

Supplementary Data

RMBase v2.0: Deciphering the Map of RNA Modifications from Epitranscriptome Sequencing Data

Authors:

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Table S1. The source of genomes and annotations used in RMBase v2.0.

Species	Build	Sequence	Genome annotation
Human	hg19	UCSC	GENCODE v24
Mouse	mm10	UCSC	GENCODE vM11
Rhesus	rheMac8	Ensembl Release-87	Ensembl Release-87
Chimpanzee	panTro4	Ensembl Release-87	Ensembl Release-87
Rat	rn5	Ensembl Release-79	Ensembl Release-79
Pig	susScr3	Ensembl Release-87	Ensembl Release-87
Zebrafish	danRer10	Ensembl Release-87	Ensembl Release-87
<i>S. cerevisiae</i>	sacCer3	Ensembl Release-87	Ensembl Release-87
Fly	BGDP6	Ensembl Release-87	Ensembl Release-87
<i>A. thaliana</i>	TAIR10	Ensembl Release-34	Ensembl Release-34
<i>S. pombe</i>	ASM294v2	Ensembl Release-34	Ensembl Release-34
<i>E. coli</i>	ASM584v2	Ensembl Release-34	Ensembl Release-34
<i>P. aetuginosa</i>	ASM676v1	Ensembl Release-34	Ensembl Release-34

Table S2. The data sets associated with modification sites.

Data sets	Human	Mouse	Resource
RBP binding sites	61179671	6418630	starBase v2.0
miRNA binding sites	364878	61805	starBase v2.0
SNVs	16782048	/	COSMIC
	4802718	/	PMID23945592
	1644607	/	PMID24390350
SNPs	155540826	/	dbSNP 150
	314237	/	GWASdb
	1085981	/	GTEx
	279956	/	ClinVar
	808291	/	CEU, CHB, JPT and YRI

Table S3. The statistics of RNA modification sites associated with some RBPs.

	Am	Cm	Gm	m1A	m5C	m6A	Um	Y	other	total
EIF4A3	996(0.49%)	976(0.48%)	829(0.41%)	1645(0.81%)	17(0.01%)	197498(96.97%)	445(0.22%)	1229(0.6%)	25(0.01%)	203660
ELAVL	606(0.38%)	509(0.32%)	457(0.28%)	721(0.45%)	328(0.2%)	155476(96.86%)	355(0.22%)	1844(1.15%)	225(0.14%)	160521
AGO	948(0.43%)	870(0.39%)	873(0.39%)	1149(0.52%)	668(0.3%)	214176(96.16%)	480(0.22%)	3013(1.35%)	543(0.24%)	222720
YTHDC1	159(1.4%)	88(0.77%)	125(1.1%)	94(0.83%)	271(2.38%)	9770(85.91%)	141(1.24%)	494(4.34%)	231(2.03%)	11373
YTHDF1	53(0.21%)	54(0.21%)	52(0.2%)	30(0.12%)	3(0.01%)	25071(98.6%)	36(0.14%)	129(0.51%)	0(0%)	25428
YTHDF2	0(0%)	0(0%)	1(0.06%)	0(0%)	0(0%)	1670(99.64%)	1(0.06%)	4(0.24%)	0(0%)	1676
WDR33	431(0.48%)	362(0.4%)	369(0.41%)	520(0.58%)	407(0.45%)	86057(96.03%)	253(0.28%)	1003(1.12%)	210(0.23%)	89612
NOP58	695(0.81%)	483(0.56%)	587(0.68%)	1045(1.22%)	527(0.61%)	80732(94.21%)	297(0.35%)	1062(1.24%)	269(0.31%)	85697
FBL	635(0.83%)	498(0.65%)	577(0.75%)	1000(1.31%)	595(0.78%)	71252(93.21%)	321(0.42%)	1151(1.51%)	415(0.54%)	76444
FMR1	387(0.5%)	459(0.59%)	420(0.54%)	364(0.47%)	217(0.28%)	74460(96%)	287(0.37%)	890(1.15%)	82(0.11%)	77566
EIF3A	2(2.15%)	0(0%)	0(0%)	0(0%)	0(0%)	86(92.47%)	1(1.08%)	3(3.23%)	1(1.08%)	93
EIF3B	1(1.22%)	0(0%)	0(0%)	1(1.22%)	1(1.22%)	70(85.37%)	3(3.66%)	3(3.66%)	3(3.66%)	82
EIF3D	2(1.72%)	0(0%)	1(0.86%)	1(0.86%)	1(0.86%)	95(81.9%)	5(4.31%)	8(6.9%)	3(2.59%)	116
EIF3G	3(2.88%)	0(0%)	1(0.96%)	1(0.96%)	1(0.96%)	83(79.81%)	7(6.73%)	5(4.81%)	3(2.88%)	104
WTAP	96(5.17%)	87(4.68%)	118(6.35%)	30(1.62%)	279(15.02%)	431(23.21%)	105(5.65%)	426(22.94%)	285(15.35%)	1857
METTL3	170(6.1%)	146(5.24%)	145(5.21%)	38(1.36%)	279(10.02%)	1071(38.46%)	110(3.95%)	496(17.81%)	330(11.85%)	2785
METTL14	169(7.23%)	137(5.86%)	127(5.44%)	26(1.11%)	234(10.02%)	856(36.64%)	126(5.39%)	414(17.72%)	247(10.57%)	2336
ALKBH5	9(1.68%)	2(0.37%)	7(1.3%)	2(0.37%)	2(0.37%)	490(91.25%)	12(2.23%)	10(1.86%)	3(0.56%)	537

Table S4. Putative diseases-related RNA modification Sites.

	MEL	LUAD	UCEC	Stomach Cancer	CRC	BRCA	Hepatocellular Carcinomas	HNSC	LUSC	CLL	AML
Am	56(0.31%)	50(0.4%)	58(0.48%)	11(0.23%)	49(0.41%)	23(0.57%)	25(0.52%)	20(0.5%)	15(0.44%)	3(0.53%)	5(0.33%)
Cm	42(0.23%)	46(0.37%)	49(0.4%)	14(0.29%)	43(0.36%)	9(0.22%)	16(0.33%)	17(0.43%)	9(0.26%)	3(0.53%)	5(0.33%)
Gm	40(0.22%)	26(0.21%)	36(0.3%)	16(0.33%)	35(0.3%)	9(0.22%)	16(0.33%)	12(0.3%)	9(0.26%)	0(0%)	2(0.13%)
m1A	107(0.59%)	88(0.7%)	112(0.92%)	37(0.76%)	102(0.86%)	34(0.84%)	44(0.91%)	36(0.9%)	14(0.41%)	5(0.89%)	14(0.92%)
m5C	0(0%)	17(0.13%)	0(0%)	1(0.02%)	0(0%)	3(0.07%)	8(0.17%)	1(0.03%)	0(0%)	0(0%)	0(0%)
m6A	17657 (98%)	12262 (97.36%)	11798 (96.96%)	4729 (97.69%)	11540 (97.38%)	3908 (96.68%)	4696 (96.92%)	3889 (97.3%)	3355 (97.9%)	544 (96.45%)	1494 (97.84%)
Um	20(0.11%)	14(0.11%)	27(0.22%)	6(0.12%)	18(0.15%)	14(0.35%)	7(0.14%)	4(0.1%)	7(0.2%)	3(0.53%)	3(0.2%)
Y	95(0.53%)	84(0.67%)	85(0.7%)	27(0.56%)	64(0.54%)	39(0.96%)	27(0.56%)	18(0.45%)	18(0.53%)	6(1.06%)	4(0.26%)
other	0(0%)	7(0.06%)	3(0.02%)	0(0%)	0(0%)	3(0.07%)	6(0.12%)	0(0%)	0(0%)	0(0%)	0(0%)
total	18017	12594	12168	4841	11851	4042	4845	3997	3427	564	1527

Figure S1. The results page of various RNA modification sites in genes by filtering “lincRNA” in “modGene” interface.

Search Results for Human modgenes [Help](#)

Show entries Search all columns:

Gene	Gene ID	Gene Type	Strand	m6A Num	m1A Num	m5C Num	2'-O-Me Num	PseudoU
NEAT1	ENSG00000245532.5	lincRNA	+	106	1	0	3	0
RP1-140K8.5	ENSG00000260604.2	lincRNA	-	96	0	0	0	0
XIST	ENSG00000229807.9	lincRNA	-	89	0	0	4	1
LINC00346	ENSG00000255874.2	lincRNA	-	79	0	0	0	0
RP11-258F22.1	ENSG00000198105.11	lincRNA	-	77	0	0	0	0
AL133493.2	ENSG00000233922.2	lincRNA	+	62	0	0	0	0
RP11-284F21.9	ENSG00000272068.1	lincRNA	-	58	0	0	0	0
CTC-559E9.1	ENSG00000267581.1	lincRNA	-	57	0	0	0	0
SPATA13	ENSG00000182957.15	lincRNA,processed_transcript,protein_coding,retained_intron	+	55	0	0	0	0
KBTBD11-OT1	ENSG00000176595.3	lincRNA	+	55	0	0	0	0

Showing 1 to 10 of 1,727 entries (filtered from 23,391 total entries) First Previous 1 2 3 4 5 ... 173 Next Last

Figure S2. The results of the list of RNA modification sites associated with “FMR1” in “modRBP” interface.

Relationships between RNA modifications and RBP binding regions in Human [Help](#)

Show entries Search all columns:

RBPID	ModID	ModType	SupportNum	RBPname	RBPtype	ClipExpNum	GeneName	GeneType
RBP_site_637605	m6A_site_99966	m6A	3	FMR1	-	1	HOXC11	protein_coding
RBP_site_637585	m6A_site_99956	m6A	5	FMR1	-	1	HOTAIR	antisense
RBP_site_637365	m6A_site_99889	m6A	34	FMR1	-	1	CALCOCO1,CALCOCO1	retained_intron,protein_coding
RBP_site_636954	m6A_site_99840	m6A	2	FMR1	-	2	ATP5G2,ATP5G2,ATP5G2	retained_intron,protein_coding,prote
RBP_site_636903	m6A_site_99839	m6A	1	FMR1	-	2	ATP5G2,ATP5G2,ATP5G2	retained_intron,protein_coding,prote
RBP_site_636846	m6A_site_99838	m6A	2	FMR1	-	2	ATP5G2,ATP5G2,ATP5G2,ATP5G2	processed_transcript,protein_coding
RBP_site_636795	m6A_site_99835	m6A	8	FMR1	-	1	ATF7,ATF7	retained_intron,protein_coding
RBP_site_636760	m6A_site_99832	m6A	8	FMR1	-	1	RP11-793H13.10,ATF7,ATF7,ATF7	protein_coding,retained_intron,prote
RBP_site_636447	m6A_site_99767	m6A	6	FMR1	-	1	RP11-793H13.10,ATF7,ATF7	protein_coding,protein_coding,protei
RBP_site_636406	m6A_site_99762	m6A	22	FMR1	-	1	TARBP2,TARBP2,TARBP2	protein_coding,nonsense_mediated,

Showing 1 to 10 of 74,460 entries (filtered from 2,886,675 total entries) First Previous 1 2 3 4 5 ... 7446 Next Last