | | | | | | | | | | | |
| FR255141 | 8.92E-16 | | | | | | | | | | | |
| FR337552 | 8.92E-16 | | | | | | | | | | | |
| FR295879 | 1.76E-15 | | | | | | | | | | | |
| FR318724 | 1.76E-15 | Exclusively expressed in tumors | 0.9162 | | 0.1736 | | 0.5799 | 1.0258 | | 0.7196 | 1.419 | 2.7828 |
| FR103462 | 3.49E-15 | | | | | | | | | | | |
| FR198390 | 6.05E-15 | Exclusively expressed in tumors | 1.0044 | | 0.1451 | | 0.7509 | 0.8143 | 0.4845 | 0.7667 | 0.8668 | 1.483 |
| FR086093 | 7.73E-15 | | | | | | | | | | | |
| FR196011 | 1.02E-14 | Exclusively expressed in tumors | 1.0643 | 1.086 | | | 0.8393 | 0.9848 | | 1.0588 | | 1.2732 |
| FR237180 | 2.71E-14 | | | | | | | | | | | |
| FR372317 | 3.28E-14 | Exclusively expressed in tumors | 1.1034 | | 0.2571 | | 1.1366 | 1.1985 | | 1.1889 | 0.9442 | 2.8737 |

| | | | | | | | | | | | | |
|----------|----------|---------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| FR177847 | 3.84E-14 | Exclusively expressed in tumor | 0.4116 | | | | 0.3944 | 0.6375 | | 0.3523 | | 1.001 |
| FR298744 | 4.22E-14 | Exclusively expressed in tumor | 1.1306 | 0.6909 | 0.1473 | | 0.9721 | | | 0.8411 | | 0.5772 |
| FR090905 | 4.85E-14 | | | | | | | | | | | |
| FR401918 | 5.06E-14 | | | | | | | | | | | |
| FR163199 | 7.54E-14 | | | | | | | | | | | |
| FR248128 | 9.10E-14 | Exclusively expressed in tumor | 0.8047 | | 0.5055 | | 0.9234 | 2.4083 | 0.8023 | 0.9486 | 0.4814 | 1.0933 |
| FR149081 | 1.10E-13 | Exclusively expressed in tumor | 0.4194 | | | | 0.3874 | 0.6341 | | 0.3891 | | 1.0438 |
| FR156205 | 1.10E-13 | Exclusively expressed in tumor | 0.5777 | 1.2707 | 0.1538 | | 0.566 | 0.9035 | | 0.9616 | 0.5116 | 1 |
| FR157961 | 1.38E-13 | Exclusively expressed in tumor | 2.2684 | 1.2812 | 0.3451 | | 1.0835 | 1.8171 | | 4.4058 | 0.6357 | 3.1058 |
| FR300684 | 1.64E-13 | | | | | | | | | | | |
| FR376350 | 2.93E-13 | | | | | | | | | | | |
| FR325367 | 3.79E-13 | | | | | | | | | | | |
| FR169300 | 5.84E-13 | | | | | | | | | | | |
| FR217801 | 5.84E-13 | | | | | | | | | | | |
| FR248059 | 6.20E-13 | Exclusively expressed in tumor | 1.0007 | 1.122 | 0.1582 | | 1.509 | | | 0.6495 | | 1.2846 |
| FR390022 | 7.84E-13 | Exclusively expressed in tumor | 0.4422 | | 0.1187 | | 0.581 | | 0.4729 | 0.6149 | 0.9999 | 1.0181 |
| FR072519 | 8.56E-13 | | | | | | | | | | | |
| FR106597 | 9.06E-13 | Exclusively expressed in tumor | 1.9027 | | 0.3604 | | 0.7921 | 0.8452 | | 1.3166 | | 1.1551 |
| FR194863 | 1.67E-12 | | | | | | | | | | | |
| FR105027 | 2.29E-12 | | | | | | | | | | | |
| FR341694 | 2.31E-12 | | | | | | | | | | | |
| FR019031 | 3.52E-12 | Exclusively expressed in tumor | 1.0666 | | | | 1.8779 | 0.7689 | 0.7536 | | 0.875 | 3.6347 |
| FR400444 | 4.33E-12 | Exclusively expressed in tumor | 1.4391 | 1.3957 | 0.567 | | 1.0608 | 2.3207 | | 1.8655 | | 4.189 |
| FR338575 | 4.73E-12 | Exclusively expressed in tumors | | | 0.2374 | 1.4614 | 0.8634 | | | 1.2068 | 0.57 | 2.0257 |
| FR013040 | 5.88E-12 | Exclusively expressed in tumor | 0.8183 | | 0.4493 | | 0.7184 | 1.1539 | | 0.8689 | | 1.8549 |
| FR136623 | 6.00E-12 | | | | | | | | | | | |
| FR001944 | 6.05E-12 | Exclusively expressed in tumor | 0.8175 | 1.4268 | 0.1275 | | 0.7886 | | | | | 1.11 |
| FR310293 | 6.59E-12 | | | | | | | | | | | |
| FR337144 | 8.96E-12 | Exclusively expressed in tumor | 1.6054 | | 0.2044 | | 1.0445 | 0.8538 | | 0.9283 | 0.7551 | 1.3042 |
| FR365501 | 1.37E-11 | | | | | | | | | | | |
| FR236484 | 1.42E-11 | | | | | | | | | | | |
| FR394703 | 1.50E-11 | Exclusively expressed in tumor | 1.3965 | | 0.1868 | | 0.6943 | 0.9173 | | 0.9718 | 0.5026 | 1.7593 |
| FR184567 | 2.39E-11 | | | | | | | | | | | |
| FR143879 | 3.79E-11 | | | | | | | | | | | |
| FR026803 | 5.53E-11 | Exclusively expressed in tumor | 0.9934 | | 0.1922 | | 0.8179 | 1.7757 | | 0.9821 | 2.0972 | 4.7899 |
| FR030135 | 6.18E-11 | Exclusively expressed in tumor | 1.3656 | | 0.1692 | | | 0.5705 | | 0.959 | 0.7178 | 1.4844 |
| FR249679 | 6.59E-11 | | | | | | | | | | | |
| FR252245 | 9.84E-11 | Exclusively expressed in tumors | | | | | 0.745 | 0.7935 | | | | |
| FR252137 | 1.07E-10 | | | | | | | | | | | |
| FR404492 | 1.26E-10 | Exclusively expressed in tumors | | | 0.1429 | | | 1.1407 | | 0.9324 | 2.6606 | 1.4976 |
| FR165524 | 1.98E-10 | Exclusively expressed in tumor | 2.7363 | | 0.4725 | | 0.9784 | 2.2549 | | 2.997 | | 3.1647 |
| FR377799 | 3.72E-10 | Exclusively expressed in tumor | 0.674 | 1.1796 | 0.778 | | | 1.0982 | | | | |
| FR355867 | 6.27E-10 | | | | | | | | | | | |
| FR293228 | 9.08E-10 | | | | | | | | | | | |
| FR074386 | 1.03E-09 | | | | | | | | | | | |
| FR070720 | 1.11E-09 | Exclusively expressed in tumor | 0.7477 | | | | 0.5812 | 0.5589 | | | 0.4224 | 0.6679 |
| FR341404 | 1.13E-09 | Exclusively expressed in tumor | 0.583 | 1.6628 | 0.1802 | | 1.0426 | | | 0.9388 | | 0.9523 |

| | | | | | | | | | | | |
|----------|------------|---------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| FR127490 | 0.00076369 | | | | | | | | | | |
| FR066510 | 0.00081035 | | | | | | | | | | |
| FR342305 | 0.00083219 | Exclusively expressed in tumors | 0.9013 | | 0.2923 | | | 0.9526 | | | |
| FR236081 | 0.0008544 | Exclusively expressed in tumors | 0.7649 | | | | 0.8218 | | | | |
| FR243247 | 0.00086729 | | | | | | | | | | |
| FR048796 | 0.0010731 | Exclusively expressed in tumors | | | | | | | | 1.005 | |
| FR302308 | 0.00109836 | Exclusively expressed in tumors | | | | | | 1.6182 | 0.6688 | | |
| FR290142 | 0.00110561 | Exclusively expressed in tumors | 2.4363 | 6.5092 | | | | 9.2501 | | | 2.8365 |
| FR064000 | 0.00116585 | | | | | | | | | | |
| FR159092 | 0.00117402 | Exclusively expressed in tumors | 0.6138 | | 0.222 | | | | | | 0.7551 |
| FR123582 | 0.00119817 | Exclusively expressed in tumors | | | | | 0.6418 | | | | 0.8708 |
| FR316592 | 0.00134275 | Exclusively expressed in tumors | | | | | | | | 0.5955 | 0.8756 |
| FR099055 | 0.00134334 | Exclusively expressed in tumors | | | | | | | 1.1083 | 0.4382 | |
| FR267703 | 0.00140188 | Exclusively expressed in tumors | 0.9136 | | | | | | 1.0927 | | |
| FR173465 | 0.0014276 | Exclusively expressed in tumors | 0.7735 | | 0.1868 | | | | | | 1.0793 |
| FR061877 | 0.00144454 | Exclusively expressed in tumors | | | | | | | | 0.6355 | 1.2208 |
| FR060745 | 0.00147273 | Exclusively expressed in tumors | | | | | 0.5525 | | | | 0.6767 |
| FR207523 | 0.00155135 | Exclusively expressed in tumors | | | 0.2571 | | | 0.945 | | | 0.908 |
| FR089602 | 0.00157569 | Exclusively expressed in tumors | | | | | | 0.8951 | | | 0.9886 |
| FR115804 | 0.00159482 | Exclusively expressed in tumors | | | | | | 0.8439 | | | 0.7142 |
| FR162794 | 0.00239611 | Exclusively expressed in tumors | 0.2861 | | | | | | 0.2706 | | |
| FR202470 | 0.00239611 | Exclusively expressed in tumors | 0.2861 | | | | | | 0.2706 | | |
| FR255519 | 0.00241364 | Exclusively expressed in tumors | | | | | 0.7284 | | | 0.6149 | |
| FR132879 | 0.00252223 | | | | | | | | | | |
| FR344447 | 0.00277426 | Exclusively expressed in tumors | 0.3326 | | | | | | 0.2908 | | |
| FR389121 | 0.00311307 | Exclusively expressed in tumors | 0.9068 | | 0.1604 | | | 1.1292 | | | |
| FR295545 | 0.00319292 | Exclusively expressed in tumors | | | | | | | 2.0497 | | |
| FR324841 | 0.00332569 | Exclusively expressed in tumors | | | 0.1495 | | | | 0.9549 | | 0.8159 |
| FR166990 | 0.00341571 | Exclusively expressed in tumors | 0.8737 | | | | | | 0.7288 | | 1.1389 |
| FR118220 | 0.00387302 | | | | | | | | | | |
| FR315126 | 0.00388773 | Exclusively expressed in tumors | | | | | | 0.5283 | | | |
| FR298737 | 0.00390864 | Exclusively expressed in tumors | | 4.2829 | | 3.5559 | 2.0276 | | | | |
| FR221589 | 0.00405339 | Exclusively expressed in tumors | | | | | | 0.3343 | | | 0.6645 |
| FR372325 | 0.00433168 | | | | | | | | | | |
| FR205900 | 0.00472191 | Exclusively expressed in tumors | | | | | | | | 0.6074 | |
| FR109932 | 0.0048362 | | | | | | | | | | |
| FR221812 | 0.00523338 | Exclusively expressed in tumors | | | | | | | | 0.5403 | |
| FR026913 | 0.00588347 | | | | | | | | | | |
| FR217228 | 0.00620675 | | | | | | | | | | |
| FR083863 | 0.00696215 | Exclusively expressed in tumors | | | | | | | 0.483 | | 0.7524 |
| FR350968 | 0.00723115 | Exclusively expressed in tumors | 0.4713 | | | | 0.4638 | | | | |
| FR274844 | 0.00822044 | Exclusively expressed in tumors | | | | | 1.2423 | | | | |
| FR330790 | 0.00860029 | Exclusively expressed in tumors | | | | | | | | 0.5072 | |
| FR134850 | 0.00942974 | Exclusively expressed in tumors | | | 0.1934 | | | | | 0.7866 | |
| FR227926 | 0.00952981 | Exclusively expressed in tumors | | | | 1.5625 | | | | | |

Supplementary Table 4

Clinical features associated with sub-clusters in HNSC

Multivariate analysis

| | Df | Sum Sq | Mean Sq | F value | Pr(>F) |
|---------------------------|-----|---------|---------|---------|-------------|
| Alcohol consumption | 2 | 1.045 | 0.5223 | 1.0047 | 0.36724 |
| Anatomical site | 12 | 4.911 | 0.4092 | 0.7873 | 0.663683 |
| Nodal status | 2 | 6.552 | 3.2758 | 6.302 | 0.002055 ** |
| Tumor stage | 4 | 5.035 | 1.2587 | 2.4216 | 0.048165 * |
| hpv presence | 2 | 0.767 | 0.3835 | 0.7377 | 0.478969 |
| Tumor grade | 4 | 1.692 | 0.4229 | 0.8136 | 0.517129 |
| New oral neoplasm | 1 | 0.349 | 0.3487 | 0.6709 | 0.413332 |
| New T after Tx | 2 | 1.159 | 0.5795 | 1.1149 | 0.329147 |
| Smoking (packs per years) | 85 | 40.012 | 0.4707 | 0.9056 | 0.704393 |
| Smoking | 2 | 1.299 | 0.6493 | 1.249 | 0.288105 |
| Residuals | 338 | 175.695 | 0.5198 | | |

Signif. codes: 0 '***' 0.01 '**' 0.05 '.' 0.1 ' ' 1

Univariate analysis

| Nodal status | NEG | POS | Information | Total | NEG (%) | POS (%) |
|------------------|-----|-----|-------------|-------|---------|---------|
| Not in a cluster | 162 | 181 | 24 | 343 | 47.23% | 52.77% |
| Cluster 1 | 8 | 11 | 1 | 19 | 42.11% | 57.89% |
| Cluster 2 | 39 | 18 | 11 | 57 | 68.42% | 31.58% |

p=0.0098

higher fraction of node negative in cluster 2

Clinical features associated with sub-clusters in KIRC

Multivariate analysis

| | Df | Sum Sq | Mean Sq | F value | Pr(>F) |
|---------------|-----|--------|---------|---------|-----------|
| met | 2 | 2.78 | 1.39213 | 1.4014 | 0.24716 |
| nodal | 2 | 4.35 | 2.17439 | 2.1888 | 0.11305 |
| factor(stage) | 4 | 10.51 | 2.62812 | 2.6455 | 0.03281 * |
| VHL | 1 | 2.88 | 2.87946 | 2.8985 | 0.08924 . |
| Residuals | 538 | 534.46 | 0.99342 | | |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Univariate analysis

| | Stage | | | | sum | % of samples per cluster | | | |
|------------------|-------|----|-----|----|-----|--------------------------|--------|--------|--------|
| | I | II | III | IV | | I | II | III | IV |
| Not in a cluster | 104 | 31 | 48 | 39 | 222 | 46.85% | 13.96% | 21.62% | 17.57% |
| Cluster 1 | 86 | 14 | 30 | 12 | 142 | 60.56% | 9.86% | 21.13% | 8.45% |
| Cluster 2 | 60 | 11 | 37 | 18 | 126 | 47.62% | 8.73% | 29.37% | 14.29% |
| Cluster 3 | 18 | 5 | 16 | 10 | 49 | 36.73% | 10.20% | 32.65% | 20.41% |

p=0.0346

Cluster 1 has a higher fraction of Stage I tumours

Clinical features associated with sub-clusters in PRAD

Multivariate analysis

| | Df | Sum Sq | Mean Sq | F value | Pr(>F) |
|----------------|-----|--------|---------|---------|----------|
| factor(type) | 2 | 0.9057 | 0.45285 | 4.1022 | 0.017657 |
| nodal | 2 | 0.0023 | 0.00115 | 0.0104 | 0.989674 |
| factor(Tstage) | 3 | 0.1515 | 0.05049 | 0.4574 | 0.71233 |
| gleasonscore | 4 | 1.5747 | 0.39369 | 3.5663 | 0.007523 |
| Residuals | 251 | 27.708 | 0.11039 | | |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Univariate analysis

| Gleason score | 6 to 7 | 8 to 10 | | 6 to 7 | 8 to 10 |
|------------------|--------|---------|-----|-------------|-------------|
| Not in a cluster | 167 | 56 | 223 | 0.748878924 | 0.251121076 |
| Cluster 1 | 19 | 16 | 35 | 0.542857143 | 0.45714286 |

p=0.0152

More higher gleason scores in cluster 1 group

piRNA differentially expressed in breast ductal adenocarcinoma

| piRNA identifier | BH p-value |
|------------------|------------|
| FR064000 | 0.00118 |
| FR267761 | 0.00118 |
| FR132045 | 0.00118 |
| FR132879 | 0.00118 |
| FR019089 | 0.00118 |
| FR007639 | 0.00118 |
| FR319486 | 0.00118 |
| FR310293 | 0.00118 |
| FR372325 | 0.00118 |
| FR298737 | 0.00118 |
| FR028698 | 0.00118 |
| FR290353 | 0.00118 |
| FR019019 | 0.00118 |
| FR090905 | 0.00118 |
| FR324541 | 0.00118 |
| FR290142 | 0.00118 |
| FR095339 | 0.00118 |
| FR169300 | 0.00118 |
| FR217801 | 0.00118 |
| FR210409 | 0.00118 |
| FR237180 | 0.00118 |
| FR163199 | 0.00118 |
| FR016773 | 0.00118 |
| FR091055 | 0.00118 |
| FR271551 | 0.00118 |
| FR233730 | 0.00118 |
| FR243752 | 0.00118 |
| FR107946 | 0.00118 |
| FR190827 | 0.00118 |
| FR136623 | 0.00118 |
| FR359148 | 0.00118 |
| FR378984 | 0.00118 |
| FR393260 | 0.00118 |
| FR355867 | 0.00118 |
| FR205670 | 0.00118 |
| FR197889 | 0.00118 |
| FR103462 | 0.00118 |
| FR218523 | 0.00118 |

| | |
|----------|----------|
| FR365646 | 0.00118 |
| FR114004 | 0.00118 |
| FR380286 | 0.002098 |
| FR266905 | 0.002098 |
| FR306048 | 0.002098 |
| FR140858 | 0.002098 |
| FR349959 | 0.002098 |
| FR268871 | 0.002949 |
| FR075316 | 0.002949 |
| FR263507 | 0.002949 |
| FR324515 | 0.003701 |
| FR246367 | 0.003701 |
| FR338565 | 0.003701 |
| FR259362 | 0.005342 |
| FR255141 | 0.005342 |
| FR262980 | 0.006991 |
| FR297613 | 0.007722 |
| FR283482 | 0.008136 |
| FR006353 | 0.008136 |
| FR003837 | 0.008136 |
| FR035643 | 0.009598 |

Supplementary Table 5: piRNAs associated with survival

P-values

| piRNA_list | BLCA | BRCA | COAD | HNSC | KIRC | LUAD | LUSC | PRAD | STAD | UCEC | THCA |
|------------|--------|--------|--------|--------|--------|--------|--------|------|--------|--------|--------|
| FR004819 | 0.0036 | | | | | | | | 0.0199 | | 0.0483 |
| FR006353 | | | 0.0424 | 0.0110 | | | | | | | 0.0210 |
| FR025321 | | 0.0424 | | 0.0069 | | | | | | 0.0005 | |
| FR027884 | | | | | 0.0000 | | 0.0012 | | | 0.0391 | |
| FR072386 | | 0.0475 | | | 0.0029 | | | | | 0.0454 | |
| FR245310 | | | 0.0023 | 0.0287 | | | | | | | 0.0366 |
| FR262980 | | | | | 0.0000 | | 0.0043 | | | 0.0358 | |
| FR279668 | | 0.0057 | | | 0.0002 | 0.0022 | | | | | |
| FR327232 | | | | | 0.0481 | | 0.0352 | | | 0.0020 | |
| FR381169 | | | | 0.0230 | 0.0000 | | | | | | 0.0420 |
| FR018916 | | | 0.0102 | | 0.0001 | | | | | | |
| FR019019 | | | | 0.0404 | | 0.0411 | | | | | |
| FR027151 | 0.0160 | | 0.0221 | | | | | | | | |
| FR111727 | | | | | 0.0001 | | | | | | 0.0359 |
| FR135042 | | | | | | | 0.0022 | | | 0.0391 | |
| FR140858 | | | | | 0.0002 | | 0.0100 | | | | |
| FR148093 | | 0.0045 | | | | | | | | | 0.0449 |
| FR190827 | | | 0.0107 | | 0.0269 | | | | | | |
| FR218523 | | | 0.0057 | 0.0308 | | | | | | | |
| FR222326 | | | | 0.0036 | | 0.0062 | | | | | |
| FR236484 | | | | 0.0498 | | | | | | 0.0013 | |
| FR236999 | 0.0459 | | | 0.0045 | | | | | | | |
| FR248000 | | | 0.0001 | | | 0.0463 | | | | | |
| FR255141 | | | 0.0022 | | | | | | | 0.0038 | |
| FR264146 | | | 0.0043 | | | | | | | 0.0028 | |
| FR271551 | | 0.0091 | | 0.0087 | | | | | | | |
| FR283482 | | | | | 0.0058 | 0.0020 | | | | | |
| FR293713 | | | 0.0104 | | 0.0000 | | | | | | |
| FR296333 | | 0.0093 | | | | | | | | 0.0108 | |
| FR301191 | 0.0366 | | 0.0240 | | | | | | | | |
| FR319465 | | | 0.0111 | | 0.0431 | | | | | | |
| FR319486 | | 0.0234 | | | 0.0285 | | | | | | |
| FR326119 | | | | | 0.0004 | | | | | 0.0305 | |
| FR349959 | | | 0.0255 | | 0.0044 | | | | | | |
| FR365501 | 0.0473 | | | | 0.0155 | | | | | | |
| FR378984 | | 0.0193 | | 0.0013 | | | | | | | |
| FR016773 | | | 0.0023 | | | | | | | | |
| FR026913 | | | 0.0078 | | | | | | | | |
| FR035643 | | | | | 0.0366 | | | | | | |
| FR038165 | | | | | | 0.0181 | | | | | |

| | | | | | | | | | | |
|----------|--------|--------|--------|--------|--|--|--------|--------|--------|--|
| FR043670 | | | 0.0453 | | | | | | | |
| FR074386 | | | | 0.0004 | | | | | | |
| FR075316 | | 0.0006 | | | | | | | | |
| FR082269 | 0.0203 | | | | | | | | | |
| FR091055 | | | | | | | | | 0.0264 | |
| FR103462 | | | | 0.0000 | | | | | | |
| FR114004 | | | | 0.0389 | | | | | | |
| FR125672 | | 0.0162 | | | | | | | | |
| FR131044 | | 0.0035 | | | | | | | | |
| FR157678 | | | 0.0121 | | | | | | | |
| FR163199 | | 0.0002 | | | | | | | | |
| FR169300 | | | | 0.0095 | | | | | | |
| FR182987 | 0.0219 | | | | | | | | | |
| FR197889 | | | 0.0306 | | | | | | | |
| FR202919 | | | | | | | 0.0190 | | | |
| FR213383 | | | | 0.0325 | | | | | | |
| FR213473 | 0.0047 | | | | | | | | | |
| FR217801 | | | | 0.0095 | | | | | | |
| FR218973 | | | | 0.0004 | | | | | | |
| FR246367 | | | | 0.0031 | | | | | | |
| FR249679 | | 0.0004 | | | | | | | | |
| FR259362 | | | | | | | | | 0.0424 | |
| FR266905 | | | | 0.0065 | | | | | | |
| FR268871 | 0.0042 | | | | | | | | | |
| FR270731 | | | | 0.0001 | | | | | | |
| FR297613 | | 0.0048 | | | | | | | | |
| FR302680 | | | | 0.0003 | | | | | | |
| FR319444 | | 0.0004 | | | | | | | | |
| FR324515 | | | | 0.0332 | | | | | | |
| FR338747 | | | | | | | | 0.0178 | | |
| FR359148 | | 0.0054 | | | | | | | | |
| FR365646 | | | | 0.0001 | | | | | | |

| piRNA | TCGA (log-rank pvalue) | GSE29173 (log-rank pvalue) |
|--------------|-------------------------------|-----------------------------------|
| FR072386 | 0.0475 | 0.6476 |
| FR182987 | 0.0219 not expressed | |
| FR271551 | 0.0091 | 0.9829 |
| FR378984 | 0.0193 | 0.0200 |
| FR025321 | 0.0424 | 0.0225 |
| FR296333 | 0.0093 not expressed | |
| FR279668 | 0.0057 not expressed | |
| FR319486 | 0.0234 not expressed | |
| FR148093 | 0.0045 not expressed | |

Supplementary Table 6

| piRNA ID | Genes | | |
|---------------|---------------------------------------|-----------------|-----------------------------------|
| | Overlapping Features | Nearest Feature | Distance to Nearest Feature (bps) |
| FR041203 | contained within PRKRCZ (+) | PRKRCZ (+) | 0 |
| FR277415 | contained within RERE (-) | RERE (-) | 0 |
| FR060745 | contained within H6PD (+) | H6PD (+) | 0 |
| FR095987 | contained within RCC2 (-) | RCC2 (-) | 0 |
| FR202919 | region is 41236 bp down LOC284632 (+) | LOC284632 (+) | 41236 |
| FR309900 | contained within WASF2 (-) | WASF2 (-) | 0 |
| FR122719 | contained within PTAFAFR (-) | PTAFAFR (-) | 0 |
| FR218973 | contained within SNORA61 (-) | SNORA61 (-) | 0 |
| FR259362 | contained within SNORD103B (-) | SNORD103B (-) | 0 |
| FR236484 | contained within SNORD85 (-) | SNORD85 (-) | 0 |
| FR228545 | contained within SNORD85 (-) | SNORD85 (-) | 0 |
| FR073001 | region is 10368 bp up LINC01225 (+) | LINC01225 (+) | 10368 |
| FR394703 | contained within KPNA6 (+) | KPNA6 (+) | 0 |
| FR254828 | contained within AKIRIN1 (+) | AKIRIN1 (+) | 0 |
| FR315324 | intron of TMEM125 (+) | TMEM125 (+) | 0 |
| FR248059 | contained within DPH2 (+) | DPH2 (+) | 0 |
| FR006353 | contained within SNORD38B (+) | SNORD38B (+) | 0 |
| FR079959 | contained within PIK3R3 (-) | PIK3R3 (-) | 0 |
| FR086093 | region is 14886 bp down S1PR1 (+) | S1PR1 (+) | 14886 |
| FR135669 | contained within CSDE1 (-) | CSDE1 (-) | 0 |
| FR128806 | region is 46591 bp up VAVGL1 (+) | VAVGL1 (+) | 46591 |
| FR248128 | contained within PHGDH (+) | PHGDH (+) | 0 |
| FR242050 | contained within TXNIP (+) | TXNIP (+) | 0 |
| FR324841 | contained within HIST2H2AA4 (-) | HIST2H2AA4 (-) | 0 |
| FR324841_dup1 | contained within HIST2H2AA4 (+) | HIST2H2AA4 (+) | 0 |
| FR387105 | region is 624 bp down NBPF18P (+) | NBPF18P (+) | 624 |
| FR298737 | intron of KIAA0907 (-) | SNORA80E (+) | 0 |
| FR175260 | intron of KIAA0907 (-) | SNORA80E (-) | 0 |
| FR136176 | contained within ISG20L2 (-) | ISG20L2 (-) | 0 |
| FR361464 | contained within TOR1AIP2 (-) | TOR1AIP2 (-) | 0 |
| FR106749 | contained within ZNF648 (-) | ZNF648 (-) | 0 |
| FR242943 | contained within WDR37 (+) | WDR37 (+) | 0 |
| FR338284 | contained within HNRNPF (-) | HNRNPF (-) | 0 |
| FR014504 | contained within TIMM23 (-) | TIMM23 (-) | 0 |
| FR103462 | contained within SNORD98 (+) | SNORD98 (+) | 0 |
| FR365646 | contained within SNORD98 (+) | SNORD98 (+) | 0 |
| FR074386 | contained within SNORD98 (+) | SNORD98 (+) | 0 |
| FR206428 | contained within EIF4EBP2 (+) | EIF4EBP2 (+) | 0 |
| FR400444 | contained within SEC24C (+) | SEC24C (+) | 0 |
| FR013040 | contained within EIF5AL1 (+) | EIF5AL1 (+) | 0 |
| FR148018 | region is 24522 bp down MAT1A (-) | MAT1A (-) | 24522 |
| FR013040_dup1 | region is 24519 bp down MAT1A (-) | MAT1A (-) | 24519 |
| FR037883 | contained within LINC00865 (+) | LINC00865 (+) | 0 |
| FR295300 | contained within TMEM180 (+) | TMEM180 (+) | 0 |
| FR296810 | contained within FAM53B (-) | FAM53B (-) | 0 |
| FR006894 | contained within SNORA54 (-) | SNORA54 (-) | 0 |
| FR105027 | contained within SNORA45A (+) | SNORA45A (+) | 0 |
| FR061350 | contained within RPL27A (+) | RPL27A (+) | 0 |
| FR035643 | contained within MTRNR2L8 (-) | MTRNR2L8 (-) | 0 |

| mutations (COSMIC) | | |
|--------------------------------------|-----------------|-----------------------------------|
| Overlapping Features | Nearest Feature | Distance to Nearest Feature (bps) |
| COSM116523 | COSM116523 | 0 |
| region is 1372 bp from COSM1444196 | COSM1444196 | 1372 |
| region is 1878 bp from COSM1667123 | COSM1667123 | 1878 |
| region is 1879 bp from COSM1687088 | COSM1687088 | 1879 |
| region is 70155 bp from COSM1340932 | COSM1340932 | 70155 |
| region is 2280 bp from COSM1341512 | COSM1341512 | 2280 |
| region is 1571 bp from COSM907953 | COSM907953 | 1571 |
| region is 2158 bp from COSM426034 | COSM426034 | 2158 |
| region is 903 bp from COSM3977565 | COSM3977565 | 903 |
| region is 224 bp from COSM258720 | COSM258720 | 224 |
| region is 224 bp from COSM258720 | COSM258720 | 224 |
| region is 54416 bp from COSM13943862 | COSM13943862 | 54416 |
| region is 1346 bp from COSM534627 | COSM534627 | 1346 |
| COSM909134 | COSM909134 | 0 |
| region is 1821 bp from COSM3689701 | COSM3689701 | 1821 |
| COSM1250623, COSM3805357 | COSM3805357 | 0 |
| region is 182 bp from COSM3711354 | COSM3711354 | 182 |
| region is 1871 bp from COSM189506 | COSM189506 | 1871 |
| region is 16274 bp from COSM893037 | COSM893037 | 16274 |
| region is 8298 bp from COSM1472449 | COSM1472449 | 8298 |
| region is 64279 bp from COSM1270142 | COSM1270142 | 64279 |
| COSM1723652 | COSM1723652 | 0 |
| region is 270 bp from COSM1626380 | COSM1626380 | 270 |
| region is 1371 bp from COSM3930377 | COSM3930377 | 1371 |
| region is 82 bp from COSM1333712 | COSM1333712 | 82 |
| region is 9586 bp from COSM277147 | COSM277147 | 9586 |
| region is 1344 bp from COSM675700 | COSM675700 | 1344 |
| region is 1344 bp from COSM675700 | COSM675700 | 1344 |
| region is 308 bp from COSM1334920 | COSM1334920 | 308 |
| region is 1445 bp from COSM1134779 | COSM1134779 | 1445 |
| COSM1744823, COSM1744823 | COSM1744823 | 0 |
| region is 2040 bp from COSM3806508 | COSM3806508 | 2040 |
| COSM1675184, COSM1675185 | COSM1675185 | 0 |
| region is 287 bp from COSM3358772 | COSM3358772 | 287 |
| region is 132 bp from COSM236069 | COSM236069 | 132 |
| region is 132 bp from COSM236069 | COSM236069 | 132 |
| region is 132 bp from COSM236069 | COSM236069 | 132 |
| region is 4201 bp from COSM1505796 | COSM1505796 | 4201 |
| COSM920382 | COSM920382 | 0 |
| COSM920752, COSM920753 | COSM920753 | 0 |
| region is 56 bp from COSM3981161 | COSM3981161 | 56 |
| region is 53 bp from COSM3981161 | COSM3981161 | 53 |
| region is 64981 bp from COSM198308 | COSM198308 | 64981 |
| COSM1268059, COSM200259 | COSM200259 | 0 |
| region is 1347 bp from COSM87431 | COSM87431 | 1347 |
| region is 830 bp from COSM687613 | COSM687613 | 830 |
| region is 154 bp from COSM166780 | COSM166780 | 154 |
| COSM1357578 | COSM1357578 | 0 |
| region is 3027 bp from COSM685708 | COSM685708 | 3027 |

| Repetitive elements | | | |
|--------------------------------------|------------------|----------------|-----------------------------------|
| Overlapping Features | Nearest Feature | Class | Distance to Nearest Feature (bps) |
| region is 254 bp down Tigger3c (-) | Tigger3c (-) | DNA | 254 |
| region is 321 bp up AT_rich (+) | AT_rich (+) | Low_complexity | 321 |
| region is 65 bp down AluSx1 (-) | AluSx1 (-) | SINE | 65 |
| region is 357 bp down AT_rich (+) | AT_rich (+) | Low_complexity | 357 |
| region overlaps with Charlie4z (-) | Charlie4z (-) | DNA | 0 |
| region is 220 bp down MIR3 (+) | MIR3 (+) | SINE | 220 |
| region is 52 bp down AluS2 (-) | AluS2 (-) | SINE | 52 |
| region is 221 bp up AluSx1 (+) | AluSx1 (+) | SINE | 221 |
| region is 396 bp up L2c (+) | L2c (+) | LINE | 396 |
| region is 647 bp down L2a (-) | L2a (-) | LINE | 647 |
| region is 647 bp down L2a (-) | L2a (-) | LINE | 647 |
| region is 950 bp up THE1B (+) | THE1B (+) | LTR | 950 |
| region is 209 bp down (TTC)n (+) | (TTC)n (+) | Simple_repeat | 209 |
| region is 114 bp down MIR (-) | MIR (-) | SINE | 114 |
| region is 322 bp down MIRb (-) | MIRb (-) | SINE | 322 |
| region is 1411 bp down AluJb (+) | AluJb (+) | SINE | 1411 |
| region is 759 bp down AluJb (-) | AluJb (-) | SINE | 759 |
| region is 2255 bp down AluJo (-) | AluJo (-) | SINE | 2255 |
| region is 126 bp down AluY (+) | AluY (+) | SINE | 126 |
| region is 942 bp down L2a (-) | L2a (-) | LINE | 942 |
| region is 786 bp up AluJo (+) | AluJo (+) | SINE | 786 |
| region is 372 bp up MIR3 (+) | MIR3 (+) | SINE | 372 |
| region is 224 bp down C-rich (+) | C-rich (+) | Low_complexity | 224 |
| region is 288 bp down (TCCCG)n (+) | (TCCCG)n (+) | Simple_repeat | 288 |
| region is 288 bp up (CGGGA)n (+) | (CGGGA)n (+) | Simple_repeat | 288 |
| region is 476 bp down L2b (-) | L2b (-) | LINE | 476 |
| region is 110 bp up AluY (+) | AluY (+) | SINE | 110 |
| region is 110 bp up AluY (+) | AluY (+) | SINE | 110 |
| region is 152 bp up AluSq2 (-) | AluSq2 (-) | SINE | 152 |
| region is 13 bp up MLT1L (+) | MLT1L (+) | LTR | 13 |
| region is 1236 bp down AluSg7 (-) | AluSg7 (-) | SINE | 1236 |
| region is 340 bp up (TG)n (+) | (TG)n (+) | Simple_repeat | 340 |
| region is 718 bp up HAL1 (+) | HAL1 (+) | LINE | 718 |
| region is 232 bp up AluSx (-) | AluSx (-) | SINE | 232 |
| region is 638 bp down AluYc (-) | AluYc (-) | SINE | 638 |
| region is 639 bp down AluYc (+) | AluYc (+) | SINE | 639 |
| region is 640 bp down AluYc (+) | AluYc (+) | SINE | 640 |
| region is 293 bp down AluS2 (-) | AluS2 (-) | SINE | 293 |
| region is 906 bp up AluS26 (+) | AluS26 (+) | SINE | 906 |
| region is 468 bp down (CGG)n (+) | (CGG)n (+) | Simple_repeat | 468 |
| region is 346 bp down (A)n (+) | (A)n (+) | Simple_repeat | 346 |
| region is 349 bp down (A)n (+) | (A)n (+) | Simple_repeat | 349 |
| region is 594 bp down Charlie1b (-) | Charlie1b (-) | DNA | 594 |
| region is 224 bp down MIR (+) | MIR (+) | SINE | 224 |
| region is 1928 bp up L1M5 (+) | L1M5 (+) | LINE | 1928 |
| region is 666 bp down L1MEg (+) | L1MEg (+) | LINE | 666 |
| region is 245 bp down AluSx (-) | AluSx (-) | SINE | 245 |
| region is 746 bp up AluSx (-) | AluSx (-) | SINE | 746 |
| region is 601 bp up LSU-rRNA_Hsa (-) | LSU-rRNA_Hsa (-) | rRNA | 601 |

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|---------------|-------------------------|------------------|-------|
| FR169300 | region is 900 bp upstr | MIR4485 (-) | 900 |
| FR217801 | region is 900 bp upstr | MIR4485 (-) | 900 |
| FR111727 | region is 1066 bp upstr | MIR4485 (-) | 1066 |
| FR319486 | region is 1469 bp down | RNF141 (-) | 1469 |
| FR227782 | region is 1469 bp down | RNF141 (-) | 1469 |
| FR019031 | contained within EIF | EIF4G2 (-) | 0 |
| FR021452 | region is 6020 bp upstr | LOC100507384 (+) | 6020 |
| FR041836 | region is 245 bp upstr | LOC100507384 (+) | 245 |
| FR065160 | contained within SNORD | SNORD67 (-) | 0 |
| FR337552 | contained within SNORD | SNORD67 (-) | 0 |
| FR049394 | contained within TMX | TMX2-CTNND1 (+) | 0 |
| FR341449 | contained within DTX | DTX4 (+) | 0 |
| FR026803 | contained within FTH | FTH1 (-) | 0 |
| FR217789 | contained within FTH | FTH1 (-) | 0 |
| FR223921 | contained within AHN | AHNAK (-) | 0 |
| FR223921_dup1 | contained within AHN | AHNAK (-) | 0 |
| FR281234 | contained within EEF | EEF1G (-) | 0 |
| FR352701 | contained within MR | MRPL49 (+) | 0 |
| FR325367 | contained within LTB | LTBP3 (-) | 0 |
| FR295545 | contained within EFE | EFEMP2 (-) | 0 |
| FR302308 | contained within LOC | LOC100128494 (+) | 0 |
| FR199846 | contained within RNF | RNF169 (+) | 0 |
| FR364055 | region is 2282 bp down | NEU3 (+) | 2282 |
| FR380227 | contained within SNORD | SNORD15A (+) | 0 |
| FR002829 | intron of SMC4 (-) | SMC4 (-) | 0 |
| FR190827 | contained within SNORD | SNORD6 (-) | 0 |
| FR290353 | contained within SNORD | SNORD6 (-) | 0 |
| FR157678 | contained within MIR | MIR34B (+) | 0 |
| FR387750 | contained within MIR | MIR34B (+) | 0 |
| FR224609 | contained within HYL | HYLS1 (+) | 0 |
| FR098442 | intron of IGSF9B (-) | IGSF9B (-) | 0 |
| FR271321 | contained within NC | NCAPD3 (-) | 0 |
| FR344972 | contained within M6P | M6PR (-) | 0 |
| FR138455 | contained within M6P | M6PR (-) | 0 |
| FR013706 | contained within M6P | M6PR (-) | 0 |
| FR233702 | region is 21747 bp down | LOC642846 (+) | 21747 |
| FR278590 | region is 21747 bp down | LOC642846 (+) | 21747 |
| FR073001_dup1 | intron of AEBP2 (+) | AEBP2 (+) | 0 |
| FR221242 | contained within CC | CCDC91 (+) | 0 |
| FR283571 | contained within TMB | TMBIM6 (+) | 0 |
| FR372317 | contained within PFD | PFDN5 (+) | 0 |
| FR019162 | contained within AAA | AAAS (-) | 0 |
| FR138455_dup1 | region is 8613 bp down | OR6C65 (+) | 8613 |
| FR233520 | contained within RPL | RPL41 (+) | 0 |
| FR215891 | contained within CT | CTDSP2 (-) | 0 |
| FR386994 | contained within CT | CTDSP2 (-) | 0 |
| FR250127 | contained within GNS | GNS (-) | 0 |
| FR233520_dup1 | intron of LOC643339 | LOC643339 (-) | 0 |
| FR338565 | region is 4692 bp upstr | NEDD1 (+) | 4692 |
| FR361123 | contained within GOL | GOLGA2P5 (-) | 0 |
| FR129496 | intron of TXNRD1 (+) | TXNRD1 (+) | 0 |
| FR285125 | contained within UBE | UBE3B (+) | 0 |

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|--------------------------|-------------|--------|
| region is 3357 bp from | COSM685708 | 3357 |
| region is 3357 bp from | COSM685708 | 3357 |
| region is 3523 bp from | COSM685708 | 3523 |
| region is 4307 bp from | COSM685708 | 4307 |
| region is 4313 bp from | COSM685708 | 4313 |
| region is 277 bp from | COSM3666846 | 277 |
| region is 65375 bp from | COSM1508266 | 65375 |
| region is 71152 bp from | COSM1508266 | 71152 |
| region is 153 bp from | COSM1683191 | 153 |
| region is 154 bp from | COSM1683191 | 154 |
| COSM360760, COSM | COSM928698 | 0 |
| region is 2090 bp from | COSM689582 | 2090 |
| region is 4 bp from | COSM3397977 | 4 |
| region is 4 bp from | COSM70835 | 4 |
| COSM3809806, COSM | COSM3809806 | 0 |
| COSM1638108, COSM | COSM273920 | 0 |
| COSM193579, COSM | COSM929695 | 0 |
| COSM1746461, COSM | COSM1746461 | 0 |
| COSM1355946, COSM | COSM1355946 | 0 |
| region is 7 bp from | COSM1127682 | 7 |
| COSM1746548, COSM | COSM1746548 | 0 |
| region is 2446 bp from | COSM1676303 | 2446 |
| region is 3552 bp from | COSM336405 | 3552 |
| region is 284 bp from | COSM290699 | 284 |
| region is 56422 bp from | COSM933341 | 56422 |
| region is 1257 bp from | COSM933415 | 1257 |
| region is 1294 bp from | COSM933415 | 1294 |
| region is 1823 bp from | COSM1585386 | 1823 |
| region is 1822 bp from | COSM1585386 | 1822 |
| region is 6138 bp from | COSM924571 | 6138 |
| region is 5916 bp from | COSM1352695 | 5916 |
| region is 20 bp from | COSM1297866 | 20 |
| region is 1217 bp from | COSM944343 | 1217 |
| region is 785 bp from | COSM944343 | 785 |
| region is 592 bp from | COSM944343 | 592 |
| region is 23166 bp from | COSM1323007 | 23166 |
| region is 23166 bp from | COSM1323007 | 23166 |
| region is 5205 bp from | COSM3811641 | 5205 |
| region is 4 bp from | COSM388093 | 4 |
| region is 861 bp from | COSM3935983 | 861 |
| COSM1299585, COSM | COSM1299585 | 0 |
| COSM694094, COSM | COSM694094 | 0 |
| region is 1616 bp from | COSM941294 | 1616 |
| region is 158 bp from | COSM431483 | 158 |
| COSM1202573, COSM | COSM1202573 | 0 |
| region is 478 bp from | COSM1363457 | 478 |
| region is 30 bp from | COSM1363634 | 30 |
| region is 191775 bp from | COSM1364872 | 191775 |
| region is 7236 bp from | COSM3359985 | 7236 |
| region is 8414 bp from | COSM1745265 | 8414 |
| region is 7624 bp from | COSM934239 | 7624 |
| COSM1358620, COSM | COSM1510729 | 0 |

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|-------------------------|------------------|----------------|------|
| region is 931 bp upstr | LSU-rRNA_Hsa (-) | rRNA | 931 |
| region is 931 bp upstr | LSU-rRNA_Hsa (-) | rRNA | 931 |
| region is 1097 bp upstr | LSU-rRNA_Hsa (-) | rRNA | 1097 |
| region is 938 bp upstr | MER1B (+) | DNA | 938 |
| region is 938 bp upstr | MER1B (+) | DNA | 938 |
| region is 665 bp upstr | MER5A (+) | DNA | 665 |
| region is 1054 bp down | AluSx (+) | SINE | 1054 |
| region is 483 bp upstr | MIR3 (+) | SINE | 483 |
| region is 976 bp down | MIRc (+) | SINE | 976 |
| region is 976 bp down | MIRc (+) | SINE | 976 |
| region is 197 bp down | MIRb (+) | SINE | 197 |
| region is 414 bp down | (TA)n (+) | Simple_repeat | 414 |
| region is 805 bp down | AluSx3 (+) | SINE | 805 |
| region is 810 bp down | AluSx3 (+) | SINE | 810 |
| region is 9816 bp down | MIRb (-) | SINE | 9816 |
| region is 8664 bp down | MIRb (-) | SINE | 8664 |
| region is 502 bp upstr | L1MD2 (+) | LINE | 502 |
| region is 186 bp upstr | L2b (-) | LINE | 186 |
| region is 49 bp upstr | C-rich (+) | Low_complexity | 49 |
| region is 351 bp upstr | MIRc (-) | SINE | 351 |
| region is 874 bp down | AluSx4 (-) | SINE | 874 |
| region is 123 bp down | AT_rich (+) | Low_complexity | 123 |
| region is 250 bp down | L2b (+) | LINE | 250 |
| region is 456 bp down | AluY (-) | SINE | 456 |
| region is 176 bp upstr | (CAG)n (+) | Simple_repeat | 176 |
| region is 1509 bp down | AT_rich (+) | Low_complexity | 1509 |
| region is 1546 bp down | AT_rich (+) | Low_complexity | 1546 |
| region is 510 bp down | C-rich (+) | Low_complexity | 510 |
| region is 510 bp down | C-rich (+) | Low_complexity | 510 |
| region is 613 bp upstr | L1M5 (+) | LINE | 613 |
| region is 958 bp down | MIRb (-) | SINE | 958 |
| region is 558 bp down | Charlie4z (-) | DNA | 558 |
| region is 359 bp down | AT_rich (+) | Low_complexity | 359 |
| region is 791 bp down | AT_rich (+) | Low_complexity | 791 |
| region is 972 bp upstr | MER81 (+) | DNA | 972 |
| region is 458 bp down | MER11A (-) | DNA | 458 |
| region is 458 bp down | MER11A (-) | DNA | 458 |
| region is 454 bp upstr | MER5A1 (+) | DNA | 454 |
| region is 412 bp down | L2a (+) | LINE | 412 |
| region is 929 bp upstr | (A)n (+) | Simple_repeat | 929 |
| region is 464 bp down | AluSx4 (-) | SINE | 464 |
| region is 399 bp down | MIR (+) | SINE | 399 |
| region is 363 bp down | (T)n (+) | Simple_repeat | 363 |
| region is 507 bp down | (T)n (+) | Simple_repeat | 507 |
| region is 739 bp down | FLAM_C (-) | SINE | 739 |
| region is 221 bp down | GC_rich (+) | Low_complexity | 221 |
| region is 368 bp down | AluJo (-) | SINE | 368 |
| region is 132 bp down | (T)n (+) | Simple_repeat | 132 |
| region is 387 bp down | AluYa5 (-) | SINE | 387 |
| region is 772 bp down | MIRc (-) | SINE | 772 |
| region is 310 bp down | L1M5 (-) | LINE | 310 |
| region is 240 bp down | L4 (-) | LTR | 240 |

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|---------------|----------------------------------|-----------------|--------|
| FR048796 | intron of SUDS3 (+) | SUDS3 (+) | 0 |
| FR127343 | contained within UNC119B (+) | UNC119B (+) | 0 |
| FR123582 | contained within UNC119B (+) | UNC119B (+) | 0 |
| FR016000 | contained within UNC119B (+) | UNC119B (+) | 0 |
| FR208892 | contained within VPS37B (-) | VPS37B (-) | 0 |
| FR246461 | region is 24367 bp up | MIU2 (-) | 24367 |
| FR318724 | region is 200555 bp d | BASP1P1 (-) | 200555 |
| FR372499 | contained within WASF3 (+) | WASF3 (+) | 0 |
| FR155758 | contained within TSC22D1 (-) | TSC22D1 (-) | 0 |
| FR326119 | contained within SNORA31 (-) | SNORA31 (-) | 0 |
| FR357791.1 | intron of ATP7B (-) | ATP7B (-) | 0 |
| FR027884 | contained within MIR18A (+) | MIR18A (+) | 0 |
| FR135042 | contained within MIR18A (+) | MIR18A (+) | 0 |
| FR262980 | contained within MIR18A (+) | MIR18A (+) | 0 |
| FR042730 | contained within POTEM (-) | POTEM (-) | 0 |
| FR319444 | intron of CHD8 (-), re | SNORD9 (-) | 0 |
| FR143879 | contained within SNORD8 (-) | SNORD8 (-) | 0 |
| FR283482 | region is 1593 bp do | MMP14 (+) | 1593 |
| FR134850 | contained within PPP1R3E (-) | PPP1R3E (-) | 0 |
| FR227926 | contained within DNAF2 (-) | DNAF2 (-) | 0 |
| FR056860 | contained within PNMA1 (-) | PNMA1 (-) | 0 |
| FR029743 | contained within GSTZ1 (+) | GSTZ1 (+) | 0 |
| FR162794 | region is 16305 bp d | CKNK10 (-) | 16305 |
| FR202470 | region is 16305 bp d | CKNK10 (-) | 16305 |
| FR344447 | region is 16299 bp d | CKNK10 (-) | 16299 |
| FR052968 | intron of MEG8 (+) | MEG8 (+) | 0 |
| FR309811 | intron of MEG8 (+) | MEG8 (+) | 0 |
| FR060041 | region is 2508 bp do | SNORD113-2 (+) | 2508 |
| FR353474 | region is 2508 bp do | SNORD113-2 (+) | 2508 |
| FR184142 | region is 2165 bp up | SNORD113-9 (+) | 2165 |
| FR298757 | region is 2166 bp up | SNORD113-9 (+) | 2166 |
| FR015426 | region is 2165 bp up | SNORD113-9 (+) | 2165 |
| FR071598 | region is 2165 bp up | SNORD113-9 (+) | 2165 |
| FR118379 | contained within SNORD113-9 (+) | SNORD113-9 (+) | 0 |
| FR028698 | contained within SNORD114-1 (+) | SNORD114-1 (+) | 0 |
| FR004819 | contained within SNORD114-1 (+) | SNORD114-1 (+) | 0 |
| FR301191 | contained within SNORD114-1 (+) | SNORD114-1 (+) | 0 |
| FR267761 | contained within SNORD114-3 (+) | SNORD114-3 (+) | 0 |
| FR007639 | contained within SNORD114-22 (+) | SNORD114-22 (+) | 0 |
| FR245310 | contained within SNORD114-23 (+) | SNORD114-23 (+) | 0 |
| FR249679 | intron of EIF5 (+), reg | SNORA28 (+) | 0 |
| FR165524 | contained within GOLGA8CP (+) | GOLGA8CP (+) | 0 |
| FR165524_dup1 | contained within GOLGA8DP (-) | GOLGA8DP (-) | 0 |
| FR165524_dup4 | contained within GOLGA8S (+) | GOLGA8S (+) | 0 |
| FR019019 | contained within SNORD107 (+) | SNORD107 (+) | 0 |
| FR233520.1 | intron of HERC2 (-) | HERC2 (-) | 0 |
| FR165524_dup7 | contained within GOLGA8F (-) | GOLGA8F (-) | 0 |
| FR165524_dup8 | contained within GOLGA8F (-) | GOLGA8F (-) | 0 |
| FR111929 | contained within BMF (-) | BMF (-) | 0 |
| FR079998 | contained within SERF2 (+) | SERF2 (+) | 0 |
| FR267209 | intron of CYP19A1 (-) | CYP19A1 (-) | 0 |
| FR324253 | intron of CYP19A1 (-) | CYP19A1 (-) | 0 |

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|-------------------------|-------------|--------|
| region is 5 bp from | COSM3811176 | 5 |
| region is 380 bp from | COSM1316993 | 380 |
| region is 1317 bp from | COSM1316993 | 1317 |
| region is 2418 bp from | COSM3356289 | 2418 |
| region is 890 bp from | COSM3688016 | 890 |
| region is 25 bp from | COSM1322937 | 25 |
| region is 1713 bp from | COSM175524 | 507226 |
| region is 1335 bp from | COSM432255 | 1335 |
| region is 36 bp from | COSM1158201 | 36 |
| region is 1086 bp from | COSM3793304 | 1086 |
| region is 1713 bp from | COSM1140403 | 1713 |
| region is 48265 bp from | COSM948883 | 48265 |
| region is 48264 bp from | COSM948883 | 48264 |
| region is 48267 bp from | COSM948883 | 48267 |
| region is 2137 bp from | COSM1587271 | 2137 |
| region is 254 bp from | COSM1649097 | 254 |
| region is 421 bp from | COSM352513 | 421 |
| region is 3208 bp from | COSM131157 | 3208 |
| region is 805 bp from | COSM1607516 | 805 |
| region is 30 bp from | COSM3793712 | 30 |
| region is 168 bp from | COSM1678120 | 168 |
| region is 539 bp from | COSM3754126 | 539 |
| region is 21743 bp from | COSM1707658 | 21743 |
| region is 21743 bp from | COSM1707658 | 21743 |
| region is 21737 bp from | COSM1707658 | 21737 |
| region is 4902 bp from | COSM4147820 | 4902 |
| region is 4902 bp from | COSM4147820 | 4902 |
| region is 36901 bp from | COSM4147820 | 36901 |
| region is 36901 bp from | COSM4147820 | 36901 |
| region is 50433 bp from | COSM4147820 | 50433 |
| region is 50433 bp from | COSM4147820 | 50433 |
| region is 50434 bp from | COSM4147820 | 50434 |
| region is 50434 bp from | COSM4147820 | 50434 |
| region is 52632 bp from | COSM4147820 | 52632 |
| region is 56815 bp from | COSM4147820 | 56815 |
| region is 56850 bp from | COSM4147820 | 56850 |
| region is 56852 bp from | COSM4147820 | 56852 |
| region is 60331 bp from | COSM4147820 | 60331 |
| region is 89908 bp from | COSM4147820 | 89908 |
| region is 90893 bp from | COSM4147820 | 90893 |
| region is 482 bp from | COSM3419646 | 482 |
| region is 8373 bp from | COSM3401625 | 8373 |
| region is 26962 bp from | COSM1477935 | 26962 |
| region is 105 bp from | COSM1587769 | 105 |
| region is 3574 bp from | COSM226306 | 3574 |
| region is 162 bp from | COSM1608222 | 162 |
| region is 1828 bp from | COSM2083625 | 1828 |
| region is 1828 bp from | COSM2083625 | 1828 |
| region is 3290 bp from | COSM279179 | 3290 |
| region is 14 bp from | COSM341042 | 14 |
| region is 44171 bp from | COSM701072 | 44171 |
| region is 46311 bp from | COSM701072 | 46311 |

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|------------------------|----------------|----------------|------|
| region is 392 bp upst | MIRb (+) | SINE | 392 |
| region is 2241 bp upst | AluY (-) | SINE | 2241 |
| region is 2520 bp do | AluSq2 (-) | SINE | 2520 |
| region is 393 bp do | AluSq2 (-) | SINE | 393 |
| region is 1696 bp upst | L4 (-) | LTR | 1696 |
| region is 182 bp upst | HAL1 (-) | LINE | 182 |
| region is 117 bp upst | (CGG)n (+) | Simple_repeat | 117 |
| region is 1763 bp upst | MER3 (-) | DNA | 1763 |
| region is 615 bp upst | GC_rich (+) | Low_complexity | 615 |
| region is 523 bp do | AluSx1 (-) | SINE | 523 |
| region is 401 bp upst | MIR (-) | SINE | 401 |
| region is 1737 bp do | GC_rich (+) | Low_complexity | 1737 |
| region is 1737 bp do | GC_rich (+) | Low_complexity | 1737 |
| region is 1737 bp do | GC_rich (+) | Low_complexity | 1737 |
| region is 1701 bp upst | L1PA12 (-) | LINE | 1701 |
| region is 851 bp upst | MIRc (-) | SINE | 851 |
| region is 496 bp upst | AluSx3 (-) | SINE | 496 |
| region overlaps with | AT_rich (+) | Low_complexity | 0 |
| region is 89 bp upst | GC_rich (+) | Low_complexity | 89 |
| region is 111 bp do | GC_rich (+) | Low_complexity | 111 |
| region is 134 bp upst | MamGyp-int (-) | LTR | 134 |
| region is 109 bp do | (CGGG)n (+) | Simple_repeat | 109 |
| region is 119 bp upst | L2a (+) | LINE | 119 |
| region is 119 bp upst | L2a (+) | LINE | 119 |
| region is 113 bp upst | L2a (+) | LINE | 113 |
| contained within L1M1 | L1ME5 (+) | LINE | 0 |
| contained within L1M1 | L1ME5 (+) | LINE | 0 |
| contained within L1M1 | L1ME5 (+) | LINE | 0 |
| contained within L1M1 | L1ME5 (+) | LINE | 0 |
| contained within L1M1 | L1ME5 (+) | LINE | 0 |
| contained within L1M1 | L1ME5 (+) | LINE | 0 |
| contained within L1M1 | L1ME5 (+) | LINE | 0 |
| contained within L1M1 | L1ME5 (+) | LINE | 0 |
| region is 297 bp upst | MER3 (-) | DNA | 297 |
| region is 751 bp upst | AT_rich (+) | Low_complexity | 751 |
| region is 716 bp upst | AT_rich (+) | Low_complexity | 716 |
| region is 717 bp upst | AT_rich (+) | Low_complexity | 717 |
| region is 4 bp downst | AluSx (+) | SINE | 4 |
| region is 2111 bp do | AluSx1 (-) | SINE | 2111 |
| region is 1127 bp do | AluSx1 (-) | SINE | 1127 |
| region is 109 bp upst | Kanga1a (-) | DNA | 109 |
| region is 267 bp upst | (CA)n (+) | Simple_repeat | 267 |
| region is 267 bp upst | (TG)n (+) | Simple_repeat | 267 |
| region is 267 bp do | (CA)n (+) | Simple_repeat | 267 |
| region is 428 bp upst | AluSx (-) | SINE | 428 |
| region is 120 bp upst | AluSx3 (+) | SINE | 120 |
| region is 266 bp upst | (TG)n (+) | Simple_repeat | 266 |
| region is 266 bp upst | (TG)n (+) | Simple_repeat | 266 |
| region is 848 bp upst | MIRb (-) | SINE | 848 |
| region is 1476 bp upst | AluSx3 (-) | SINE | 1476 |
| region is 927 bp upst | L2c (+) | LINE | 927 |
| region is 882 bp upst | L2c (+) | LINE | 882 |

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|----------------|------------------------------|------------------|--------|
| FR338565.1 | region is 157441 bp down | ONECUT1 (-) | 157441 |
| FR395322 | region is 57684 bp up | C2CD4B (-) | 57684 |
| FR148815 | region is 63847 bp down | MIR8067 (-) | 63847 |
| FR109932 | region is 54247 bp down | MIR8067 (-) | 54247 |
| FR070884 | region is 54003 bp down | MIR8067 (-) | 54003 |
| FR121747 | region is 54004 bp down | MIR8067 (-) | 54004 |
| FR389121 | region is 46890 bp down | MIR8067 (-) | 46890 |
| FR293713 | contained within SNORD16 (-) | | 0 |
| FR123248 | contained within MESDC1 (+) | | 0 |
| FR376350 | intron of GOLGA6L1 | UBE2Q2P2 (+) | 0 |
| FR232277 | intron of GOLGA6L1 | GOLGA6L10 (-) | 0 |
| FR232277_dup1 | intron of GOLGA6L1 | GOLGA6L9 (+) | 0 |
| FR232277_dup2 | intron of GOLGA6L1 | GOLGA6L9 (+) | 0 |
| FR232277_dup3 | intron of GOLGA6L1 | GOLGA6L9 (+) | 0 |
| FR376350_dup1 | intron of GOLGA6L1 | UBE2Q2P2 (+) | 0 |
| FR232277_dup4 | intron of GOLGA6L1 | GOLGA6L17P (+) | 0 |
| FR145670_dup2 | contained within GOLG | LOC727751 (-) | 0 |
| FR327232 | contained within FSC | SCARNA15 (+) | 0 |
| FR232277_dup5 | intron of LOC440300 | LOC440300 (+) | 0 |
| FR145670_dup3 | contained within GOLG | GOLGA2P7 (-) | 0 |
| FR232277_dup6 | region is 21238 bp up | LOC103171574 (+) | 21238 |
| FR232277_dup7 | region is 2137 bp down | LOC642423 (-) | 2137 |
| FR145670_dup5 | region is 628 bp down | LOC642423 (-) | 628 |
| FR357791.2 | intron of AKAP13 (+) | AKAP13 (+) | 0 |
| FR221589 | contained within FAN | POLG (-) | 0 |
| FR196011 | contained within FAN | POLG (-) | 0 |
| FR270038 | contained within LIN | LINC00930 (-) | 0 |
| FR161697 | region is 8077 bp up | LINC00930 (-) | 8077 |
| FR207571 | region is 326417 bp up | RGMA (-) | 326417 |
| FR323470 | intron of SPATA8-AS | SPATA8-AS1 (-) | 0 |
| FR102859 | intron of SPATA8-AS | SPATA8-AS1 (-) | 0 |
| FR004109 | contained within IGF | IGF1R (+) | 0 |
| FR106433 | contained within SYN | SYNM (+) | 0 |
| FR371811 | contained within DN | DNM1P46 (-) | 0 |
| FR046594 | contained within DN | DNM1P46 (-) | 0 |
| FR021331_dup16 | region is 32356 bp up | TARSL2 (-) | 32356 |
| FR021331_dup12 | region is 36624 bp up | TARSL2 (-) | 36624 |
| FR021331_dup9 | region is 37494 bp up | TARSL2 (-) | 37494 |
| FR191737_dup9 | region is 37496 bp up | TARSL2 (-) | 37496 |
| FR027151 | region is 388 bp up | C16orf13 (-) | 388 |
| FR319465 | region is 408 bp up | C16orf13 (-) | 408 |
| FR089006 | region is 411 bp up | C16orf13 (-) | 411 |
| FR106521 | region is 412 bp up | C16orf13 (-) | 412 |
| FR348209 | region is 412 bp up | C16orf13 (-) | 412 |
| FR167602 | contained within PDP | PDPK1 (+) | 0 |
| FR389105 | contained within PDP | PDPK1 (+) | 0 |
| FR243247 | contained within PDP | PDPK1 (+) | 0 |
| FR389105_dup1 | region is 2817 bp up | KCTD5 (+) | 2817 |
| FR243247_dup1 | region is 1738 bp up | KCTD5 (+) | 1738 |
| FR341404 | contained within UBN | UBN1 (+) | 0 |
| FR003837_dup3 | contained within LOC | PKD1P6 (-) | 0 |
| FR003837_dup4 | contained within NPI | NPIPA5 (-) | 0 |

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|--------------------------|-------------|--------|
| region is 148544 bp from | COSM1218448 | 148544 |
| region is 24325 bp from | COSM86506 | 24325 |
| region is 65817 bp from | COSM86506 | 65817 |
| region is 3057 bp from | COSM86506 | 3057 |
| region is 3302 bp from | COSM86506 | 3302 |
| region is 3302 bp from | COSM86506 | 3302 |
| region is 10417 bp from | COSM86506 | 10417 |
| region is 68 bp from | COSM194143 | 68 |
| region is 427 bp from | COSM3754503 | 427 |
| region is 23457 bp from | COSM2152248 | 23457 |
| region is 34169 bp from | COSM3932180 | 34169 |
| region is 36386 bp from | COSM3999635 | 36386 |
| region is 36386 bp from | COSM3999635 | 36386 |
| region is 36386 bp from | COSM3999635 | 36386 |
| region is 25997 bp from | COSM3401960 | 25997 |
| region is 35622 bp from | COSM1600347 | 35622 |
| region is 37132 bp from | COSM1600347 | 37132 |
| region is 3330 bp from | COSM3706768 | 3330 |
| region is 42068 bp from | COSM4128490 | 42068 |
| region is 40564 bp from | COSM4128490 | 40564 |
| region is 46092 bp from | COSM4128493 | 46092 |
| region is 65893 bp from | COSM87727 | 65893 |
| region is 67403 bp from | COSM87727 | 67403 |
| region is 70491 bp from | COSM309019 | 70491 |
| region is 73 bp from | COSM2149526 | 73 |
| region is 74 bp from | COSM2149526 | 74 |
| region is 58359 bp from | COSM1206192 | 58359 |
| region is 49850 bp from | COSM1206192 | 49850 |
| region is 209374 bp from | COSM3771935 | 209374 |
| region is 9572 bp from | COSM1518243 | 9572 |
| region is 3824 bp from | COSM1518243 | 3824 |
| region is 4999 bp from | COSM1254644 | 4999 |
| region is 930 bp from | COSM223817 | 930 |
| region is 184 bp from | COSM959503 | 184 |
| region is 185 bp from | COSM959503 | 185 |
| region is 3994 bp from | COSM470436 | 3994 |
| region is 8262 bp from | COSM470436 | 8262 |
| region is 9132 bp from | COSM470436 | 9132 |
| region is 9134 bp from | COSM470436 | 9134 |
| region is 587 bp from | COSM1324377 | 587 |
| region is 607 bp from | COSM1324377 | 607 |
| region is 610 bp from | COSM1324377 | 610 |
| region is 611 bp from | COSM1324377 | 611 |
| region is 611 bp from | COSM1324377 | 611 |
| region is 1968 bp from | COSM3957387 | 1968 |
| region is 3473 bp from | COSM3957387 | 3473 |
| region is 4550 bp from | COSM3957387 | 4550 |
| region is 2976 bp from | COSM3772175 | 2976 |
| region is 1897 bp from | COSM3772175 | 1897 |
| region is 22 bp from | COSM3754909 | 22 |
| region is 33 bp from | COSM3944377 | 33 |
| COSM1135762, COSM | COSM1135763 | 0 |

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|------------------------|----------------|----------------|------|
| region is 594 bp up | MIRb (+) | SINE | 594 |
| region is 788 bp up | AluSq (+) | SINE | 788 |
| region is 1556 bp up | AT_rich (+) | Low_complexity | 1556 |
| region is 241 bp up | MIRc (-) | SINE | 241 |
| region is 486 bp up | MIRc (-) | SINE | 486 |
| region is 486 bp up | MIRc (-) | SINE | 486 |
| region is 39 bp down | MIR3 (-) | SINE | 39 |
| region is 223 bp up | L1MA4 (-) | LINE | 223 |
| region is 65 bp up | GC_rich (+) | Low_complexity | 65 |
| region is 492 bp down | Charlie19a (-) | DNA | 492 |
| region is 107 bp up | (CAGGG)n (+) | Simple_repeat | 107 |
| region is 107 bp down | (CCCTG)n (+) | Simple_repeat | 107 |
| region is 107 bp down | (CCCTG)n (+) | Simple_repeat | 107 |
| region is 107 bp down | (CCCTG)n (+) | Simple_repeat | 107 |
| region is 493 bp down | Charlie19a (-) | DNA | 493 |
| region is 107 bp up | (CAGGG)n (+) | Simple_repeat | 107 |
| region overlaps with | MIR3 (+) | SINE | 0 |
| region is 428 bp down | AT_rich (+) | Low_complexity | 428 |
| region is 815 bp down | MIRc (-) | SINE | 815 |
| region is 155 bp down | AluJb (+) | SINE | 155 |
| region is 572 bp up | L2c (+) | LINE | 572 |
| region is 107 bp up | (CAGGG)n (+) | Simple_repeat | 107 |
| region overlaps with | MIR3 (+) | SINE | 0 |
| region is 698 bp down | L2c (-) | LINE | 698 |
| region is 1422 bp up | AluJr (-) | SINE | 1422 |
| region is 1423 bp up | AluJr (-) | SINE | 1423 |
| region is 240 bp down | L2 (+) | LINE | 240 |
| region is 784 bp down | L2b (+) | LINE | 784 |
| region is 982 bp up | LTR1 (-) | LTR | 982 |
| region is 139 bp up | AT_rich (+) | Low_complexity | 139 |
| region is 1541 bp up | L2c (+) | LINE | 1541 |
| region is 2130 bp down | (TTTGT)n (+) | Simple_repeat | 2130 |
| region is 1909 bp down | MER81 (-) | DNA | 1909 |
| region is 432 bp down | 7SLRNA (+) | srpRNA | 432 |
| region is 433 bp down | 7SLRNA (+) | srpRNA | 433 |
| region is 4622 bp down | AluJo (+) | SINE | 4622 |
| region is 5225 bp up | (CTCTG)n (+) | Simple_repeat | 5225 |
| region is 4355 bp up | (CTCTG)n (+) | Simple_repeat | 4355 |
| region is 4353 bp up | (CTCTG)n (+) | Simple_repeat | 4353 |
| region is 360 bp up | (CGGGG)n (+) | Simple_repeat | 360 |
| region is 335 bp up | (CGGGG)n (+) | Simple_repeat | 335 |
| region is 334 bp up | (CGGGG)n (+) | Simple_repeat | 334 |
| region is 335 bp up | (CGGGG)n (+) | Simple_repeat | 335 |
| region is 334 bp up | (CGGGG)n (+) | Simple_repeat | 334 |
| region is 1026 bp down | L1ME4a (-) | LINE | 1026 |
| region is 61 bp up | L1ME4a (-) | LINE | 61 |
| region is 1138 bp up | L1ME4a (-) | LINE | 1138 |
| region is 61 bp up | L1ME4a (-) | LINE | 61 |
| region is 560 bp down | AluSg7 (-) | SINE | 560 |
| region is 663 bp down | FAM (+) | SINE | 663 |
| region is 61 bp up | AluSg7 (+) | SINE | 61 |
| region is 61 bp up | AluSg7 (+) | SINE | 61 |

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|----------------|----------------------|---------------|--------|
| FR003837_dup8 | contained within NPI | NPIPA8 (-) | 0 |
| FR003837_dup7 | region is 14751 bp d | MIR6770-2 (-) | 14751 |
| FR003837_dup9 | contained within NPI | NPIPB3 (-) | 0 |
| FR003837_dup10 | region is 24555 bp u | RRN3P1 (-) | 24555 |
| FR073001.2 | region is 65660 bp d | C16orf82 (+) | 65660 |
| FR055135 | contained within EIF | EIF3C (-) | 0 |
| FR055135_dup1 | contained within EIF | EIF3CL (+) | 0 |
| FR003837_dup13 | region is 25225 bp d | SNX29P2 (+) | 25225 |
| FR003837_dup14 | region is 24232 bp u | LOC613038 (-) | 24232 |
| FR258764 | contained within MA | MAZ (+) | 0 |
| FR258764_dup1 | contained within MA | MAZ (+) | 0 |
| FR242750 | contained within MA | MAZ (+) | 0 |
| FR127556 | region is 141 bp up | KCTD13 (-) | 141 |
| FR003837_dup15 | contained within LOC | LOC613037 (-) | 0 |
| FR314551 | contained within CD | CD2BP2 (-) | 0 |
| FR156205 | region is 2429 bp d | PRR14 (+) | 2429 |
| FR293228 | contained within CM | MTM4 (-) | 0 |
| FR309048 | contained within HA | HAS3 (+) | 0 |
| FR066386 | region is 959 bp d | VPS4A (+) | 959 |
| FR255141 | contained within SN | SNORD71 (-) | 0 |
| FR071609 | contained within IST | IST1 (+) | 0 |
| FR087630 | contained within KA | KARS (-) | 0 |
| FR003121 | region is 41715 bp u | CNTNAP4 (+) | 41715 |
| FR341694 | contained within SN | SNORD68 (+) | 0 |
| FR384374 | contained within FA | NFANCA (-) | 0 |
| FR154596 | contained within SM | SMYD4 (-) | 0 |
| FR363585 | contained within HIC | HIC1 (+) | 0 |
| FR359148 | contained within SN | SNORD91A (-) | 0 |
| FR321895 | contained within SN | SNORD91A (-) | 0 |
| FR126778 | contained within CY | CYB5D2 (+) | 0 |
| FR095339 | intron of USP6 (+) | USP6 (+) | 0 |
| FR401591 | contained within EL | ELP5 (+) | 0 |
| FR092448 | contained within EL | ELP5 (+) | 0 |
| FR068891 | contained within MIR | MIR744 (+) | 0 |
| FR091055 | contained within MIR | MIR744 (+) | 0 |
| FR167222 | region is 325477 bp | CDRT7 (+) | 325477 |
| FR008939 | intron of FLII (-) | FLII (-) | 0 |
| FR095339_dup1 | region is 8670 bp d | EVPLL (+) | 8670 |
| FR210393 | contained within SPE | SPECC1 (+) | 0 |
| FR095339_dup2 | region is 33598 bp u | CDRT15L2 (+) | 33598 |
| FR369781_dup2 | contained within CC | LOC440416 (+) | 0 |
| FR227782.1 | region is 974 bp up | MTRNR2L1 (+) | 974 |
| FR398935_dup1 | region is 7913 bp d | KRT18P55 (-) | 7913 |
| FR016773 | contained within SN | SNORD42B (+) | 0 |
| FR248000 | contained within SN | SNORD4A (+) | 0 |
| FR108660 | contained within GT | GIT1 (-) | 0 |
| FR233520.2 | region is 58408 bp d | DPRXP4 (+) | 58408 |
| FR095339_dup4 | region is 24695 bp d | CCL3L3 (-) | 24695 |
| FR095339_dup6 | region is 24695 bp d | CCL3L3 (-) | 24695 |
| FR095339_dup7 | region is 24695 bp d | CCL3L3 (-) | 24695 |
| FR095339_dup3 | intron of LOC101060 | TBC1D3F (-) | 0 |
| FR095339_dup5 | intron of LOC101060 | TBC1D3F (-) | 0 |

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|-----------------------|-------------|--------|
| region is 93376 bp fr | COSM1733682 | 93376 |
| region is 53240 bp fr | COSM1733682 | 53240 |
| region is 6323 bp fr | COSM1723200 | 6323 |
| region is 196 bp fr | COSM434877 | 196 |
| region is 69250 bp fr | COSM3817639 | 69250 |
| region is 1473 bp fr | COSM1470851 | 1473 |
| region is 27 bp fr | COSM3361711 | 27 |
| COSM1588376, COS | COSM1588377 | 0 |
| region is 4615 bp fr | COSM132799 | 4615 |
| COSM1147662, COS | COSM120942 | 0 |
| COSM1147662, COS | COSM120942 | 0 |
| COSM1478766, COS | COSM435073 | 0 |
| region is 423 bp fr | COSM1478776 | 423 |
| region is 6367 bp fr | COSM1318597 | 6367 |
| region is 308 bp fr | COSM3948464 | 308 |
| region is 696 bp fr | COSM4128984 | 696 |
| region is 1145 bp fr | COSM1629949 | 1145 |
| COSM266655, COS | COSM460482 | 0 |
| region is 1702 bp fr | COSM435623 | 1702 |
| region is 379 bp fr | COSM435724 | 379 |
| region is 8 bp fr | COSM3701120 | 8 |
| COSM1141004, COS | COSM1520018 | 0 |
| region is 42112 bp fr | COSM1201709 | 42112 |
| region is 91 bp fr | COSM137077 | 91 |
| COSM3818742, COS | COSM3818743 | 0 |
| region is 719 bp fr | COSM116351 | 719 |
| region is 8 bp fr | COSM1381412 | 8 |
| region is 210 bp fr | COSM3421345 | 210 |
| region is 210 bp fr | COSM3421345 | 210 |
| region is 10 bp fr | COSM4130092 | 10 |
| region is 170 bp fr | COSM1384525 | 170 |
| COSM1246582, COS | COSM1246583 | 0 |
| COSM1246582, COS | COSM1246583 | 0 |
| contained within CO | COSM26115 | 0 |
| region is 64693 bp fr | COSM975680 | 64693 |
| region is 152 bp fr | COSM436155 | 152 |
| region is 10074 bp fr | COSM160848 | 10074 |
| COSM3755332, COS | COSM3755332 | 0 |
| region is 33626 bp fr | COSM4129690 | 33626 |
| region is 109 bp fr | COSM1247468 | 109 |
| region is 195163 bp f | COSM436192 | 195163 |
| region is 51173 bp fr | COSM129789 | 51173 |
| region is 92 bp fr | COSM3356897 | 92 |
| region is 87 bp fr | COSM977000 | 87 |
| region is 26 bp fr | COSM118923 | 26 |
| region is 35232 bp fr | COSM3819228 | 35232 |
| region is 209 bp fr | COSM436421 | 209 |
| region is 209 bp fr | COSM436421 | 209 |
| region is 209 bp fr | COSM436421 | 209 |
| region is 346 bp fr | COSM328391 | 346 |
| region is 346 bp fr | COSM328391 | 346 |

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|-------------------------|---------------------|----------------|------|
| region is 61 bp upstr | AluSg7 (+) | SINE | 61 |
| region is 61 bp upstr | AluSg7 (+) | SINE | 61 |
| region is 61 bp upstr | AluSg7 (+) | SINE | 61 |
| region is 61 bp upstr | AluSg7 (+) | SINE | 61 |
| region is 190 bp upstr | AluSg2 (-) | SINE | 190 |
| region is 171 bp dow | MER5A (+) | DNA | 171 |
| region is 194 bp dow | MER5A (-) | DNA | 194 |
| region is 61 bp upstr | AluSg7 (+) | SINE | 61 |
| region is 61 bp upstr | AluSg7 (+) | SINE | 61 |
| region is 365 bp dow | (CCG)n (+) | Simple_repeat | 365 |
| region is 365 bp dow | (CCG)n (+) | Simple_repeat | 365 |
| region is 913 bp dow | (CCG)n (+) | Simple_repeat | 913 |
| region is 204 bp upstr | FRAM (+) | SINE | 204 |
| region is 61 bp upstr | AluSg7 (+) | SINE | 61 |
| region is 505 bp dow | L2c (+) | LINE | 505 |
| region is 362 bp dow | G-rich (+) | Low_complexity | 362 |
| region is 4126 bp upstr | Helitron3Na_Mam (+) | RC | 4126 |
| region is 1832 bp upstr | G-rich (+) | Low_complexity | 1832 |
| region is 60 bp dow | MER102b (+) | DNA | 60 |
| region is 372 bp dow | MIRc (+) | SINE | 372 |
| region is 175 bp upstr | MIR (+) | SINE | 175 |
| region is 134 bp dow | AluSp (-) | SINE | 134 |
| region is 128 bp upstr | C-rich (+) | Low_complexity | 128 |
| region is 545 bp dow | GC_rich (+) | Low_complexity | 545 |
| region is 265 bp dow | AluSg (+) | SINE | 265 |
| region is 32 bp dow | AluY (-) | SINE | 32 |
| region is 345 bp upstr | (CCG)n (+) | Simple_repeat | 345 |
| region is 66 bp upstr | AluSp (-) | SINE | 66 |
| region is 67 bp upstr | AluSp (-) | SINE | 67 |
| region is 355 bp dow | L2b (-) | LINE | 355 |
| region is 611 bp dow | L1MC3 (+) | LINE | 611 |
| region is 483 bp upstr | L2b (+) | LINE | 483 |
| region is 483 bp upstr | L2b (+) | LINE | 483 |
| region is 1011 bp upstr | MER5B (-) | DNA | 1011 |
| region is 1011 bp upstr | MER5B (-) | DNA | 1011 |
| region is 338 bp dow | L1MC5 (-) | LINE | 338 |
| region is 42 bp dow | MIR (+) | SINE | 42 |
| region is 632 bp dow | L1MC3 (+) | LINE | 632 |
| region is 1030 bp upstr | MER5B (-) | DNA | 1030 |
| region is 632 bp dow | L1MC3 (-) | LINE | 632 |
| region is 697 bp upstr | AluSz (+) | SINE | 697 |
| region is 1882 bp upstr | LSU-rRNA_Hsa (+) | rRNA | 1882 |
| region is 129 bp dow | HERV-Fc1_LTR1 (+) | LTR | 129 |
| region is 456 bp upstr | AluSp (+) | SINE | 456 |
| region is 144 bp upstr | AluSc (-) | SINE | 144 |
| region is 2057 bp upstr | L2b (+) | LINE | 2057 |
| region is 128 bp dow | AT_rich (+) | Low_complexity | 128 |
| region is 773 bp dow | L1MC3 (-) | LINE | 773 |
| region is 773 bp dow | L1MC3 (-) | LINE | 773 |
| region is 773 bp dow | L1MC3 (-) | LINE | 773 |
| region is 630 bp dow | L1MD3 (-) | LINE | 630 |
| region is 630 bp dow | L1MD3 (-) | LINE | 630 |

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|----------------|-----------------------|------------------|-------|
| FR095339_dup9 | intron of LOC101060 | TBC1D3F (-) | 0 |
| FR095339_dup8 | intron of TBC1D3B | (- TBC1D3B (-) | 0 |
| FR095339_dup10 | intron of LOC101060 | LOC102723859 (+) | 0 |
| FR095339_dup11 | intron of LOC101060 | LOC102723859 (+) | 0 |
| FR095339_dup12 | intron of LOC101060 | TBC1D3F (-) | 0 |
| FR095339_dup13 | intron of LOC101060 | TBC1D3F (-) | 0 |
| FR159523 | region is 378 bp upst | SOCST7 (+) | 378 |
| FR332156 | contained within SN | SNORA21 (-) | 0 |
| FR086093.1 | region is 2457 bp up | SNORA21 (-) | 2457 |
| FR083318 | contained within TM | TMEM99 (+) | 0 |
| FR083863 | contained within TM | TMEM99 (+) | 0 |
| FR172647 | contained within FAM | TUBG1 (+) | 0 |
| FR049269 | contained within ATX | ATXN7L3 (-) | 0 |
| FR250713 | region is 14399 bp d | LOC644172 (+) | 14399 |
| FR246461.1 | intron of NSF (+) | NSF (+) | 0 |
| FR377799 | contained within CO | COL1A1 (-) | 0 |
| FR106597 | contained within LRR | LRRRC59 (-) | 0 |
| FR166990 | contained within LRR | LRRRC59 (-) | 0 |
| FR279668 | contained within SRS | SRSF1 (-) | 0 |
| FR095339_dup14 | intron of TBC1D3P1 | TBC1D3P1-DHX40P1 | 0 |
| FR095339_dup15 | intron of TBC1D3P2 | (TBC1D3P2 (-) | 0 |
| FR309588 | contained within DC | DCAF7 (+) | 0 |
| FR246220_dup1 | contained within LRR | LRRRC37A3 (-) | 0 |
| FR251847 | contained within LIN | LINC00674 (+) | 0 |
| FR251847_dup1 | contained within LIN | LINC00674 (+) | 0 |
| FR252722 | contained within LIN | LINC00674 (+) | 0 |
| FR252722_dup1 | contained within LIN | LINC00674 (+) | 0 |
| FR131044 | contained within SN | SNORD1B (+) | 0 |
| FR114004 | contained within SN | SNORD1B (+) | 0 |
| FR132358 | contained within SN | SNORD1A (+) | 0 |
| FR321576 | contained within PGS | PGS1 (+) | 0 |
| FR295879 | contained within RNF | RNF213 (+) | 0 |
| FR290641 | contained within RNF | LOC100294362 (-) | 0 |
| FR061877_dup1 | contained within ACT | ACTG1 (-) | 0 |
| FR077664 | contained within ACT | ACTG1 (-) | 0 |
| FR082509 | contained within NPL | NPLLOC4 (-) | 0 |
| FR271504 | contained within MA | MAFG (-) | 0 |
| FR271504_dup1 | contained within MA | MAFG (-) | 0 |
| FR324396 | contained within LIN | LINC00526 (-) | 0 |
| FR003837.1 | region is 15307 bp d | L3C5G4 (+) | 15307 |
| FR242079 | region is 8563 bp do | GAREM (-) | 8563 |
| FR310293 | contained within SN | SNORD58C (-) | 0 |
| FR132879 | contained within SN | SNORD58A (-) | 0 |
| FR064000 | contained within RPL | SNORD58B (-) | 0 |
| FR293687 | contained within ZNF | ZNF532 (+) | 0 |
| FR376353 | contained within PQL | PQLC1 (-) | 0 |
| FR384068_dup12 | region is 11153 bp d | PPAP2C (-) | 11153 |
| FR384068_dup10 | region is 11083 bp d | PPAP2C (-) | 11083 |
| FR384068_dup8 | region is 11017 bp d | PPAP2C (-) | 11017 |
| FR384068_dup5 | region is 10951 bp d | PPAP2C (-) | 10951 |
| FR384068_dup13 | region is 10885 bp d | PPAP2C (-) | 10885 |
| FR384068_dup17 | region is 10815 bp d | PPAP2C (-) | 10815 |

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|-----------------------|-------------|--------|
| region is 46974 bp fr | COSM4129892 | 46974 |
| region is 1645 bp fro | COSM2154776 | 1645 |
| region is 1084 bp fro | COSM249130 | 1084 |
| region is 1084 bp fro | COSM249130 | 1084 |
| region is 346 bp from | COSM328393 | 346 |
| region is 346 bp from | COSM328393 | 346 |
| region is 756 bp from | COSM3749397 | 756 |
| region is 35 bp from | COSM1224209 | 35 |
| region is 2417 bp fro | COSM1736218 | 2417 |
| COSM560867 | COSM560867 | 0 |
| COSM560867 | COSM560867 | 0 |
| COSM706295 | COSM706295 | 0 |
| region is 1 bp from C | COSM1194021 | 1 |
| region is 35849 bp fr | COSM328398 | 35849 |
| region is 4789 bp fro | COSM3421642 | 4789 |
| region is 11 bp from | COSM122272 | 11 |
| region is 928 bp from | COSM1750139 | 928 |
| region is 715 bp from | COSM1750139 | 715 |
| region is 233 bp from | COSM981712 | 233 |
| region is 177 bp from | COSM3958607 | 177 |
| region is 101014 bp f | COSM1479830 | 101014 |
| region is 2764 bp fro | COSM349408 | 2764 |
| region is 24 bp from | COSM3421797 | 24 |
| region is 80083 bp fr | COSM473256 | 80083 |
| region is 80083 bp fr | COSM473256 | 80083 |
| region is 80170 bp fr | COSM473256 | 80170 |
| region is 80170 bp fr | COSM473256 | 80170 |
| region is 4976 bp fro | COSM1750343 | 4976 |
| region is 4933 bp fro | COSM1750343 | 4933 |
| region is 4452 bp fro | COSM1750343 | 4452 |
| COSM301134, COSM | COSM985083 | 0 |
| region is 63 bp from | COSM437736 | 63 |
| region is 7 bp from C | COSM1522829 | 7 |
| region is 85 bp from | COSM3720700 | 85 |
| COSM1130115, COSM | COSM388712 | 0 |
| region is 3 bp from C | COSM1259391 | 3 |
| region is 2281 bp fro | COSM473548 | 2281 |
| region is 2281 bp fro | COSM473548 | 2281 |
| region is 40940 bp fr | COSM988991 | 40940 |
| COSM986564 | COSM986564 | 0 |
| region is 12969 bp fr | COSM1661776 | 12969 |
| region is 88 bp from | COSM1480356 | 88 |
| region is 197 bp from | COSM1589494 | 197 |
| region is 151 bp from | COSM1153244 | 151 |
| region is 35 bp from | COSM213747 | 35 |
| COSM474064, COSM | COSM990115 | 0 |
| region is 11504 bp fr | COSM1392190 | 11504 |
| region is 11434 bp fr | COSM1392190 | 11434 |
| region is 11368 bp fr | COSM1392190 | 11368 |
| region is 11302 bp fr | COSM1392190 | 11302 |
| region is 11236 bp fr | COSM1392190 | 11236 |
| region is 11166 bp fr | COSM1392190 | 11166 |

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|-----------------------|---------------|----------------|------|
| region is 768 bp dow | L1MC3 (-) | LINE | 768 |
| region is 614 bp dow | L1MD3 (-) | LINE | 614 |
| region is 773 bp dow | L1MC3 (+) | LINE | 773 |
| region is 773 bp dow | L1MC3 (+) | LINE | 773 |
| region is 773 bp dow | L1MC3 (-) | LINE | 773 |
| region is 773 bp dow | L1MC3 (-) | LINE | 773 |
| region is 2 bp upstre | GC_rich (+) | Low_complexity | 2 |
| region is 555 bp dow | AluSx (+) | SINE | 555 |
| region is 245 bp dow | AluSp (-) | SINE | 245 |
| region is 254 bp upst | (TTTTG)n (+) | Simple_repeat | 254 |
| region is 255 bp upst | (TTTTG)n (+) | Simple_repeat | 255 |
| region is 1416 bp do | MIR (-) | SINE | 1416 |
| region is 841 bp dow | AluSg (+) | SINE | 841 |
| region is 398 bp dow | AluSp (-) | SINE | 398 |
| region is 1878 bp up | L2b (+) | LINE | 1878 |
| region is 2057 bp up | L1MC4 (+) | LINE | 2057 |
| region is 250 bp upst | MIR3 (+) | SINE | 250 |
| region is 37 bp upstr | MIR3 (+) | SINE | 37 |
| region is 2136 bp do | AluS26 (+) | SINE | 2136 |
| region is 752 bp dow | L1MC3 (-) | LINE | 752 |
| region is 772 bp dow | L1MC3 (-) | LINE | 772 |
| region is 167 bp upst | AluY (+) | SINE | 167 |
| region is 368 bp dow | AluJb (-) | SINE | 368 |
| region is 352 bp upst | AluJb (-) | SINE | 352 |
| region is 352 bp upst | AluJb (-) | SINE | 352 |
| region is 439 bp upst | AluJb (-) | SINE | 439 |
| region is 439 bp upst | AluJb (-) | SINE | 439 |
| region is 119 bp dow | AluSp (+) | SINE | 119 |
| region is 166 bp dow | AluSp (+) | SINE | 166 |
| region is 53 bp upstr | T-rich (+) | Low_complexity | 53 |
| region is 316 bp dow | L2b (+) | LINE | 316 |
| region is 591 bp dow | AluY (-) | SINE | 591 |
| region is 658 bp dow | AluSx3 (+) | SINE | 658 |
| region is 1587 bp up | L1M5 (-) | LINE | 1587 |
| region is 1123 bp up | GC_rich (+) | Low_complexity | 1123 |
| region is 58 bp upstr | AluY (+) | SINE | 58 |
| region is 1250 bp up | (T)n (+) | Simple_repeat | 1250 |
| region is 1250 bp up | (T)n (+) | Simple_repeat | 1250 |
| region is 1068 bp do | L2c (-) | LINE | 1068 |
| region is 61 bp upstr | AluSg7 (+) | SINE | 61 |
| region is 204 bp dow | MLT1J (+) | LTR | 204 |
| region is 99 bp dow | AluY (-) | SINE | 99 |
| region is 1222 bp do | Charlie4a (+) | DNA | 1222 |
| region is 1523 bp up | L2 (+) | LINE | 1523 |
| region is 1577 bp up | L2c (-) | LINE | 1577 |
| region is 121 bp upst | G-rich (+) | Low_complexity | 121 |
| region is 40 bp down | L1MC3 (+) | LINE | 40 |
| region is 110 bp dow | L1MC3 (+) | LINE | 110 |
| region is 176 bp dow | L1MC3 (+) | LINE | 176 |
| region is 242 bp dow | L1MC3 (+) | LINE | 242 |
| region is 308 bp dow | L1MC3 (+) | LINE | 308 |
| region is 378 bp dow | L1MC3 (+) | LINE | 378 |

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|----------------|------------------------|---------------|--------|
| FR222326_dup13 | contained within SNR | SNAR-A9 (-) | 0 |
| FR222326_dup9 | contained within SNR | SNAR-A9 (-) | 0 |
| FR222326_dup5 | contained within SNR | SNAR-A9 (-) | 0 |
| FR149623 | contained within RPL | RPL28 (+) | 0 |
| FR326725 | contained within ADC | ADCY3 (-) | 0 |
| FR217789.1 | contained within FTH | FTH1P3 (-) | 0 |
| FR027151.1 | region is 362 bp upst | TIA1 (-) | 362 |
| FR319465.1 | region is 382 bp upst | TIA1 (-) | 382 |
| FR106521.1 | region is 386 bp upst | TIA1 (-) | 386 |
| FR348209.1 | region is 386 bp upst | TIA1 (-) | 386 |
| FR225984 | region is 345 bp upst | WDR54 (+) | 345 |
| FR026913 | contained within SNORD | SNORD89 (-) | 0 |
| FR102402.3 | region is 103273 bp d | ST6GAL2 (-) | 103273 |
| FR073001.3 | region is 103249 bp c | ST6GAL2 (-) | 103249 |
| FR338565.2 | region is 103090 bp c | ST6GAL2 (-) | 103090 |
| FR086093.2 | region is 19801 bp d | FLJ42351 (-) | 19801 |
| FR266905 | region is 791069 bp u | DDX18 (+) | 791069 |
| FR048331_dup8 | region is 8447 bp dow | POTEJ (+) | 8447 |
| FR048331_dup7 | region is 10609 bp up | CYP4F30P (+) | 10609 |
| FR048331_dup6 | region is 8802 bp upst | CYP4F30P (+) | 8802 |
| FR294567 | contained within PLE | PLEKHB2 (+) | 0 |
| FR048331_dup9 | region is 2014 bp upst | LOC440910 (+) | 2014 |
| FR319486.1 | intron of KIF5C (+) | KIF5C (+) | 0 |
| FR227782.2 | intron of KIF5C (+) | KIF5C (+) | 0 |
| FR082269 | intron of KIF5C (+) | KIF5C (+) | 0 |
| FR390022 | region is 9664 bp upst | NR4A2 (-) | 9664 |
| FR295924 | intron of B3GALT1 (+) | B3GALT1 (+) | 0 |
| FR026803.1 | intron of SCHLAP1 (+) | SCHLAP1 (+) | 0 |
| FR217789_dup1 | intron of SCHLAP1 (+) | SCHLAP1 (+) | 0 |
| FR024428 | region is 402 bp upst | BMPR2 (+) | 402 |
| FR344651 | contained within CYP | CYP20A1 (+) | 0 |
| FR116115 | contained within ABI | ABI2 (+) | 0 |
| FR246367 | contained within SNORD | SNORD51 (+) | 0 |
| FR376350.1 | region is 6310 bp upst | PLEKHM3 (-) | 6310 |
| FR236999 | contained within SNORD | SNORD20 (-) | 0 |
| FR075316 | contained within SNORD | SNORD82 (-) | 0 |
| FR390460 | contained within SCAR | SCARNA6 (+) | 0 |
| FR357447 | intron of DGKD (+) | DGKD (+) | 0 |
| FR236081 | contained within AGAP | AGAP1 (+) | 0 |
| FR159422 | contained within ASE | ASB1 (+) | 0 |
| FR284952 | intron of LINC01107 | LINC01107 (-) | 0 |
| FR018977 | contained within STK | STK35 (+) | 0 |
| FR287130 | contained within STK | STK35 (+) | 0 |
| FR270731 | contained within SNORD | SNORD57 (+) | 0 |
| FR301184 | contained within LOC | LOC643406 (+) | 0 |
| FR185905 | contained within SNORD | SNORD17 (-) | 0 |
| FR290142 | contained within SNORD | SNORD17 (-) | 0 |
| FR344796 | contained within SNORD | SNORD17 (-) | 0 |
| FR352491 | contained within SNORD | SNORD17 (-) | 0 |
| FR233520.3 | region is 37002 bp d | PAX1 (+) | 37002 |
| FR218180 | contained within LINC | LINC00657 (-) | 0 |
| FR391445 | contained within DNA | DNAJC5 (+) | 0 |

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|-----------------------|-------------|--------|
| region is 34897 bp fr | COSM3707308 | 34897 |
| region is 29543 bp fr | COSM3707308 | 29543 |
| region is 24215 bp fr | COSM3707308 | 24215 |
| COSM1396578 | COSM1396578 | 0 |
| COSM242851 | COSM242851 | 0 |
| region is 5749 bp fro | COSM418755 | 5749 |
| region is 604 bp from | COSM443144 | 604 |
| region is 624 bp from | COSM443144 | 624 |
| region is 628 bp from | COSM443144 | 628 |
| region is 628 bp from | COSM443144 | 628 |
| region is 907 bp from | COSM212599 | 907 |
| region is 3626 bp fro | COSM475666 | 3626 |
| region is 108355 bp f | COSM1526977 | 108355 |
| region is 108331 bp f | COSM1526977 | 108331 |
| region is 108172 bp f | COSM1526977 | 108172 |
| region is 24804 bp fr | COSM1193870 | 24804 |
| region is 791175 bp f | COSM4133028 | 791175 |
| region is 8945 bp fro | COSM3961136 | 8945 |
| region is 11875 bp fr | COSM3961136 | 11875 |
| region is 13682 bp fr | COSM3961136 | 13682 |
| region is 7 bp from C | COSM1720060 | 7 |
| region is 9881 bp fro | COSM4133114 | 9881 |
| region is 40337 bp fr | COSM261674 | 40337 |
| region is 40337 bp fr | COSM261674 | 40337 |
| region is 40305 bp fr | COSM261674 | 40305 |
| region is 9941 bp fro | COSM4133186 | 9941 |
| region is 27475 bp fr | COSM3961506 | 27475 |
| region is 109125 bp f | COSM81875 | 109125 |
| region is 109123 bp f | COSM81875 | 109123 |
| region is 1565 bp fro | COSM442125 | 1565 |
| COSM1015114 | COSM1015114 | 0 |
| region is 1629 bp fro | COSM1326512 | 1629 |
| region is 123 bp from | COSM3962240 | 123 |
| region is 30234 bp fr | COSM719547 | 30234 |
| region is 107 bp from | COSM1641864 | 107 |
| region is 91 bp from | COSM1017751 | 91 |
| region is 917 bp from | COSM1017972 | 917 |
| region is 513 bp from | COSM210415 | 513 |
| COSM1018230, COS | COSM1018230 | 0 |
| region is 2362 bp fro | COSM1018598 | 2362 |
| region is 98089 bp fr | COSM1018598 | 98089 |
| region is 29016 bp fr | COSM1533233 | 29016 |
| region is 29034 bp fr | COSM1533233 | 29034 |
| region is 52 bp from | COSM3963429 | 52 |
| region is 73696 bp fr | COSM3953078 | 73696 |
| region is 5654 bp fr | COSM1410562 | 5654 |
| region is 5655 bp fro | COSM1410562 | 5655 |
| region is 5653 bp fro | COSM1410562 | 5653 |
| region is 5657 bp fro | COSM1410562 | 5657 |
| region is 40691 bp fr | COSM1260987 | 40691 |
| region is 19477 bp fr | COSM1411481 | 19477 |
| region is 2735 bp fro | COSM4134814 | 2735 |

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|------------------------|---------------------|----------------|------|
| region is 110 bp dow | AluSx1 (+) | SINE | 110 |
| region is 110 bp dow | AluSx1 (+) | SINE | 110 |
| region is 110 bp dow | AluSx1 (+) | SINE | 110 |
| region is 405 bp upst | MIR (+) | SINE | 405 |
| region is 2379 bp dow | AT_rich (+) | Low_complexity | 2379 |
| region is 285 bp upst | AluSx (-) | SINE | 285 |
| region is 449 bp upst | AluSx1 (+) | SINE | 449 |
| region is 424 bp upst | AluSx1 (+) | SINE | 424 |
| region is 424 bp upst | AluSx1 (+) | SINE | 424 |
| region is 423 bp upst | AluSx1 (+) | SINE | 423 |
| region is 303 bp upst | AluSx (-) | SINE | 303 |
| region is 422 bp dow | AluJb (-) | SINE | 422 |
| region is 454 bp dow | L1MC5 (-) | LINE | 454 |
| region is 430 bp dow | L1MC5 (-) | LINE | 430 |
| region is 271 bp dow | L1MC5 (-) | LINE | 271 |
| region is 226 bp upst | ERV1-B4-int (-) | LTR | 226 |
| region is 231 bp from | tRNA-Leu-TTA(m) (+) | tRNA | 231 |
| region is 989 bp dow | L1P3 (-) | LINE | 989 |
| region is 1871 bp upst | L1P3 (-) | LINE | 1871 |
| region is 357 bp dow | MST-int (-) | LTR | 357 |
| region is 79 bp down | FAM (+) | SINE | 79 |
| region is 995 bp dow | MST-int (-) | LTR | 995 |
| region is 334 bp upst | MIRc (+) | SINE | 334 |
| region is 334 bp upst | MIRc (+) | SINE | 334 |
| region is 302 bp upst | MIRc (+) | SINE | 302 |
| region is 45 bp down | GC_rich (+) | Low_complexity | 45 |
| region is 333 bp upst | AT_rich (+) | Low_complexity | 333 |
| region is 254 bp dow | L1MA3 (+) | LINE | 254 |
| region is 259 bp dow | L1MA3 (+) | LINE | 259 |
| region is 195 bp upst | GC_rich (+) | Low_complexity | 195 |
| region is 415 bp upst | MER5A (-) | DNA | 415 |
| region is 482 bp upst | AluSc (+) | SINE | 482 |
| region is 70 bp down | MIR (+) | SINE | 70 |
| region is 171 bp dow | L1MA9 (-) | LINE | 171 |
| region is 128 bp dow | L4 (+) | LTR | 128 |
| region is 292 bp upst | (CAT)n (+) | Simple_repeat | 292 |
| region is 338 bp upst | AluJr (-) | SINE | 338 |
| region is 326 bp upst | AluSx1 (-) | SINE | 326 |
| region is 310 bp upst | (TATATG)n (+) | Simple_repeat | 310 |
| region is 762 bp upst | (TTTA)n (+) | Simple_repeat | 762 |
| region is 6926 bp upst | L1M6 (+) | LINE | 6926 |
| region is 2317 bp dow | MIR (-) | SINE | 2317 |
| region is 2299 bp dow | MIR (-) | SINE | 2299 |
| region is 2986 bp upst | AluSg (-) | SINE | 2986 |
| region is 1060 bp upst | MIR (+) | SINE | 1060 |
| region is 209 bp upst | AluSg (-) | SINE | 209 |
| region is 209 bp upst | AluSg (-) | SINE | 209 |
| region is 209 bp upst | AluSg (-) | SINE | 209 |
| region is 125 bp upst | (A)n (+) | Simple_repeat | 125 |
| region is 1110 bp dow | L2a (-) | LINE | 1110 |
| region is 1892 bp upst | AluJb (+) | SINE | 1892 |

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|---------------|-----------------------|------------------|--------|
| FR271551 | contained within MIR | MIRLET7C (+) | 0 |
| FR161625 | region is 5626 bp dow | PDE9A (+) | 5626 |
| FR298744 | contained within PD | PDXK (+) | 0 |
| FR127490 | contained within TS | TSPEAR (-) | 0 |
| FR042730.2 | region is 202 bp dow | POTEH (-) | 202 |
| FR296333 | contained within DG | MIR1306 (+) | 0 |
| FR403738 | contained within MIF | MIF (+) | 0 |
| FR115804 | contained within MIF | MIF (+) | 0 |
| FR104116 | contained within MIF | MIF (+) | 0 |
| FR140045 | contained within MIF | MIF-AS1 (-) | 0 |
| FR234237 | intron of MIF-AS1 (-) | MIF-AS1 (-) | 0 |
| FR159092 | contained within GU | GUCD1 (-) | 0 |
| FR225244 | contained within NF2 | NF2 (+) | 0 |
| FR233520.4 | intron of RBFOX2 (-) | RBFOX2 (-) | 0 |
| FR234424 | contained within LOC | LOC100506271 (-) | 0 |
| FR312499 | intron of ELFN2 (-) | ELFN2 (-) | 0 |
| FR049370 | contained within ELF | ELFN2 (-) | 0 |
| FR319300 | contained within SN | SNORD83B (-) | 0 |
| FR205579 | contained within SN | SNORD83B (-) | 0 |
| FR213383 | contained within SN | SNORD83B (-) | 0 |
| FR237180 | contained within SN | SNORD83B (-) | 0 |
| FR218523 | contained within SN | SNORD43 (-) | 0 |
| FR042730_dup1 | region is 17619 bp up | MIR1281 (+) | 17619 |
| FR102284 | region is 1065 bp do | CCDC134 (+) | 1065 |
| FR092610 | contained within ZBE | ZBED4 (+) | 0 |
| FR135938 | contained within ZBE | ZBED4 (+) | 0 |
| FR054799 | contained within VGL | VGLL4 (-) | 0 |
| FR030135 | contained within RPL | RPL32 (-) | 0 |
| FR072519 | contained within RPL | RPL32 (-) | 0 |
| FR355867 | region is 22249 bp up | SNORA7A (-) | 22249 |
| FR238825 | contained within IQS | IQSEC1 (-) | 0 |
| FR239801 | contained within IQS | IQSEC1 (-) | 0 |
| FR270274 | contained within NR | NR2C2 (+) | 0 |
| FR161271 | region is 719 bp upst | UBP1 (+) | 719 |
| FR373605 | region is 2378 bp do | RPL14 (+) | 2378 |
| FR069557 | contained within MIR | MIR138-1 (+) | 0 |
| FR214430 | intron of ZKSCAN7 (-) | ZKSCAN7 (+) | 0 |
| FR284409 | contained within RB | RBM15B (+) | 0 |
| FR090658 | contained within WD | WDR82 (-) | 0 |
| FR035643.1 | region is 196606 bp u | EPHA6 (+) | 196606 |
| FR167222.1 | intron of PCNP (+) | PCNP (+) | 0 |
| FR274844 | contained within AD | ADCY5 (+) | 0 |
| FR026803.2 | intron of RAB7A (+) | RAB7A (+) | 0 |
| FR217789.2 | intron of RAB7A (+) | RAB7A (+) | 0 |
| FR002120 | region is 12468 bp do | LOC653712 (-) | 12468 |
| FR372135 | contained within SN | SNORA58 (-) | 0 |
| FR035643_dup1 | intron of PPM1L (+) | PPM1L (+) | 0 |
| FR162734 | region is 48362 bp up | MIR3138 (-) | 48362 |
| FR007558 | region is 57769 bp up | MIR3138 (-) | 57769 |
| FR138193 | region is 61464 bp up | MIR3138 (-) | 61464 |
| FR266905.1 | region is 448249 bp c | LOC101929199 (+) | 448249 |
| FR376350.2 | contained within RPL | RPL9 (-) | 0 |

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|-----------------------|-------------|--------|
| region is 468519 bp f | COSM3770900 | 468519 |
| region is 5843 bp fro | COSM1190366 | 5843 |
| region is 229 bp from | COSM119945 | 229 |
| region is 1223 bp fro | COSM1172754 | 1223 |
| region is 2155 bp fro | COSM1031769 | 2155 |
| COSM1032175, COS | COSM122562 | 0 |
| region is 65 bp from | COSM419625 | 65 |
| region is 5 bp from C | COSM1616282 | 5 |
| region is 4 bp from C | COSM1616282 | 4 |
| region is 435 bp from | COSM1327303 | 435 |
| region is 698 bp from | COSM1327303 | 698 |
| region is 15 bp from | COSM1032728 | 15 |
| region is 1930 bp fro | COSM327309 | 1930 |
| region is 1754 bp fro | COSM1033795 | 1754 |
| region is 19900 bp fr | COSM3842629 | 19900 |
| region is 17336 bp fr | COSM3842629 | 17336 |
| region is 3952 bp fro | COSM3842629 | 3952 |
| region is 158 bp from | COSM478973 | 158 |
| region is 159 bp from | COSM478973 | 159 |
| region is 160 bp from | COSM478973 | 160 |
| region is 161 bp from | COSM478973 | 161 |
| region is 517 bp from | COSM33359 | 517 |
| region is 18128 bp fr | COSM445040 | 18128 |
| region is 1582 bp fro | COSM1199831 | 1582 |
| region is 30 bp from | COSM316635 | 30 |
| region is 9 bp from C | COSM726773 | 9 |
| COSM1270210, COS | COSM79096 | 0 |
| region is 12 bp from | COSM79274 | 12 |
| COSM3408212 | COSM3408212 | 0 |
| region is 11888 bp fr | COSM1593327 | 11888 |
| region is 2900 bp fro | COSM4157255 | 2900 |
| region is 2225 bp fro | COSM4157255 | 2225 |
| region is 4041 bp fro | COSM181530 | 4041 |
| region is 1255 bp fro | COSM480035 | 1255 |
| region is 2604 bp fro | COSM1044561 | 2604 |
| region is 127809 bp f | COSM1617613 | 127809 |
| region is 9434 bp fro | COSM297215 | 9434 |
| COSM584355 | COSM584355 | 0 |
| region is 2 bp from C | COSM1046846 | 2 |
| region is 701 bp from | COSM3767596 | 701 |
| region is 221 bp from | COSM3786797 | 221 |
| region is 5 bp from C | COSM350722 | 5 |
| region is 30812 bp fr | COSM1536499 | 30812 |
| region is 30810 bp fr | COSM1536499 | 30810 |
| region is 30706 bp fr | COSM1536496 | 30706 |
| region is 7936 bp fro | COSM2149652 | 7936 |
| region is 14053 bp fr | COSM1536852 | 14053 |
| region is 10403 bp fr | COSM1618199 | 10403 |
| region is 19810 bp fr | COSM1618199 | 19810 |
| region is 23505 bp fr | COSM1618199 | 23505 |
| region is 707506 bp f | COSM164648 | 707506 |
| region is 41 bp from | COSM263446 | 41 |

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|------------------------|---------------|----------------|------|
| region is 418 bp upst | L2c (+) | LINE | 418 |
| region is 112 bp upst | LTR38B (-) | LTR | 112 |
| region is 1737 bp upst | (T)n (+) | Simple_repeat | 1737 |
| region is 280 bp upst | MER4C (-) | DNA | 280 |
| region is 1698 bp upst | L1PA12 (-) | LINE | 1698 |
| region is 652 bp dow | AT_rich (+) | Low_complexity | 652 |
| region is 1473 bp upst | GC_rich (+) | Low_complexity | 547 |
| region is 170 bp upst | GC_rich (+) | Low_complexity | 170 |
| region is 134 bp upst | GC_rich (+) | Low_complexity | 134 |
| region is 424 bp upst | AluYb8 (+) | SINE | 424 |
| region is 161 bp upst | AluYb8 (+) | SINE | 161 |
| region is 84 bp upstr | L2c (+) | LINE | 84 |
| region is 89 bp down | AluSx (-) | SINE | 89 |
| region is 160 bp dow | AT_rich (+) | Low_complexity | 160 |
| region is 161 bp dow | L2a (-) | LINE | 161 |
| region is 35 bp upstr | MER46C (+) | DNA | 35 |
| region is 219 bp dow | (CCCA)n (+) | Simple_repeat | 219 |
| region is 2051 bp upst | AluSp (+) | SINE | 2051 |
| region is 2051 bp upst | AluSp (+) | SINE | 2051 |
| region is 2051 bp upst | AluSp (+) | SINE | 2051 |
| region is 2051 bp upst | AluSp (+) | SINE | 2051 |
| region is 1246 bp do | AluSx3 (-) | SINE | 1246 |
| region is 424 bp dow | AluJb (-) | SINE | 424 |
| region is 17 bp down | MER51B (-) | DNA | 17 |
| region is 1212 bp do | FRAM (+) | SINE | 1212 |
| region is 2017 bp do | FRAM (+) | SINE | 2017 |
| region is 607 bp upst | MIR3 (-) | SINE | 607 |
| region is 355 bp dow | MER4E (+) | DNA | 355 |
| region is 330 bp dow | MIRc (+) | SINE | 330 |
| region is 281 bp upst | AluY (+) | SINE | 281 |
| region is 2010 bp upst | L2 (-) | LINE | 2010 |
| region is 1768 bp upst | (TA)n (+) | Simple_repeat | 1768 |
| region is 10 bp upstr | (TATATG)n (+) | Simple_repeat | 10 |
| region is 408 bp upst | AluSz (+) | SINE | 408 |
| region is 141 bp upst | MIRb (+) | SINE | 141 |
| region is 211 bp upst | Charlie4z (-) | DNA | 211 |
| region is 209 bp upst | GC_rich (+) | Low_complexity | 209 |
| region is 258 bp dow | (CCG)n (+) | Simple_repeat | 258 |
| region is 59 bp down | AluSq (+) | SINE | 59 |
| region is 801 bp upst | AluSx1 (+) | SINE | 801 |
| region is 83 bp down | AluSc (-) | SINE | 83 |
| region is 1141 bp upst | L2b (+) | LINE | 1141 |
| region is 678 bp upst | L1MC4 (-) | LINE | 678 |
| region is 683 bp upst | L1MC4 (-) | LINE | 683 |
| region is 1677 bp do | L1MA7 (-) | LINE | 1677 |
| region is 143 bp upst | AT_rich (+) | Low_complexity | 143 |
| region overlaps with | L2b (+) | LINE | 0 |
| region is 293 bp dow | LTR5_Hs (-) | LTR | 293 |
| region is 1234 bp do | L1MCa (-) | LINE | 1234 |
| region is 1317 bp upst | L1MB5 (-) | LINE | 1317 |
| region is 54 bp upstr | THE1B (-) | LTR | 54 |
| region is 905 bp dow | FLAM_C (+) | SINE | 905 |

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|-----------------|----------------------------|------------------|--------|
| FR252137 | intron of AFF1 (+) | AFF1 (+) | 0 |
| FR266905_dup1 | intron of SNCA (-) | SNCA (-) | 0 |
| FR188833.2 | contained within LINC | LINC01061 (-) | 0 |
| FR174266 | region overlaps with | LRAT (+) | 0 |
| FR289069 | region overlaps with | LRAT (+) | 0 |
| FR107946 | contained within SNORD | SNORD123 (+) | 0 |
| FR322380 | contained within SNORD | SNORD123 (+) | 0 |
| FR066510 | region is 12600 bp up | OTULIN (+) | 12600 |
| FR102402.4 | region is 11697 bp up | OTULIN (+) | 11697 |
| FR008494 | intron of C5orf34 (-) | C5orf34 (-) | 0 |
| FR233520.5 | intron of IL6ST (-) | IL6ST (-) | 0 |
| FR105053 | contained within LOC | LOC644936 (-) | 0 |
| FR163199 | contained within MIR | MIR3607 (+) | 0 |
| FR043670 | intron of KIAA0825 (-) | KIAA0825 (-) | 0 |
| FR003121.2 | region is 235619 bp up | FTMT (+) | 235619 |
| FR008494_dup1 | region is 106338 bp up | C5orf63 (-) | 106338 |
| FR361473 | intron of CDC42SE2 | CDC42SE2 (+) | 0 |
| FR004361 | contained within UQC | UQCQRQ (+) | 0 |
| FR338747 | intron of PCBD2 (+) | PCBD2 (+) | 0 |
| FR380286 | contained within SNORD | SNORD63 (-) | 0 |
| FR148093 | region is 14750 bp up | LOC101929696 (-) | 14750 |
| FR157967 | intron of FAM153B (+) | FAM153B (+) | 0 |
| FR289805 | contained within FAM | FAM2 (+) | 0 |
| FR157967_dup2 | intron of FAM153C (+) | FAM153C (+) | 0 |
| FR032701 | contained within SQS | SQSMT1 (+) | 0 |
| FR352363 | contained within DSP | DSP (+) | 0 |
| FR328400 | contained within DSP | DSP (+) | 0 |
| FR348796 | region is 19297 bp up | RNF144B (+) | 19297 |
| FR274916 | contained within C6orf | C6orf62 (-) | 0 |
| FR306048 | contained within HIST1H2AC | HIST1H2AC (+) | 0 |
| FR205670 | contained within HIST1H1E | HIST1H1E (+) | 0 |
| FR393260 | contained within HIST1H1E | HIST1H1E (+) | 0 |
| FR133421 | contained within HIST1H1D | HIST1H1D (-) | 0 |
| FR379437 | contained within HIST1H2BH | HIST1H2BH (+) | 0 |
| FR217228 | contained within HIST1H2BJ | HIST1H2BJ (-) | 0 |
| FR197889 | contained within HIST1H2BJ | HIST1H2BJ (-) | 0 |
| FR324841.1 | contained within HIST1H2AI | HIST1H2AI (+) | 0 |
| FR324841_dup1.1 | contained within HIST1H2AJ | HIST1H2AJ (-) | 0 |
| FR279637 | contained within HIST1H1B | HIST1H1B (-) | 0 |
| FR263507 | contained within HIST1H2AM | HIST1H2AM (-) | 0 |
| FR207412 | contained within HIST1H2AM | HIST1H2AM (-) | 0 |
| FR379437_dup1 | contained within HIST1H2BO | HIST1H2BO (+) | 0 |
| FR312701 | contained within LINC | LINC01015 (+) | 0 |
| FR312701_dup1 | contained within LINC | LINC01015 (+) | 0 |
| FR312701_dup2 | contained within LINC | LINC01015 (+) | 0 |
| FR029085 | intron of TRIM26 (-) | TRIM26 (-) | 0 |
| FR029085_dup1 | intron of TRIM26 (-) | TRIM26 (-) | 0 |
| FR029085_dup2 | intron of TRIM26 (-) | TRIM26 (-) | 0 |
| FR338575 | contained within HLA | HLA-B (-) | 0 |
| FR338575_dup1 | contained within HLA | HLA-B (-) | 0 |
| FR265415 | contained within HLA | HLA-B (-) | 0 |
| FR265415_dup1 | contained within HLA | HLA-B (-) | 0 |

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|--------------------------|-------------|--------|
| region is 75003 bp from | COSM1058562 | 75003 |
| region is 2662 bp from | COSM1541094 | 2662 |
| region is 4747 bp from | COSM3669230 | 4747 |
| region is 3477 bp from | COSM3825438 | 3477 |
| region is 3477 bp from | COSM3825438 | 3477 |
| region is 80275 bp from | COSM169015 | 80275 |
| region is 80275 bp from | COSM169015 | 80275 |
| COSM1659593 | COSM1659593 | 0 |
| region is 11 bp from | COSM449054 | 11 |
| region is 596 bp from | COSM3828114 | 596 |
| region is 2186 bp from | COSM3776763 | 2186 |
| region is 20259 bp from | COSM593291 | 20259 |
| region is 1139 bp from | COSM335695 | 1139 |
| region is 32360 bp from | COSM1620655 | 32360 |
| region is 235630 bp from | COSM135927 | 235630 |
| region is 120836 bp from | COSM1186822 | 120836 |
| region is 20754 bp from | COSM1200379 | 20754 |
| region is 58 bp from | COSM1060779 | 58 |
| region is 16065 bp from | COSM1541902 | 16065 |
| region is 514 bp from | COSM204775 | 514 |
| region is 48462 bp from | COSM1130929 | 48462 |
| region is 990 bp from | COSM3827712 | 990 |
| region is 9 bp from | COSM1496043 | 9 |
| region is 983 bp from | COSM482599 | 983 |
| region is 6 bp from | COSM3827841 | 6 |
| region is 18 bp from | COSM1547434 | 18 |
| COSM2156615 | COSM2156615 | 0 |
| region is 31552 bp from | COSM1744277 | 31552 |
| region is 78 bp from | COSM450974 | 78 |
| COSM3722038 | COSM3722038 | 0 |
| COSM1311866 | COSM1311866 | 0 |
| COSM1311866 | COSM1311866 | 0 |
| COSM1311866 | COSM1311866 | 0 |
| region is 26 bp from | COSM161530 | 26 |
| COSM1621291 | COSM1621291 | 0 |
| COSM1161614 | COSM1161614 | 0 |
| region is 17 bp from | COSM3722041 | 17 |
| COSM3720554 | COSM3720554 | 0 |
| COSM595470 | COSM595470 | 0 |
| COSM1719065 | COSM1719065 | 0 |
| COSM1161616 | COSM1161616 | 0 |
| COSM1292272 | COSM74904 | 0 |
| COSM1254215 | COSM741679 | 0 |
| region is 25911 bp from | COSM3250625 | 25911 |
| region is 25911 bp from | COSM3250625 | 25911 |
| region is 25911 bp from | COSM3250625 | 25911 |
| region is 12363 bp from | COSM165128 | 12363 |
| region is 12363 bp from | COSM165128 | 12363 |
| region is 12363 bp from | COSM165128 | 12363 |
| region is 678 bp from | COSM3410931 | 678 |
| region is 678 bp from | COSM3410931 | 678 |
| COSM1131924 | COSM1443267 | 0 |
| COSM1131924 | COSM1443267 | 0 |

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|------------------------|---------------|----------------|------|
| region is 424 bp down | (T)n (+) | Simple_repeat | 424 |
| region is 70 bp upstr | AluSc (+) | SINE | 70 |
| region is 1007 bp down | MER1A (-) | DNA | 1007 |
| region is 532 bp down | MIRb (+) | SINE | 532 |
| region is 532 bp down | MIRb (+) | SINE | 532 |
| region is 383 bp down | MIRc (+) | SINE | 383 |
| region is 384 bp down | MIRc (+) | SINE | 384 |
| region is 558 bp down | L1MA4 (+) | LINE | 558 |
| region is 414 bp down | Charlie2b (-) | DNA | 414 |
| region is 1384 bp down | AluJo (-) | SINE | 1384 |
| region is 128 bp upst | AT_rich (+) | Low_complexity | 128 |
| region is 580 bp upst | SVA_D (+) | Other | 580 |
| region is 275 bp down | MER20 (+) | DNA | 275 |
| region is 1427 bp down | BLACKJACK (-) | DNA | 1427 |
| region is 1994 bp upst | AT_rich (+) | Low_complexity | 1994 |
| region is 108 bp down | L1M2 (-) | LINE | 108 |
| region is 122 bp upst | AluSx (+) | SINE | 122 |
| region is 191 bp down | L1MB7 (+) | LINE | 191 |
| region is 1994 bp upst | AluY (+) | SINE | 1994 |
| region is 198 bp upst | AluY (-) | SINE | 198 |
| region is 124 bp down | MIR (-) | SINE | 124 |
| region is 523 bp down | AluSp (+) | SINE | 523 |
| region is 208 bp down | FLAM_A (+) | SINE | 208 |
| region is 136 bp upst | MIRb (-) | SINE | 136 |
| region is 333 bp down | L2 (+) | LINE | 333 |
| region is 1696 bp down | (TA)n (+) | Simple_repeat | 1696 |
| region is 2149 bp down | (TA)n (+) | Simple_repeat | 2149 |
| region is 631 bp upst | (CTG)n (+) | Simple_repeat | 631 |
| region is 219 bp upst | AT_rich (+) | Low_complexity | 219 |
| region is 885 bp upst | MER101 (-) | DNA | 885 |
| region is 836 bp down | AluY (-) | SINE | 836 |
| region is 835 bp down | AluY (-) | SINE | 835 |
| region is 988 bp upst | AT_rich (+) | Low_complexity | 988 |
| region is 391 bp down | FLAM_C (-) | SINE | 391 |
| region is 811 bp down | AluSx (+) | SINE | 811 |
| region is 991 bp down | AluSx (+) | SINE | 991 |
| region is 1091 bp upst | MER33 (+) | DNA | 1091 |
| region is 280 bp down | (A)n (+) | Simple_repeat | 280 |
| region is 1191 bp down | AluJb (+) | SINE | 1191 |
| region is 570 bp upst | AluJb (-) | SINE | 570 |
| region is 642 bp upst | AluJb (-) | SINE | 642 |
| region is 510 bp down | AluSg4 (+) | SINE | 510 |
| region is 2597 bp upst | MER4C (-) | DNA | 2597 |
| region is 2597 bp upst | MER4C (-) | DNA | 2597 |
| region is 2597 bp upst | MER4C (-) | DNA | 2597 |
| region is 210 bp upst | L1MC3 (+) | LINE | 210 |
| region is 210 bp upst | L1MC3 (+) | LINE | 210 |
| region is 210 bp upst | L1MC3 (+) | LINE | 210 |
| region is 613 bp upst | L3 (-) | LTR | 613 |
| region is 613 bp upst | L3 (-) | LTR | 613 |
| region is 1774 bp down | L1MEf (-) | LINE | 1774 |
| region is 1774 bp down | L1MEf (-) | LINE | 1774 |

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|---------------|--|--|--------|
| FR337999 | contained within SNORND84 (-) | | 0 |
| FR337999_dup1 | contained within SNORND84 (-) | | 0 |
| FR337999_dup2 | contained within SNORND84 (-) | | 0 |
| FR291903 | contained within SNORND84 (-) | | 0 |
| FR291903_dup1 | contained within SNORND84 (-) | | 0 |
| FR291903_dup2 | contained within SNORND84 (-) | | 0 |
| FR301922 | contained within SNORND84 (+) | | 0 |
| FR301922_dup1 | contained within SNORND84 (+) | | 0 |
| FR013752 | region is 10552 bp downstream of LINC01016 (-) | | 10552 |
| FR354968 | intron of LINC01016 (LINC01016 (-)) | | 0 |
| FR208423 | intron of LINC01016 (LINC01016 (-)) | | 0 |
| FR357773 | intron of LINC01016 (LINC01016 (-)) | | 0 |
| FR366450 | contained within C6orf89 (+) | | 0 |
| FR028930 | contained within ZNFAND3 (+) | | 0 |
| FR381029 | contained within TBCTBCC (-) | | 0 |
| FR008494.1 | contained within EEF1A1 (-) | | 0 |
| FR102402.5 | contained within EEF1A1 (-) | | 0 |
| FR073001.4 | contained within EEF1A1 (-) | | 0 |
| FR338565.5 | contained within EEF1A1 (-) | | 0 |
| FR365184 | contained within BEND3 (-) | | 0 |
| FR025321 | contained within SNORND100 (+) | | 0 |
| FR009646 | region is 101 bp upstream of HBS1L (-) | | 101 |
| FR072519.1 | intron of MTHFD1L (MTHFD1L (+)) | | 0 |
| FR061350.1 | region is 151300 bp downstream of RGS17 (-) | | 151300 |
| FR205900 | contained within RPS6KA2 (-) | | 0 |
| FR224235.1 | contained within ACTB (-) | | 0 |
| FR054563 | region is 457 bp upstream of C7orf26 (+) | | 457 |
| FR008494.2 | region is 10417 bp upstream of STEAP1B (-) | | 10417 |
| FR066510.1 | region is 10435 bp upstream of STEAP1B (-) | | 10435 |
| FR073001.5 | region is 11364 bp upstream of STEAP1B (-) | | 11364 |
| FR338565.6 | region is 11523 bp upstream of STEAP1B (-) | | 11523 |
| FR238720 | contained within TRA2A (-) | | 0 |
| FR184831.1 | region is 66885 bp downstream of HIBADH (-) | | 66885 |
| FR025280 | intron of JAZF1 (-) JAZF1 (-) | | 0 |
| FR255470 | contained within POLR2J4 (-) | | 0 |
| FR072519.2 | intron of NUDCD3 (-) NUDCD3 (-) | | 0 |
| FR110343 | region is 323 bp upstream of TMED4 (-) | | 323 |
| FR330790 | region is 493 bp upstream of TMED4 (-) | | 493 |
| FR012473 | contained within SNORND84 (-) | | 0 |
| FR328549 | region is 6366 bp upstream of ZNF736 (+) | | 6366 |
| FR115701 | region is 23165 bp downstream of MDH2 (+) | | 23165 |
| FR125672 | region is 33293 bp downstream of COL1A2 (+) | | 33293 |
| FR140858 | contained within MIR106B (-) | | 0 |
| FR255470_dup1 | contained within POLR2J2 (-) | | 0 |
| FR255470_dup2 | contained within POLR2J3 (-) | | 0 |
| FR255470_dup3 | contained within POLR2J2 (-) | | 0 |
| FR141628 | contained within GCC1 (-) | | 0 |
| FR243752 | contained within GCC1 (-) | | 0 |
| FR348796.1 | contained within IMPDH1 (-) | | 0 |
| FR381169 | contained within MIR182 (-) | | 0 |
| FR111293 | contained within TMEM209 (-) | | 0 |
| FR281234.1 | intron of CHCHD3 (-) CHCHD3 (-) | | 0 |

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|-------------------------------------|-------------|-------|
| region is 511 bp from COSM1621424 | | 511 |
| region is 511 bp from COSM1621424 | | 511 |
| region is 511 bp from COSM1621424 | | 511 |
| region is 511 bp from COSM1621424 | | 511 |
| region is 511 bp from COSM1621424 | | 511 |
| region is 511 bp from COSM1621424 | | 511 |
| region is 182 bp from COSM1077604 | | 182 |
| region is 182 bp from COSM1077604 | | 182 |
| region is 77771 bp from COSM1078179 | | 77771 |
| region is 91433 bp from COSM1078179 | | 91433 |
| region is 94647 bp from COSM1078179 | | 94647 |
| region is 95304 bp from COSM1078179 | | 95304 |
| COSM1546429 | COSM1546429 | 0 |
| region is 741 bp from COSM1444181 | | 741 |
| region is 20 bp from COSM484083 | | 20 |
| COSM1600349, COSM1621917 | | 0 |
| COSM1445855, COSM1445855 | | 0 |
| region is 1 bp from COSM1445855 | | 1 |
| COSM1329544, COSM1329544 | | 0 |
| COSM739769 | COSM739769 | 0 |
| region is 128 bp from COSM3829088 | | 128 |
| region is 4352 bp from COSM3829113 | | 4352 |
| region is 7022 bp from COSM3430112 | | 7022 |
| region is 64522 bp from COSM4160302 | | 64522 |
| region is 2140 bp from COSM3761647 | | 2140 |
| COSM1451626 | COSM1451626 | 0 |
| region is 495 bp from COSM3669751 | | 495 |
| region is 15860 bp from COSM1596936 | | 15860 |
| region is 15878 bp from COSM1596936 | | 15878 |
| region is 16807 bp from COSM1596936 | | 16807 |
| region is 16966 bp from COSM1596936 | | 16966 |
| COSM1312981, COSM1312981 | | 0 |
| region is 67660 bp from COSM600762 | | 67660 |
| region is 37905 bp from COSM1088925 | | 37905 |
| region is 6934 bp from COSM453088 | | 6934 |
| region is 17035 bp from COSM232919 | | 17035 |
| region is 397 bp from COSM453117 | | 397 |
| region is 567 bp from COSM453117 | | 567 |
| region is 71 bp from COSM1090060 | | 71 |
| region is 28822 bp from COSM1623031 | | 28822 |
| region is 5548 bp from COSM3703275 | | 5548 |
| region is 34159 bp from COSM3715856 | | 34159 |
| region is 125 bp from COSM1214734 | | 125 |
| region is 751 bp from COSM1083506 | | 751 |
| region is 10893 bp from COSM1488088 | | 10893 |
| region is 20 bp from COSM136622 | | 20 |
| COSM2157039, COSM452271 | | 0 |
| region is 389 bp from COSM1447850 | | 389 |
| region is 12 bp from COSM1548339 | | 12 |
| region is 15266 bp from COSM461681 | | 15266 |
| region is 1286 bp from COSM1085498 | | 1286 |
| region is 179 bp from COSM160775 | | 179 |

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|---|----------------|--|------|
| region is 151 bp downstream of L1MDa (+) | LINE | | 151 |
| region is 151 bp downstream of L1MDa (+) | LINE | | 151 |
| region is 151 bp downstream of L1MDa (+) | LINE | | 151 |
| region is 154 bp downstream of L1MDa (+) | LINE | | 154 |
| region is 154 bp downstream of L1MDa (+) | LINE | | 154 |
| region is 154 bp downstream of L1MDa (+) | LINE | | 154 |
| region is 154 bp downstream of L1MDa (+) | LINE | | 154 |
| region is 151 bp downstream of AluSp (-) | SINE | | 151 |
| region is 151 bp downstream of AluSp (-) | SINE | | 151 |
| region is 344 bp downstream of MIR3 (-) | SINE | | 344 |
| region is 421 bp upstream of G-rich (+) | Low_complexity | | 421 |
| region is 1122 bp downstream of L2a (+) | LINE | | 1122 |
| region is 1779 bp downstream of L2a (+) | LINE | | 1779 |
| region is 126 bp downstream of MER5C1 (+) | DNA | | 126 |
| region is 2730 bp upstream of HAL1 (+) | LINE | | 2730 |
| region is 608 bp upstream of C-rich (+) | Low_complexity | | 608 |
| region is 1146 bp downstream of AluYc (+) | SINE | | 1146 |
| region is 2420 bp downstream of AluYc (+) | SINE | | 2420 |
| region is 2448 bp downstream of AluYc (+) | SINE | | 2448 |
| region is 2715 bp downstream of AluYc (+) | SINE | | 2715 |
| region is 1095 bp upstream of L1ME1 (+) | LINE | | 1095 |
| region is 693 bp upstream of AluSx (-) | SINE | | 693 |
| region is 83 bp upstream of L2c (+) | LINE | | 83 |
| region is 347 bp upstream of AluSx1 (+) | SINE | | 347 |
| region is 308 bp downstream of (TTC)n (+) | Simple_repeat | | 308 |
| region is 658 bp upstream of L4 (+) | LTR | | 658 |
| region is 824 bp downstream of (A)n (+) | Simple_repeat | | 824 |
| region is 430 bp upstream of GC-rich (+) | Low_complexity | | 430 |
| region is 386 bp upstream of L1MD3 (-) | LINE | | 386 |
| region is 404 bp upstream of L1MD3 (-) | LINE | | 404 |
| region is 419 bp downstream of L1MD3 (-) | LINE | | 419 |
| region is 260 bp downstream of L1MD3 (-) | LINE | | 260 |
| region is 466 bp downstream of AluJb (-) | SINE | | 466 |
| region is 1727 bp downstream of L1ME4a (-) | LINE | | 1727 |
| region is 930 bp upstream of L2a (-) | LINE | | 930 |
| region is 499 bp upstream of AluSg (-) | SINE | | 499 |
| region is 68 bp downstream of (GAAA)n (+) | Simple_repeat | | 68 |
| region is 267 bp upstream of AluJb (+) | SINE | | 267 |
| region is 94 bp upstream of AluJb (+) | SINE | | 94 |
| region is 2063 bp upstream of AluSx (+) | SINE | | 2063 |
| region is 249 bp upstream of AluSx (-) | SINE | | 249 |
| region is 753 bp upstream of AluSx (-) | SINE | | 753 |
| region is 22 bp downstream of L1PA15 (-) | LINE | | 22 |
| region is 693 bp downstream of Tigger4b (-) | DNA | | 693 |
| region is 1180 bp upstream of AluSq2 (+) | SINE | | 1180 |
| region is 499 bp upstream of AluSg (-) | SINE | | 499 |
| region is 499 bp upstream of AluSg (-) | SINE | | 499 |
| region is 3485 bp downstream of L2c (-) | LINE | | 3485 |
| region is 466 bp downstream of L2c (-) | LINE | | 466 |
| region is 196 bp downstream of MER103C (+) | DNA | | 196 |
| region is 178 bp upstream of C-rich (+) | Low_complexity | | 178 |
| region is 436 bp downstream of AluSz (-) | SINE | | 436 |
| region is 1184 bp downstream of (T)n (+) | Simple_repeat | | 1184 |

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|-----------------|---|----------------|--------|
| FR233520.6 | intron of DGKI (-) | DGKI (-) | 0 |
| FR337428 | contained within KIAA1147 (-) | KIAA1147 (-) | 0 |
| FR266905.2 | region is 13905 bp downstream of TAS2R5 (+) | TAS2R5 (+) | 13905 |
| FR206006 | region is 13907 bp downstream of TAS2R5 (+) | TAS2R5 (+) | 13907 |
| FR015567 | region is 13908 bp downstream of TAS2R5 (+) | TAS2R5 (+) | 13908 |
| FR015567_dup1 | contained within MTRNR2L6 (+) | MTRNR2L6 (+) | 0 |
| FR206006_dup1 | contained within MTRNR2L6 (+) | MTRNR2L6 (+) | 0 |
| FR266905_dup1.1 | contained within MTRNR2L6 (+) | MTRNR2L6 (+) | 0 |
| FR353662 | region is 1418 bp upstream of FAM115C (+) | FAM115C (+) | 1418 |
| FR338565_dup2 | intron of TPK1 (-) | TPK1 (-) | 0 |
| FR090905 | region is 118942 bp upstream of CNTNAP2 (+) | CNTNAP2 (+) | 118942 |
| FR365501 | region is 118943 bp upstream of CNTNAP2 (+) | CNTNAP2 (+) | 118943 |
| FR0909055 | contained within ABC8 (+) | ABC8 (+) | 0 |
| FR197104 | contained within RBM33 (+) | RBM33 (+) | 0 |
| FR001130 | region is 293 bp upstream of DNABJB6 (+) | DNABJB6 (+) | 293 |
| FR296497 | contained within CTSB (-) | CTSB (-) | 0 |
| FR404492 | contained within CTSB (-) | CTSB (-) | 0 |
| FR184567 | contained within CTSB (-) | CTSB (-) | 0 |
| FR288536 | region is 4472 bp downstream of HMBBOX1 (+) | HMBBOX1 (+) | 4472 |
| FR086093.3 | contained within RPS20 (-) | RPS20 (-) | 0 |
| FR132045 | contained within SNORD54 (-) | SNORD54 (-) | 0 |
| FR136623 | contained within SNORD54 (-) | SNORD54 (-) | 0 |
| FR338747.1 | intron of CPA6 (-) | CPA6 (-) | 0 |
| FR038165 | intron of CPA6 (-) | CPA6 (-) | 0 |
| FR357791.4 | contained within FABP5 (+) | FABP5 (+) | 0 |
| FR089602 | region is 10929 bp upstream of LINC00964 (+) | LINC00964 (+) | 10929 |
| FR179095 | contained within JURK (-) | JURK (-) | 0 |
| FR342305 | contained within PLEC (-) | PLEC (-) | 0 |
| FR292218 | intron of LRRC14 (+) | LRRC14 (+) | 0 |
| FR266905.3 | intron of JAK2 (+) | JAK2 (+) | 0 |
| FR057472 | contained within KDM4C (+) | KDM4C (+) | 0 |
| FR360021 | region is 215098 bp downstream of CAAP1 (-) | CAAP1 (-) | 215098 |
| FR266905_dup1.2 | region is 14467 bp downstream of PTENP1 (-) | PTENP1 (-) | 14467 |
| FR348796.2 | region is 7313 bp upstream of DCAF12 (-) | DCAF12 (-) | 7313 |
| FR207372 | intron of LINC01507 | LINC01507 (+) | 0 |
| FR097576 | region is 669 bp downstream of SPATA31D5P (+) | SPATA31D5P (+) | 669 |
| FR097576_dup1 | region is 670 bp downstream of SPATA31D4 (+) | SPATA31D4 (+) | 670 |
| FR072386 | contained within MIRLET7A1 (+) | MIRLET7A1 (+) | 0 |
| FR210409 | contained within MIRLET7F1 (+) | MIRLET7F1 (+) | 0 |
| FR144444_dup1 | contained within FAM225B (-) | FAM225B (-) | 0 |
| FR144444 | contained within FAM225A (+) | FAM225A (+) | 0 |
| FR344475_dup1 | contained within FAM225A (+) | FAM225A (+) | 0 |
| FR158689 | contained within MIR600HG (-) | MIR600HG (-) | 0 |
| FR275856 | region is 27231 bp upstream of PRRC2B (+) | PRRC2B (+) | 27231 |
| FR136216_dup1 | intron of PRRC2B (+) | SNORD62B (+) | 0 |
| FR233730 | contained within SNORD62B (+) | SNORD62B (+) | 0 |
| FR136216 | intron of PRRC2B (+) | SNORD62B (+) | 0 |
| FR233730_dup1 | contained within SNORD62B (+) | SNORD62B (+) | 0 |
| FR194863 | contained within PRRC2B (+) | PRRC2B (+) | 0 |
| FR066510.2 | region is 9906 bp upstream of GTF3C5 (+) | GTF3C5 (+) | 9906 |
| FR372325 | contained within SNORD36C (+) | SNORD36C (+) | 0 |
| FR258622 | contained within SEC16A (-) | SEC16A (-) | 0 |

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|--------------------------------------|-------------|---|
| region is 7767 bp from COSM3394553 | 7767 | |
| region is 4066 bp from COSM1212078 | 4066 | |
| region is 14019 bp from COSM1086335 | 14019 | |
| region is 14021 bp from COSM1086335 | 14021 | |
| region is 14022 bp from COSM1086335 | 14022 | |
| region is 21545 bp from COSM1635162 | 21545 | |
| region is 21545 bp from COSM1635162 | 21545 | |
| region is 21548 bp from COSM1635162 | 21548 | |
| region is 83546 bp from COSM1086816 | 83546 | |
| region is 416 bp from COSM1548802 | 416 | |
| region is 119530 bp from COSM3669704 | 119530 | |
| region is 119531 bp from COSM3669704 | 119531 | |
| region is 81 bp from COSM1449250 | 81 | |
| region is 1655 bp from COSM1622633 | 1655 | |
| region is 21869 bp from COSM1699645 | 21869 | |
| region is 852 bp from COSM177681 | 852 | |
| region is 3 bp from COSM485996 | 3 | |
| COSM1202633 | COSM1202633 | 0 |
| region is 6075 bp from COSM1098958 | 6075 | |
| region is 20 bp from COSM3766779 | 20 | |
| region is 164 bp from COSM221172 | 164 | |
| region is 164 bp from COSM221172 | 164 | |
| region is 38697 bp from COSM3779316 | 38697 | |
| region is 38697 bp from COSM3779316 | 38697 | |
| COSM197164 | COSM197164 | 0 |
| region is 44571 bp from COSM145471 | 44571 | |
| region is 16551 bp from COSM4162717 | 16551 | |
| COSM3698904 | COSM3698908 | 0 |
| region is 1032 bp from COSM1552281 | 1032 | |
| region is 2856 bp from COSM403070 | 2856 | |
| region is 27961 bp from COSM1109557 | 27961 | |
| region is 216782 bp from COSM1497088 | 216782 | |
| region is 3340 bp from COSM1108374 | 3340 | |
| region is 7699 bp from COSM608683 | 7699 | |
| region is 146934 bp from COSM4149501 | 146934 | |
| region is 68204 bp from COSM400115 | 68204 | |
| region is 53132 bp from COSM400115 | 53132 | |
| region is 68036 bp from COSM1111336 | 68036 | |
| region is 68427 bp from COSM1111336 | 68427 | |
| region is 47853 bp from COSM1553666 | 47853 | |
| region is 43030 bp from COSM1553666 | 43030 | |
| region is 40297 bp from COSM1553666 | 40297 | |
| region is 9437 bp from COSM1624518 | 9437 | |
| region is 27341 bp from COSM752516 | 27341 | |
| region is 643 bp from COSM3699489 | 643 | |
| region is 643 bp from COSM3699489 | 643 | |
| region is 891 bp from COSM3847894 | 891 | |
| region is 892 bp from COSM3847894 | 892 | |
| region is 292 bp from COSM1554236 | 292 | |
| region is 10257 bp from COSM1460755 | 10257 | |
| region is 191 bp from COSM1460793 | 191 | |
| region is 15 bp from COSM1461085 | 15 | |

| | | |
|--|----------------|------|
| region is 131 bp downstream of Tigger3b (-) | DNA | 131 |
| region is 2374 bp downstream of Tigger4a (+) | DNA | 2374 |
| region is 232 bp downstream of tRNA-Leu-TTA(m) (-) | tRNA | 232 |
| region is 232 bp upstream of L1MB7 (+) | LINE | 232 |
| region is 232 bp upstream of L1MB7 (+) | LINE | 232 |
| region is 623 bp upstream of MER2 (+) | DNA | 623 |
| region is 622 bp upstream of MER2 (+) | DNA | 622 |
| region is 620 bp upstream of MER2 (+) | DNA | 620 |
| region is 66 bp upstream of AluSx (-) | SINE | 66 |
| region is 540 bp upstream of AluJr (+) | SINE | 540 |
| region is 47 bp downstream of L2a (-) | LINE | 47 |
| region is 48 bp downstream of L2a (-) | LINE | 48 |
| region is 498 bp downstream of LTR5_Hs (+) | LTR | 498 |
| region is 2038 bp upstream of T-rich (+) | Low_complexity | 2038 |
| region is 136 bp downstream of GC_rich (+) | Low_complexity | 136 |
| region is 247 bp downstream of AluSx1 (+) | SINE | 247 |
| region is 1623 bp downstream of AluSx1 (+) | SINE | 1623 |
| region is 1361 bp downstream of MER5B (-) | DNA | 1361 |
| region is 1249 bp downstream of (T)n (+) | Simple_repeat | 1249 |
| region is 1107 bp downstream of AT_rich (+) | Low_complexity | 1107 |
| region is 1272 bp downstream of AT_rich (+) | Low_complexity | 1272 |
| region is 1275 bp downstream of AT_rich (+) | Low_complexity | 1275 |
| region is 225 bp downstream of L2 (-) | LINE | 225 |
| region is 225 bp downstream of L2 (-) | LINE | 225 |
| region is 132 bp downstream of GC_rich (+) | Low_complexity | 132 |
| region is 36 bp upstream of MamGypLTR1d (+) | LTR | 36 |
| region is 515 bp downstream of Tigger10 (-) | DNA | 515 |
| region is 3004 bp upstream of (CTG)n (+) | Simple_repeat | 3004 |
| region is 101 bp upstream of MIRb (+) | SINE | 101 |
| region is 228 bp downstream of tRNA-Leu-TTA(m) (+) | tRNA | 228 |
| region is 111 bp downstream of AluJb (-) | SINE | 111 |
| region is 237 bp upstream of (TC)n (+) | Simple_repeat | 237 |
| region is 235 bp downstream of LSU-rRNA_Hsa (+) | rRNA | 235 |
| region is 627 bp upstream of (CCG)n (+) | Simple_repeat | 627 |
| region is 33 bp upstream of L1MB4 (-) | LINE | 33 |
| region is 672 bp upstream of (CAAAA)n (+) | Simple_repeat | 672 |
| region is 672 bp upstream of (CAAAA)n (+) | Simple_repeat | 672 |
| region is 847 bp upstream of L1M4 (-) | LINE | 847 |
| region is 1238 bp upstream of L1M4 (-) | LINE | 1238 |
| region is 500 bp downstream of AluSx1 (-) | SINE | 500 |
| region is 500 bp downstream of AluSx1 (+) | SINE | 500 |
| region is 143 bp downstream of MLT1A0 (-) | LTR | 143 |
| region is 1155 bp upstream of MER58A (+) | DNA | 1155 |
| region is 94 bp upstream of L2a (-) | LINE | 94 |
| region is 1032 bp downstream of L1ME3D (-) | LINE | 1032 |
| region is 1033 bp downstream of L1ME3D (-) | LINE | 1033 |
| region is 179 bp downstream of L2 (+) | LINE | 179 |
| region is 179 bp downstream of L2 (+) | LINE | 179 |
| region is 2174 bp upstream of MER103C (-) | DNA | 2174 |
| region is 405 bp upstream of (TAA)n (+) | Simple_repeat | 405 |
| region is 600 bp downstream of AluSx (-) | SINE | 600 |
| region is 397 bp upstream of AluSx (+) | SINE | 397 |

