

Comprehensive analysis of the palindromic motif TCTCGCGAGA, a regulatory element of the *HNRNPK* promoter

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SUPPLEMENTARY DATA

Supplementary method 1

The maximum mass deviation (MMD) for precursor and fragment ions were established in a procedure involving two database searches separated by a mass recalibration step. Data from each LC-MS/MS run was searched in a first pass with permissive MMD settings (± 40 ppm for precursor ions and ± 0.8 Da for fragment ions). The resulting Mascot DAT files were next imported to an in-house Java tool (DATViewer, <http://www.ire.pw.edu.pl/~trubel/soft/ms/mascotscan>) which implements a procedure for systematic mass errors elimination and high accuracy MMD estimation. Only PSMs with a score value exceeding the smaller of the Mascot identity and homology thresholds were used for the mass accuracy assessment. For each LC-MS/MS run the mass correction was performed by fitting a smooth LOESS curve to the scatterplot of the observed mass errors versus precursor ions masses. The obtained normalization function was then used for the entire set of precursor ions. A separate calibration function was also calculated for fragmentation spectra on the basis of the masses of singly charged y -series ions. The new MMD values were estimated as three-fold the standard deviation of the mass errors after recalibration. Finally, the mass-corrected spectra were exported as Mascot Generic File format files and resubmitted to the database search engine in order to obtain final peptide and protein identifications

Supplementary method 2

For statistical assessment of peptide assignments the fragmentation spectra were matched against a joined target/decoy database.¹ The target part of the database containing true protein sequences was concatenated with a decoy part composed of reversed versions of these sequences. All peptide PSMs, from the forward and the reverse database, were sorted according to their score modified by subtracting the smaller of the Mascot identity and homology thresholds. The number of false positive identifications associated with a specific position P in the sorted list was estimated by doubling the number PSMs from the decoy part of the database at positions not greater than P . The position-related false discovery rate (FDR) was calculated by dividing the estimated number of false positives by the total number of PSMs at preceding positions. To address the fact that FDR itself is not a function of the underlying score (i.e. FDR can decrease with increasing position in the sorted list), the position-related FDRs were next converted to q -values, as described in.² The presented analysis was performed using a proprietary software tool implemented in Java programming language (MascotScan, <http://www.ire.pw.edu.pl/~trubel/soft/ms/mascotscan>).

1. Elias, J. E. and Gygi, S. P. 2007, Target-decoy search strategy for increased confidence in large-scale protein identifications by mass spectrometry. *Nature methods*, **4**, 207-214.
2. Kall, L., Storey, J. D., MacCoss, M. J. and Noble, W. S. 2008, Assigning significance to peptides identified by tandem mass spectrometry using decoy databases. *Journal of proteome research*, **7**, 29-34.

Supplementary Tables.

Supplementary Table S1. Identified promoter areas of a human *HNRNPK* gene with marked regulatory elements.

P1 – promoter 1, P2 – promoter 2, P3 – promoter 3, P4 – promoter 4

GCGG – consensus Sp1 binding motif , **TCTCGCGAGA** – palindrome motif, **CGGGTTTT** - consensus NFkB binding motif , **CCAATC** – the CCAAT regulatory element, **CTCGATGGC** – the GATA regulatory element, **TGAGTCAGG** – consensus NF-E2 binding motif.

>Promoter1-chr9-85785301-85785800-rev (P1)

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ACAAACAACGGGTTTCCGAAGCGTGGGCCCGGCCAGCGGACGCAGACGGCCCGCACTTACCGCGCCGAGCTCGTCCCACA
GCCACAGACCACAGCCCGGGCGGGGTAAGGGGCTTCGGGCACGAGTGTGGGCTGTGAAAACACGGGCATAAGTCTGGGCC
GAGCACCGACCTGGGCGTCCCGCATTTTCCCTCGCGCAACATCGGTCCCTGGGCAGCGCAACTGTAAGGACAGGAACCGCCGC
GGCGCGCTCCAGTTCCCTTTTTTACCTCTTCCCGCCGATTGCGCGCGCTCGCGCCCTCCTCCAACCCAAAGGACTCC
TTCGGGGCTGAAAAACGCCCTTCCCGCCCTCCCTGTGCGCGTGAACAGGAGTGTAGTATCTCGCGAGAGGTTCGC
CCCCTAGCCGCCCTCCCCCAGCTAGTGAGTGCGCAACGAGAAAGGAGGAGGGCGCTCCAGGCGACAGCACTGCAGACGC
CATTATCC
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>Promoter2-chr9-85784901-85785200-rev (P2)

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GGGTAAGGGTTGGGCTCCCTGAAAGGCTGCGTTACTTTTCCCAAGCCCGGGTTTTCTCGAGCCCTTAGTGGCCTCCCAGC
CCGAAGGGAGGCCTGCGGGAGCGGGGTTGTGCGCTCCTCCGTGCGCTTGATTGACGTGGCCTCGGGCCAATCGCTTCGC
CCTCGACCATCGTGAAGCCCTGGCAGCCAATAGGGCGCGACGCGGGGAGGACGCGAGAAGCGGGGGAGGGGAGCCTGC
GCTCGTTTTCTGTCTAGCTCCGACCGCTGAGCGGCGCGCAGCGGAGGGACG
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>Promoter3-chr9-85784451-85784950-rev (P3)

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GTTTTCTGTCTAGCTCCGACCGCTGAGCGGCGCGCAGCGGAGGGACGGCAGTCTCGCGGGTGGAGAGCCGGTTGGGG
GAGCGGCTCGTGAGGTTGAGGGTCGGAGCCAGTTTTTCCGCTTGAGGGAGGCGTCTGGGAGCCGCTTTGGTGTGGCCG
CTTCTCCGAGTGGAAACGTTGCCGGTGTCCCTCCCCCTCCGCCATTTCCCTGAGCGTGTATCCGCAGTCCGCGTTGTG
GTCCTAGAGACTTGGGATTCGTGAGGCATGTGCTCTAGGATGAGCTGGAGCTATGTGGCACTGGGAACAGGGACCTCGT
GGAGGAAAGGAGCCGGTGCGGGGAGAAGGTGCGCCCGCGCTCTCTTTGTGTGAGCCCCGCTCACCTTGGGTCTCCCGC
CCGGGGTCCGAGCTGGAGCGCGGGGATGGAACGGTCAGGGCTGCCTCGATGGCTTTGTCTCGGGCAGTGGGGGGAGGATGC
GGGGAT
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>Promoter4-chr9-85780201-85780900-rev (P4)

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TACAAACTTGCCGTGTAGGATCTAGGAATGCATTTCAAACCTCCAGAAAACCAAACCAGTCTTATTAGTTAGGGTTTTGGT
GGTGTGGGAATTTTGTGTTTTGTTTTATAAACCTCTCTCCTTAATCCAGATGTTCTGTATAATTATCTGGGTATTAAAT
TCCCCATTTCTCAAGAATTTAGTAAACTTTGAGTCAGGTTTTGTGTCTACCCCTCATGAGCCAGCCTGCTACTGAAACATCG
TTTGTTTTTCTTAAAAATAAAAAAGGCTAGAACCATCATTTGAGGTCCTTAATGTTAAGCCACAGTCAGATTTAGAGAAGTC
CATTATTGTGTAGTCTTCAGAACAACTTAAGCTTGTTTCATTGAGAGTATGAGTATAGTTTGTATTAATTAATTTATATG
CTTTCCCCCTTTCCCTCTCCTGTGTTTTTTGGCCATATACTCCGTTGCCATGTACTGGATCGACTTACCCCTGCGTTGC
CCACCATGACGTTGGCCCATCCGCCCTGAACGCCCATGTGAAAACCTGGTTGGCTATGCCCAAAATGTGCTCGTTGCCAA
ACGGGTACCATACTTGACAACCTCTGATTGAATGCCCATGCCCAATGCCAACATCCACGAACGCCAATGACCAATGCAGTACA
ATGCCAGTGTTCAGTCCCAGACAGCAGTGGCCCCG
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Supplementary Table S2 . A subset of 132 proteins, out of 297, identified by at least 3 peptides and annotated to the GO term *nucleus* (GO: 0005634) after exclusion of ribosomal proteins and histones.

	Accession	Entry name	Protein names	Gene names	Length
1	Q15029	U5S1_HUMAN	116 kDa U5 small nuclear ribonucleoprotein component (U5 snRNP-specific protein, 116 kDa) (U5-116 kDa) (Elongation factor Tu GTP-binding domain-containing protein 2) (hSNU114)	EFTUD2 (KIAA0031) (SNRP116)	972
2	P60709	ACTB_HUMAN	Actin, cytoplasmic 1 (Beta-actin) [Cleaved into: Actin, cytoplasmic 1, N-terminally processed]	ACTB	375
3	P53999	TCP4_HUMAN	Activated RNA polymerase II transcriptional coactivator p15 (SUB1 homolog) (Positive cofactor 4) (PC4) (p14)	SUB1 (PC4) (RPO2TC1)	127
4	P46013	KI67_HUMAN	Antigen KI-67	MKI67	3256
5	Q9UKV3	ACINU_HUMAN	Apoptotic chromatin condensation inducer in the nucleus (Acinus)	ACIN1 (ACINUS) (KIAA0670)	1341
6	Q7Z2E3	APTX_HUMAN	Aprataxin (EC 3.-.-.-) (Forkhead-associated domain histidine triad-like protein) (FHA-HIT)	APTX (AXA1)	356
7	P12956	KU70_HUMAN	ATP-dependent DNA helicase 2 subunit 1 (EC 3.6.1.-) (ATP-dependent DNA helicase II 70 kDa subunit) (Lupus Ku autoantigen protein p70) (Ku70) (70 kDa subunit of Ku antigen) (Thyroid-lupus autoantigen) (TLAA) (CTC box-binding factor 75 kDa subunit) (CTCBF) (CTC75) (DNA repair protein XRCC6)	XRCC6 (G22P1)	609
8	P13010	KU86_HUMAN	ATP-dependent DNA helicase 2 subunit 2 (EC 3.6.1.-) (ATP-dependent DNA helicase II 80 kDa subunit) (Lupus Ku autoantigen protein p86) (86 kDa subunit of Ku antigen) (Ku86) (Ku80) (Thyroid-lupus autoantigen) (TLAA) (CTC box-binding factor 85 kDa subunit) (CTCBF) (CTC85) (Nuclear factor IV) (DNA repair protein XRCC5)	XRCC5 (G22P2)	732
9	P46063	RECQ1_HUMAN	ATP-dependent DNA helicase Q1 (EC 3.6.1.-) (DNA-dependent ATPase Q1)	RECQL (RECQL1)	649
10	Q08211	DHX9_HUMAN	ATP-dependent RNA helicase A (EC 3.6.1.-) (Nuclear DNA helicase II) (NDH II) (DEAH box protein 9)	DHX9 (DDX9) (LKP) (NDH2)	1270
11	O00571	DDX3X_HUMAN	ATP-dependent RNA helicase DDX3X (EC 3.6.1.-) (DEAD box protein 3, X-chromosomal) (Helicase-like protein 2) (HLP2) (DEAD box, X isoform)	DDX3X (DBX) (DDX3)	662
12	O75531	BAF_HUMAN	Barrier-to-autointegration factor (Breakpoint cluster region protein 1)	BANF1 (BAF) (BCRG1)	89
13	Q9NYF8	BCLF1_HUMAN	Bcl-2-associated transcription factor 1 (Btf)	BCLAF1 (BTF) (KIAA0164)	920
14	Q96T60	PNKP_HUMAN	Bifunctional polynucleotide phosphatase/kinase (Polynucleotide kinase-3'-phosphatase) (DNA 5'-kinase/3'-phosphatase) [Includes: Polynucleotide 3'-phosphatase (EC 3.1.3.32) (2'(3')-polynucleotidase); Polynucleotide 5'-hydroxyl-kinase (EC 2.7.1.78)]	PNKP	521
15	Q10570	CPSF1_HUMAN	Cleavage and polyadenylation specificity factor subunit 1 (Cleavage and polyadenylation specificity factor 160 kDa subunit) (CPSF 160 kDa subunit)	CPSF1 (CPSF160)	1443
16	O43809	CPSF5_HUMAN	Cleavage and polyadenylation specificity factor subunit 5 (Cleavage and polyadenylation specificity factor 25 kDa subunit) (CPSF 25 kDa subunit) (Pre-mRNA cleavage factor Im 25 kDa subunit) (Nucleoside diphosphate-linked moiety X motif 21) (Nudix motif 21)	NUDT21 (CFIM25) (CPSF25) (CPSF5)	227
17	Q16630	CPSF6_HUMAN	Cleavage and polyadenylation specificity factor subunit 6 (Cleavage and polyadenylation specificity factor 68 kDa subunit) (CPSF 68 kDa subunit) (Pre-mRNA cleavage factor Im 68 kDa subunit) (Protein HPBR11-4/7)	CPSF6 (CFIM68)	551
18	Q8N684	CPSF7_HUMAN	Cleavage and polyadenylation specificity factor subunit 7 (Cleavage and polyadenylation specificity factor 59 kDa subunit) (CPSF 59 kDa subunit) (Pre-mRNA cleavage factor Im 59 kDa subunit)	CPSF7	471
19	Q12996	CSTF3_HUMAN	Cleavage stimulation factor 77 kDa subunit (CSTF 77 kDa subunit) (CstF-77) (CF-1 77 kDa subunit)	CSTF3	717
20	Q14011	CIRBP_HUMAN	Cold-inducible RNA-binding protein (Glycine-rich RNA-binding protein CIRP) (A18 hnRNP)	CIRBP (A18HNRNP) (CIRP)	172
21	O75367	H2AY_HUMAN	Core histone macro-H2A.1 (Histone macroH2A1) (mH2A1) (H2A.y) (H2A/y) (Medulloblastoma antigen MU-MB-50.205)	H2AFY (MACROH2A1)	372
22	Q96EP5	DAZP1_HUMAN	DAZ-associated protein 1 (Deleted in azoospermia-associated protein 1)	DAZAP1	407
23	Q9Y295	DRG1_HUMAN	Developmentally-regulated GTP-binding protein 1 (DRG-1) (Neural precursor cell expressed developmentally down-regulated protein 3) (NEDD-3)	DRG1 (NEDD3)	367

24	P26358	DNMT1_HUMAN	DNA (cytosine-5)-methyltransferase 1 (Dnmt1) (EC 2.1.1.37) (MCMT) (DNA methyltransferase HsaI) (DNA MTase HsaI) (M.HsaI) (CXXC-type zinc finger protein 9)	DNMT1 (AIM) (CXXC9) (DNMT)	1616
25	P49916	DNL3_HUMAN	DNA ligase 3 (EC 6.5.1.1) (DNA ligase III) (Polydeoxyribonucleotide synthase [ATP] 3)	LIG3	1009
26	P18887	XRCC1_HUMAN	DNA repair protein XRCC1 (X-ray repair cross-complementing protein 1)	XRCC1	633
27	P11387	TOP1_HUMAN	DNA topoisomerase 1 (EC 5.99.1.2) (DNA topoisomerase I)	TOP1	765
28	P11388	TOP2A_HUMAN	DNA topoisomerase 2-alpha (EC 5.99.1.3) (DNA topoisomerase II, alpha isozyme)	TOP2A (TOP2)	1531
29	Q02880	TOP2B_HUMAN	DNA topoisomerase 2-beta (EC 5.99.1.3) (DNA topoisomerase II, beta isozyme)	TOP2B	1626
30	P27695	APEX1_HUMAN	DNA-(apurinic or apyrimidinic site) lyase (EC 4.2.99.18) (Apurinic-apyrimidinic endonuclease 1) (AP endonuclease 1) (APEX nuclease) (APEN) (Protein REF-1)	APEX1 (APE) (APEX) (APX) (HAP1) (REF1)	318
31	P29372	3MG_HUMAN	DNA-3-methyladenine glycosylase (EC 3.2.2.21) (3-methyladenine DNA glycosidase) (ADPG) (3-alkyladenine DNA glycosylase) (N-methylpurine-DNA glycosylase)	MPG (AAG) (ANPG) (MID1)	298
32	P78527	PRKDC_HUMAN	DNA-dependent protein kinase catalytic subunit (DNA-PK catalytic subunit) (DNA-PKcs) (EC 2.7.11.1) (DNPk1) (p460)	PRKDC (HYRC) (HYRC1)	4128
33	P49792	RBP2_HUMAN	E3 SUMO-protein ligase RanBP2 (Ran-binding protein 2) (Nuclear pore complex protein Nup358) (Nucleoporin Nup358) (358 kDa nucleoporin) (p270)	RANBP2 (NUP358)	3224
34	Q96T88	UHRF1_HUMAN	E3 ubiquitin-protein ligase UHRF1 (EC 6.3.2.-) (Ubiquitin-like PHD and RING finger domain-containing protein 1) (Ubiquitin-like-containing PHD and RING finger domains protein 1) (Inverted CCAAT box-binding protein of 90 kDa) (Transcription factor ICBP90) (Nuclear zinc finger protein Np95) (Nuclear protein 95) (HuNp95) (RING finger protein 106)	UHRF1 (ICBP90) (NP95) (RNF106)	793
35	P78549	NTHL1_HUMAN	Endonuclease III-like protein 1 (EC 4.2.99.18)	NTHL1 (NTH1) (OCTS3)	312
36	Q9NQ4	EXOS5_HUMAN	Exosome complex exonuclease RRP46 (EC 3.1.13.-) (Ribosomal RNA-processing protein 46) (Exosome component 5) (p12B) (Chronic myelogenous leukemia tumor antigen 28)	EXOSC5 (CML28) (RRP46)	235
37	Q9Y5B9	SP16H_HUMAN	FACT complex subunit SPT16 (Facilitates chromatin transcription complex subunit SPT16) (hSPT16) (FACT 140 kDa subunit) (FACTp140) (Chromatin-specific transcription elongation factor 140 kDa subunit)	SUPT16H (FACT140) (FACTP140)	1047
38	Q96I24	FUBP3_HUMAN	Far upstream element-binding protein 3 (FUSE-binding protein 3)	FUBP3 (FBP3)	572
39	P21333	FLNA_HUMAN	Filamin-A (Alpha-filamin) (Filamin-1) (Endothelial actin-binding protein) (Actin-binding protein 280) (ABP-280) (Non-muscle filamin)	FLNA (FLN) (FLN1)	2647
40	P39748	FEN1_HUMAN	Flap endonuclease 1 (FEN-1) (EC 3.1.-.-) (Flap structure-specific endonuclease 1) (Maturation factor 1) (MF1) (hFEN-1) (DNase IV)	FEN1 (RAD2)	380
41	P78347	GTF2I_HUMAN	General transcription factor II-I (GTFII-I) (TFII-I) (Bruton tyrosine kinase-associated protein 135) (BTK-associated protein 135) (BAP-135) (SRF-Phox1-interacting protein) (SPIN) (Williams-Beuren syndrome chromosomal region 6 protein)	GTF2I (BAP135) (WBSCR6)	998
42	Q9BQ67	GRWD1_HUMAN	Glutamate-rich WD repeat-containing protein 1	GRWD1 (GRWD) (KIAA1942) (WDR28)	446
43	P62826	RAN_HUMAN	GTP-binding nuclear protein Ran (GTPase Ran) (Ras-related nuclear protein) (Ras-like protein TC4) (Androgen receptor-associated protein 24)	RAN (ARA24) (OK/SW-cl.81)	216
44	O60832	DKC1_HUMAN	H/ACA ribonucleoprotein complex subunit 4 (EC 5.4.99.-) (Dyskerin) (Nucleolar protein family A member 4) (snRNP protein DKC1) (Nopp140-associated protein of 57 kDa) (Nucleolar protein NAP57) (CBF5 homolog)	DKC1 (NOLA4)	514
45	Q5SSJ5	HP1B3_HUMAN	Heterochromatin protein 1-binding protein 3 (Protein HP1-BP74)	HP1BP3	553
46	Q99729	ROAA_HUMAN	Heterogeneous nuclear ribonucleoprotein A/B (hnRNP A/B) (APOBEC1-binding protein 1) (ABBP-1)	HNRNPAB (ABBP1) (HNRPAB)	332
47	Q13151	ROA0_HUMAN	Heterogeneous nuclear ribonucleoprotein A0 (hnRNP A0)	HNRNPA0 (HNRPA0)	305
48	P09651	ROA1_HUMAN	Heterogeneous nuclear ribonucleoprotein A1 (hnRNP core protein A1) (Helix-destabilizing protein) (Single-strand RNA-binding protein)	HNRNPA1 (HNRPA1)	372

49	P51991	ROA3_HUMAN	Heterogeneous nuclear ribonucleoprotein A3 (hnRNP A3)	HNRNPA3 (HNRPA3)	378
50	Q14103	HNRPD_HUMAN	Heterogeneous nuclear ribonucleoprotein D0 (hnRNP D0) (AU-rich element RNA-binding protein 1)	HNRNPD (AUF1) (HNRPD)	355
51	O14979	HNRDL_HUMAN	Heterogeneous nuclear ribonucleoprotein D-like (hnRNP D-like protein) (hnHNRP-DL) (JKT41-binding protein) (AU-rich element RNA-binding factor) (Protein laAUF1)	HNRPDL (JKTBP)	420
52	P38159	HNRPG_HUMAN	Heterogeneous nuclear ribonucleoprotein G (hnRNP G) (RNA-binding motif protein, X chromosome) (Glycoprotein p43) [Cleaved into: Heterogeneous nuclear ribonucleoprotein G, N-terminally processed]	RBMX (HNRPG) (RBMXP1)	391
53	P31943	HNRH1_HUMAN	Heterogeneous nuclear ribonucleoprotein H (hnRNP H) [Cleaved into: Heterogeneous nuclear ribonucleoprotein H, N-terminally processed]	HNRNPH1 (HNRPH) (HNRPH1)	449
54	P61978	HNRPK_HUMAN	Heterogeneous nuclear ribonucleoprotein K (hnRNP K) (Transformation up-regulated nuclear protein) (TUNP)	HNRNPK (HNRPK)	463
55	P14866	HNRPL_HUMAN	Heterogeneous nuclear ribonucleoprotein L (hnRNP L)	HNRNPL (HNRPL) (P/OKcl.14)	589
56	P52272	HNRPM_HUMAN	Heterogeneous nuclear ribonucleoprotein M (hnRNP M)	HNRNPM (HNRPM) (NAGR1)	730
57	O60506	HNRPQ_HUMAN	Heterogeneous nuclear ribonucleoprotein Q (hnRNP Q) (hnRNP-Q) (Synaptotagmin-binding, cytoplasmic RNA-interacting protein) (Glycine- and tyrosine-rich RNA-binding protein) (GRY-RBP) (NS1-associated protein 1)	SYNCRIP (HNRPQ) (NSAP1)	623
58	O43390	HNRPR_HUMAN	Heterogeneous nuclear ribonucleoprotein R (hnRNP R)	HNRNPR (HNRPR)	633
59	Q00839	HNRPU_HUMAN	Heterogeneous nuclear ribonucleoprotein U (hnRNP U) (Scaffold attachment factor A) (SAF-A) (p120) (pp120)	HNRNPU (HNRPU) (SAFA) (U21.1)	825
60	Q9BUJ2	HNRL1_HUMAN	Heterogeneous nuclear ribonucleoprotein U-like protein 1 (Adenovirus early region 1B-associated protein 5) (E1B-55 kDa-associated protein 5) (E1B-AP5)	HNRNPUL1 (E1BAP5) (HNRPUL1)	856
61	P22626	ROA2_HUMAN	Heterogeneous nuclear ribonucleoproteins A2/B1 (hnRNP A2 / hnRNP B1)	HNRNPA2B1 (HNRPA2B1)	353
62	P07910	HNRPC_HUMAN	Heterogeneous nuclear ribonucleoproteins C1/C2 (hnRNP C1 / hnRNP C2)	HNRNPC (HNRPC)	306
63	Q9NZI8	IF2B1_HUMAN	Insulin-like growth factor 2 mRNA-binding protein 1 (IGF2 mRNA-binding protein 1) (IMP-1) (IGF-II mRNA-binding protein 1) (Coding region determinant-binding protein) (CRD-BP) (VICKZ family member 1) (Zip code-binding protein 1) (Zipcode-binding protein 1) (ZBP-1)	IGF2BP1 (CRDBP) (VICKZ1) (ZBP1)	577
64	O00425	IF2B3_HUMAN	Insulin-like growth factor 2 mRNA-binding protein 3 (IGF2 mRNA-binding protein 3) (IMP-3) (IGF-II mRNA-binding protein 3) (KH domain-containing protein overexpressed in cancer) (hKOC) (VICKZ family member 3)	IGF2BP3 (IMP3) (KOC1) (VICKZ3)	579
65	Q12905	ILF2_HUMAN	Interleukin enhancer-binding factor 2 (Nuclear factor of activated T-cells 45 kDa)	ILF2 (NF45) (PRO3063)	390
66	Q12906	ILF3_HUMAN	Interleukin enhancer-binding factor 3 (Nuclear factor of activated T-cells 90 kDa) (NF-AT-90) (Double-stranded RNA-binding protein 76) (DRBP76) (Translational control protein 80) (TCP80) (Nuclear factor associated with dsRNA) (NFAR) (M-phase phosphoprotein 4) (MPP4)	ILF3 (DRBF) (MPHOSPH4) (NF90)	894
67	Q07666	KHDR1_HUMAN	KH domain-containing, RNA-binding, signal transduction-associated protein 1 (p21 Ras GTPase-activating protein-associated p62) (GAP-associated tyrosine phosphoprotein p62) (Src-associated in mitosis 68 kDa protein) (Sam68) (p68)	KHDRBS1 (SAM68)	443
68	P42166	LAP2A_HUMAN	Lamina-associated polypeptide 2, isoform alpha (Thymopoietin isoform alpha) (TP alpha) (Thymopoietin-related peptide isoform alpha) (TPRP isoform alpha) [Cleaved into: Thymopoietin (TP) (Splenin); Thymopentin (TP5)]	TMPO (LAP2)	694
69	P43243	MATR3_HUMAN	Matrin-3	MATR3 (KIAA0723)	847
70	Q14676	MDC1_HUMAN	Mediator of DNA damage checkpoint protein 1 (Nuclear factor with BRCT domains 1)	MDC1 (KIAA0170) (NFB1)	2089
71	Q9BQG0	MBB1A_HUMAN	Myb-binding protein 1A	MYBBP1A (P160)	1328

72	P35579	MYH9_HUMAN	Myosin-9 (Myosin heavy chain 9) (Myosin heavy chain, non-muscle IIa) (Non-muscle myosin heavy chain IIa) (NMMHC II-a) (NMMHC-IIA) (Cellular myosin heavy chain, type A) (Non-muscle myosin heavy chain A) (NMMHC-A)	MYH9	1960
73	Q9H0A0	NAT10_HUMAN	N-acetyltransferase 10 (EC 2.3.1.-)	NAT10 (ALP) (KIAA1709)	1025
74	Q09666	AHNK_HUMAN	Neuroblast differentiation-associated protein AHNK (Desmoyokin)	AHNAK (PM227)	5890
75	P55769	NH2L1_HUMAN	NHP2-like protein 1 (High mobility group-like nuclear protein 2 homolog 1) (U4/U6.U5 tri-snRNP 15.5 kDa protein) (OTK27) (hSNU13)	NHP2L1	128
76	Q15233	NONO_HUMAN	Non-POU domain-containing octamer-binding protein (NonO protein) (54 kDa nuclear RNA- and DNA-binding protein) (p54(nrb)) (p54nrb) (55 kDa nuclear protein) (NMT55) (DNA-binding p52/p100 complex, 52 kDa subunit)	NONO (NRB54)	471
77	Q14980	NUMA1_HUMAN	Nuclear mitotic apparatus protein 1 (NuMA protein) (SP-H antigen)	NUMA1 (NUMA)	2115
78	Q9UBU9	NXFI_HUMAN	Nuclear RNA export factor 1 (Tip-associating protein) (Tip-associated protein) (mRNA export factor TAP)	NXFI (TAP)	619
79	P67809	YBOX1_HUMAN	Nuclease-sensitive element-binding protein 1 (Y-box-binding protein 1) (Y-box transcription factor) (YB-1) (CCAAT-binding transcription factor I subunit A) (CBF-A) (Enhancer factor I subunit A) (EFI-A) (DNA-binding protein B) (DBPB)	YBX1 (NSEP1) (YB1)	324
80	Q14978	NOLC1_HUMAN	Nucleolar phosphoprotein p130 (Nucleolar 130 kDa protein) (140 kDa nucleolar phosphoprotein) (Nopp140) (Nucleolar and coiled-body phosphoprotein 1) (HCV NS5A trans-regulated protein 13) (NS5ATP13)	NOLC1 (KIAA0035)	699
81	O00567	NOP56_HUMAN	Nucleolar protein 56 (Nucleolar protein 5A)	NOP56 (NOL5A)	594
82	Q9NR30	DDX21_HUMAN	Nucleolar RNA helicase 2 (EC 3.6.1.-) (Nucleolar RNA helicase II) (Nucleolar RNA helicase Gu) (RH II/Gu) (Gu-alpha) (DEAD box protein 21)	DDX21	783
83	P19338	NUCL_HUMAN	Nucleolin (Protein C23)	NCL	710
84	Q8WXF1	PSPC1_HUMAN	Paraspeckle component 1 (Paraspeckle protein 1)	PSPC1 (PSP1)	523
85	O75475	PSIP1_HUMAN	PC4 and SFRS1-interacting protein (Lens epithelium-derived growth factor) (Transcriptional coactivator p75/p52) (Dense fine speckles 70 kDa protein) (DFS 70) (CLL-associated antigen KW-7)	PSIP1 (DFS70) (LEDGF) (PSIP2)	530
86	Q8NC51	PAIRB_HUMAN	Plasminogen activator inhibitor 1 RNA-binding protein (PAI1 RNA-binding protein 1) (PAI-RBP1) (SERPINE1 mRNA-binding protein 1)	SERP1 (PAIRBP1) (CGI-55)	408
87	P09874	PARP1_HUMAN	Poly [ADP-ribose] polymerase 1 (PARP-1) (EC 2.4.2.30) (ADPRT) (NAD(+) ADP-ribosyltransferase 1) (Poly[ADP-ribose] synthetase 1)	PARP1 (ADPRT) (PPOL)	1014
88	Q15365	PCBP1_HUMAN	Poly(rC)-binding protein 1 (Alpha-CP1) (hnRNP-E1) (Nucleic acid-binding protein SUB2.3)	PCBP1	356
89	P11940	PABP1_HUMAN	Polyadenylate-binding protein 1 (Poly(A)-binding protein 1) (PABP 1)	PABPC1 (PAB1) (PABP1) (PABPC2)	636
90	Q9BY77	PDIP3_HUMAN	Polymerase delta-interacting protein 3 (46 kDa DNA polymerase delta interaction protein) (p46)	POLDIP3 (KIAA1649) (PDIP46)	421
91	P26599	PTBP1_HUMAN	Polypyrimidine tract-binding protein 1 (PTB) (Heterogeneous nuclear ribonucleoprotein I) (hnRNP I) (57 kDa RNA-binding protein PPTB-1)	PTBP1 (PTB)	531
92	Q9UMS4	PRP19_HUMAN	Pre-mRNA-processing factor 19 (PRP19/PSO4 homolog) (hPso4) (Nuclear matrix protein 200) (Senescence evasion factor)	PRPF19 (NMP200) (PRP19) (SNEV)	504
93	Q6P2Q9	PRP8_HUMAN	Pre-mRNA-processing-splicing factor 8 (Splicing factor Prp8) (PRP8 homolog) (220 kDa U5 snRNP-specific protein) (p220)	PRPF8 (PRPC8)	2335
94	Q92841	DDX17_HUMAN	Probable ATP-dependent RNA helicase DDX17 (EC 3.6.1.-) (DEAD box protein 17) (RNA-dependent helicase p72) (DEAD box protein p72)	DDX17	650
95	Q9H0S4	DDX47_HUMAN	Probable ATP-dependent RNA helicase DDX47 (EC 3.6.1.-) (DEAD box protein 47)	DDX47	455
96	P17844	DDX5_HUMAN	Probable ATP-dependent RNA helicase DDX5 (EC 3.6.1.-) (DEAD box protein 5) (RNA helicase p68)	DDX5 (G17P1) (HELR) (HLR1)	614
97	Q9UQ80	PA2G4_HUMAN	Proliferation-associated protein 2G4 (Cell cycle protein p38-2G4 homolog) (hG4-1) (ErbB3-binding protein 1)	PA2G4 (EBP1)	394

98	Q9P258	RCC2_HUMAN	Protein RCC2 (Telophase disk protein of 60 kDa) (RCC1-like protein TD-60)	RCC2 (KIAA1470) (TD60)	522
99	Q14690	RRP5_HUMAN	Protein RRP5 homolog (Programmed cell death protein 11) (NF-kappa-B-binding protein) (NFBP)	PDCD11 (KIAA0185)	1871
100	O43143	DHX15_HUMAN	Putative pre-mRNA-splicing factor ATP-dependent RNA helicase DHX15 (EC 3.6.1.-) (DEAH box protein 15) (ATP-dependent RNA helicase #46)	DHX15 (DBP1) (DDX15)	795
101	P46087	NOP2_HUMAN	Putative ribosomal RNA methyltransferase NOP2 (EC 2.1.1.-) (Nucleolar protein 2 homolog) (Nucleolar protein 1) (Proliferating-cell nucleolar antigen p120) (Proliferation-associated nucleolar protein p120)	NOP2 (NOL1)	812
102	P46060	RAGP1_HUMAN	Ran GTPase-activating protein 1 (RanGAP1)	RANGAP1 (KIAA1835) (SD)	587
103	Q13283	G3BP1_HUMAN	Ras GTPase-activating protein-binding protein 1 (EC 3.6.1.-) (G3BP-1) (ATP-dependent DNA helicase VIII) (HDH-VIII) (GAP SH3 domain-binding protein 1)	G3BP1 (G3BP)	466
104	P46940	IQGA1_HUMAN	Ras GTPase-activating-like protein IQGAP1 (p195)	IQGAP1 (KIAA0051)	1657
105	P18754	RCC1_HUMAN	Regulator of chromosome condensation (Chromosome condensation protein 1) (Cell cycle regulatory protein)	RCC1 (CHC1)	421
106	P35251	RFC1_HUMAN	Replication factor C subunit 1 (Activator 1 subunit 1) (Replication factor C large subunit) (RF-C 140 kDa subunit) (Activator 1 140 kDa subunit) (A1 140 kDa subunit) (Activator 1 large subunit) (DNA-binding protein PO-GA)	RFC1 (RFC140)	1148
107	P35250	RFC2_HUMAN	Replication factor C subunit 2 (Activator 1 subunit 2) (Replication factor C 40 kDa subunit) (RF-C 40 kDa subunit) (RFC40) (Activator 1 40 kDa subunit) (A1 40 kDa subunit)	RFC2	354
108	P40938	RFC3_HUMAN	Replication factor C subunit 3 (Activator 1 subunit 3) (Replication factor C 38 kDa subunit) (RF-C 38 kDa subunit) (RFC38) (Activator 1 38 kDa subunit) (A1 38 kDa subunit)	RFC3	356
109	P35249	RFC4_HUMAN	Replication factor C subunit 4 (Activator 1 subunit 4) (Replication factor C 37 kDa subunit) (RF-C 37 kDa subunit) (RFC37) (Activator 1 37 kDa subunit) (A1 37 kDa subunit)	RFC4	363
110	P40937	RFC5_HUMAN	Replication factor C subunit 5 (Activator 1 subunit 5) (Replication factor C 36 kDa subunit) (RF-C 36 kDa subunit) (RFC36) (Activator 1 36 kDa subunit) (A1 36 kDa subunit)	RFC5	340
111	O76021	RL1D1_HUMAN	Ribosomal L1 domain-containing protein 1 (Cellular senescence-inhibited gene protein) (Protein PBK1) (CATX-11)	RSL1D1 (CATX11) (CSIG) (PBK1) (L12)	490
112	Q96PK6	RBM14_HUMAN	RNA-binding protein 14 (RNA-binding motif protein 14) (RRM-containing coactivator activator/modulator) (Synaptotagmin-interacting protein) (SYT-interacting protein) (Paraspeckle protein 2) (PSP2)	RBM14 (SIP)	669
113	Q9NW13	RBM28_HUMAN	RNA-binding protein 28 (RNA-binding motif protein 28)	RBM28	759
114	Q14498	RBM39_HUMAN	RNA-binding protein 39 (RNA-binding motif protein 39) (RNA-binding region-containing protein 2) (Hepatocellular carcinoma protein 1) (Splicing factor HCC1)	RBM39 (HCC1) (RNPC2)	530
115	Q01844	EWS_HUMAN	RNA-binding protein EWS (EWS oncogene) (Ewing sarcoma breakpoint region 1 protein)	EWSR1 (EWS)	656
116	P35637	FUS_HUMAN	RNA-binding protein FUS (Oncogene FUS) (Oncogene TLS) (Translocated in liposarcoma protein) (POMP75) (75 kDa DNA-pairing protein)	FUS (TLS)	526
117	P22087	FBRL_HUMAN	rRNA 2'-O-methyltransferase fibrillarlin (EC 2.1.1.-) (34 kDa nucleolar scleroderma antigen)	FBL (FIB1) (FLRN)	321
118	Q15424	SAFB1_HUMAN	Scaffold attachment factor B1 (SAB-B1) (SAF-B) (HSP27 estrogen response element-TATA box-binding protein) (HSP27 ERE-TATA-binding protein)	SAFB (HAP) (HET) (SAFB1)	915
119	P62136	PP1A_HUMAN	Serine/threonine-protein phosphatase PP1-alpha catalytic subunit (PP-1A) (EC 3.1.3.16)	PPP1CA (PPP1A)	330
120	Q15393	SF3B3_HUMAN	Splicing factor 3B subunit 3 (Spliceosome-associated protein 130) (SAP 130) (Pre-mRNA-splicing factor SF3b 130 kDa subunit) (SF3b130) (STAF130)	SF3B3 (KIAA0017) (SAP130)	1217
121	P26368	U2AF2_HUMAN	Splicing factor U2AF 65 kDa subunit (U2 auxiliary factor 65 kDa subunit) (hU2AF65) (hU2AF(65)) (U2 snRNP auxiliary factor large subunit)	U2AF2 (U2AF65)	475
122	Q07955	SFRS1_HUMAN	Splicing factor, arginine/serine-rich 1 (pre-mRNA-splicing factor SF2, P33 subunit) (Alternative-splicing factor 1) (ASF-1)	SFRS1 (ASF) (SF2) (SF2P33) (OK/SW-cl.3)	248
123	P84103	SFRS3_HUMAN	Splicing factor, arginine/serine-rich 3 (Pre-mRNA-splicing factor SRP20)	SFRS3 (SRP20)	164
124	Q13243	SFRS5_HUMAN	Splicing factor, arginine/serine-rich 5 (Pre-mRNA-splicing factor SRP40) (Delayed-early protein HRS)	SFRS5 (HRS) (SRP40)	272

125	Q16629	SFRS7_HUMAN	Splicing factor, arginine/serine-rich 7 (Splicing factor 9G8)	SFRS7	238
126	P23246	SFPQ_HUMAN	Splicing factor, proline- and glutamine-rich (Polypyrimidine tract-binding protein-associated-splicing factor) (PTB-associated-splicing factor) (PSF) (DNA-binding p52/p100 complex, 100 kDa subunit) (100 kDa DNA-pairing protein) (hPOMp100)	SFPQ (PSF)	707
127	Q9NZC9	SMAL1_HUMAN	SWI/SNF-related matrix-associated actin-dependent regulator of chromatin subfamily A-like protein 1 (EC 3.6.1.-) (Sucrose nonfermenting protein 2-like 1) (HepA-related protein) (hHARP)	SMARCAL1 (HARP)	954
128	Q13148	TADBP_HUMAN	TAR DNA-binding protein 43 (TDP-43)	TARDBP (TDP43)	414
129	Q86V81	THOC4_HUMAN	THO complex subunit 4 (Tho4) (Ally of AML-1 and LEF-1) (Transcriptional coactivator Aly/REF) (bZIP-enhancing factor BEF)	THOC4 (ALY) (BEF)	257
130	Q9Y2W1	TR150_HUMAN	Thyroid hormone receptor-associated protein 3 (Thyroid hormone receptor-associated protein complex 150 kDa component) (Trap150)	THRAP3 (TRAP150)	955
131	O75643	U520_HUMAN	U5 small nuclear ribonucleoprotein 200 kDa helicase (EC 3.6.1.-) (U5 snRNP-specific 200 kDa protein) (U5-200KD) (Activating signal cointegrator 1 complex subunit 3-like 1) (BRR2 homolog)	SNRNP200 (ASCC3L1) (HELIC2) (KIAA0788)	2136
132	Q9Y224	CN166_HUMAN	UPF0568 protein C14orf166	C14orf166 (CGI-99)	244

Supplementary Table S3. Lists of proteins extracted from the nuclei of both resting and proliferating cells that relative levels didn't change or were enriched in the binding reactions conducted with a competitor.

single stranded DNA probes	double stranded DNA probes
O00425 Insulin-like growth factor 2 mRNA-binding protein 3	O43809 Cleavage and polyadenylation specificity factor subunit 5
O00567 Nucleolar protein 5A	P11388 DNA topoisomerase 2-alpha
O43143 Putative pre-mRNA-splicing factor ATP-dependent RNA helicase DHX15	P14866 Heterogeneous nuclear ribonucleoprotein L
O43390 Heterogeneous nuclear ribonucleoprotein R	P17844 Probable ATP-dependent RNA helicase DDX5
O43809 Cleavage and polyadenylation specificity factor subunit 5	P22626 Heterogeneous nuclear ribonucleoproteins A2/B1
O60832 H/ACA ribonucleoprotein complex subunit 4	P26599 Polypyrimidine tract-binding protein 1
O75367 Core histone macro-H2A.1	P31943 Heterogeneous nuclear ribonucleoprotein H
O75475 PC4 and SFRS1-interacting protein	P38159 Heterogeneous nuclear ribonucleoprotein G
O75643 U5 small nuclear ribonucleoprotein 200 kDa helicase	P42166 Lamina-associated polypeptide 2, isoform alpha
O76021 Ribosomal L1 domain-containing protein 1	P46013 Antigen KI-67
P06748 Nucleophosmin	P60709 Actin, cytoplasmic 1
P07910 Heterogeneous nuclear ribonucleoproteins C1/C2	P84103 Splicing factor, arginine/serine-rich 3
P11387 DNA topoisomerase 1	Q09666 Neuroblast differentiation-associated protein AHNAK
P11388 DNA topoisomerase 2-alpha	Q07666 KH domain-containing, RNA-binding, signal transduction-associated protein 1
P11940 Polyadenylate-binding protein 1	Q08211 ATP-dependent RNA helicase A
P14866 Heterogeneous nuclear ribonucleoprotein L	Q5SSJ5 Heterochromatin protein 1-binding protein 3
P17844 Probable ATP-dependent RNA helicase DDX5	Q86V81 THO complex subunit 4
P18754 Regulator of chromosome condensation	Q92841 Probable ATP-dependent RNA helicase DDX17
P23246 Splicing factor, proline- and glutamine-rich	Q9NR30 Nucleolar RNA helicase 2
P26368 Splicing factor U2AF 65 kDa subunit	Q8NC51 Plasminogen activator inhibitor 1 RNA-binding protein
P35250 Replication factor C subunit 2	Q9P258 Protein RCC2
P35251 Replication factor C subunit 1	
P35579 Myosin-9	
P38159 Heterogeneous nuclear ribonucleoprotein G	
P40938 Replication factor C subunit 3	
P43243 Matrin-3	
P46013 Antigen KI-67	
P46060 Ran GTPase-activating protein 1	
P46087 Putative ribosomal RNA methyltransferase NOP2	
P49792 E3 SUMO-protein ligase RanBP2	
P55769 NHP2-like protein 1	
P60709 Actin, cytoplasmic 1	
P61978 Heterogeneous nuclear ribonucleoprotein K	
P62136 Serine/threonine-protein phosphatase PP1-alpha catalytic subunit	
P62826 GTP-binding nuclear protein Ran	
P78347 General transcription factor II-I	
P78549 Endonuclease III-like protein 1	

P84103 Splicing factor, arginine/serine-rich 3	
Q02880 DNA topoisomerase 2-beta	
Q08211 ATP-dependent RNA helicase A	
Q09666 Neuroblast differentiation-associated protein AHNAK	
Q10570 Cleavage and polyadenylation specificity factor subunit 1	
Q12905 Interleukin enhancer-binding factor 2	
Q12906 Interleukin enhancer-binding factor 3	
Q12996 Cleavage stimulation factor 77 kDa subunit	
Q13283 Ras GTPase-activating protein-binding protein 1	
Q14690 Protein RRP5 homolog	
Q14978 Nucleolar phosphoprotein p130	
Q14980 Nuclear mitotic apparatus protein 1	
Q15029 116 kDa U5 small nuclear ribonucleoprotein component	
Q15393 Splicing factor 3B subunit 3	
Q15424 Scaffold attachment factor B1	
Q16629 Splicing factor, arginine/serine-rich 7	
Q5SSJ5 Heterochromatin protein 1-binding protein 3	
Q7Z2E3 Aprataxin	
Q86V81 THO complex subunit 4	
Q8N684 Cleavage and polyadenylation specificity factor subunit 7	
Q8WXF1 Paraspeckle component 1	
Q92841 Probable ATP-dependent RNA helicase DDX17	
Q96T60 Bifunctional polynucleotide phosphatase/kinase	
Q96T88 E3 ubiquitin-protein ligase UHRF1	
Q9BQ67 Glutamate-rich WD repeat-containing protein 1	
Q9BQG0 Myb-binding protein 1A	
Q9BY77 Polymerase delta-interacting protein 3	
Q9H0A0 N-acetyltransferase 10	
Q9H0S4 Probable ATP-dependent RNA helicase DDX47	
Q9NQT4 Exosome complex exonuclease RRP46	
Q9NR30 Nucleolar RNA helicase 2	
Q9NYF8 Bcl-2-associated transcription factor 1	
Q9NZI8 Insulin-like growth factor 2 mRNA-binding protein 1	
Q9UKV3 Apoptotic chromatin condensation inducer in the nucleus	
Q9UMS4 Pre-mRNA-processing factor 19	
Q9Y295 Developmentally-regulated GTP-binding protein 1	
Q9Y2W1 Thyroid hormone receptor-associated protein 3	
Q9Y5B9 FACT complex subunit SPT16	

Supplementary Table S4. Lists of proteins, extracted from the NEs pre-cleared with anti-Ku80 antibody, that relative levels didn't change or were enriched in the binding reactions conducted with a competitor.

single stranded DNA probes	double stranded DNA probes
O00425 Insulin-like growth factor 2 mRNA-binding protein 3	P21333 Filamin-A
O00567 Nucleolar protein 5A	P23246 Splicing factor, proline- and glutamine-rich
O00571 ATP-dependent RNA helicase DDX3X	P46013 Antigen KI-67
O43390 Heterogeneous nuclear ribonucleoprotein R	Q09666 Neuroblast differentiation-associated protein AHNAK
O60506 Heterogeneous nuclear ribonucleoprotein Q	Q5SSJ5 Heterochromatin protein 1-binding protein 3
O75533 Splicing factor 3B subunit 1	Q96PK6 RNA-binding protein 14
O76021 Ribosomal L1 domain-containing protein 1	Q96T88 E3 ubiquitin-protein ligase UHRF1
P11387 DNA topoisomerase 1	P49916 DNA ligase 3
P11388 DNA topoisomerase 2-alpha	
P11940 Polyadenylate-binding protein 1	
P12956 ATP-dependent DNA helicase 2 subunit 1	
P13010 ATP-dependent DNA helicase 2 subunit 2	
P17480 Nucleolar transcription factor 1	
P17844 Probable ATP-dependent RNA helicase DDX5	
P18887 DNA repair protein XRCC1	
P21333 Filamin-A	
P23246 Splicing factor, proline- and glutamine-rich	
P35579 Myosin-9	
P38159 Heterogeneous nuclear ribonucleoprotein G	
P46013 Antigen KI-67	
P60709 Actin, cytoplasmic 1	
P61978 Heterogeneous nuclear ribonucleoprotein K	
P78527 DNA-dependent protein kinase catalytic subunit	
P84103 Splicing factor, arginine/serine-rich 3	
Q02880 DNA topoisomerase 2-beta	
Q07666 KH domain-containing, RNA-binding, signal transduction-associated protein 1	
Q07955 Splicing factor, arginine/serine-rich 1	
Q09666 Neuroblast differentiation-associated protein AHNAK	
Q15233 Non-POU domain-containing octamer-binding protein	
Q15393 Splicing factor 3B subunit 3	
Q15424 Scaffold attachment factor B1	
Q16630 Cleavage and polyadenylation specificity factor subunit 6	
Q5SSJ5 Heterochromatin protein 1-binding protein 3	
Q8N684 Cleavage and polyadenylation specificity factor subunit 7	
Q92804 TATA-binding protein-associated factor 2N	
Q92841 Probable ATP-dependent RNA helicase DDX17	
Q96PK6 RNA-binding protein 14	
Q9NR30 Nucleolar RNA helicase 2	

Q9NY12 H/ACA ribonucleoprotein complex subunit 1	
Q9NYF8 Bcl-2-associated transcription factor 1	

Supplementary Table S5. Unified ChIP dataset. ChIP data are expressed as a mean percent of input DNA (for RNAPII and PARP1), or as an input ratio of modified histone to total histone H3 for four independent experiments. The RNAPII/H3Ac ratio was calculated for each site tested by dividing the averaged RNAPII percent of input and the H3Ac/H3 level for all time points.

Probe	Gene	Localization	Mean ChIP Data (for time points)				SD (for time points)			
			0h	1h	6h	24h	0h	1h	6h	24h
RNAPII	HBB	Promoter	1.68	2.04	1.96	1.58	1.27	1.18	0.95	1.12
RNAPII	HNRNPK	Promoter	11.14	11.85	11.33	12.21	1.35	1.20	0.34	0.92
RNAPII	TUBB6	Promoter	8.33	12.82	12.27	11.59	1.53	1.56	2.26	1.81
RNAPII	HSP70	Promoter	15.89	19.42	21.20	24.15	4.99	2.34	2.53	4.53
RNAPII	HNRNPH	Promoter	5.85	7.22	6.72	8.13	0.68	1.05	1.70	2.48
RNAPII	RPS7	Promoter	9.03	9.66	10.59	11.11	2.39	1.97	0.94	1.49
RNAPII	EGR1	Promoter	6.58	13.10	8.38	7.89	0.19	1.80	1.08	0.30
RNAPII	GAPDH	Promoter	9.58	10.77	10.67	9.95	1.48	1.27	1.18	1.50
H3Ac/H3	HBB	Promoter	0.03	0.03	0.02	0.03	0.03	0.02	0.01	0.02
H3Ac/H3	HNRNPK	Promoter	0.59	0.51	0.63	0.61	0.11	0.09	0.10	0.07
H3Ac/H3	TUBB6	Promoter	0.57	0.73	0.70	0.67	0.07	0.30	0.15	0.24
H3Ac/H3	HSP70	Promoter	0.49	0.29	0.45	0.49	0.07	0.09	0.05	0.17
H3Ac/H3	HNRNPH	Promoter	0.46	0.72	0.63	0.64	0.20	0.15	0.16	0.06
H3Ac/H3	RPS7	Promoter	0.43	0.48	0.48	0.40	0.06	0.18	0.09	0.14
H3Ac/H3	EGR1	Promoter	0.13	0.19	0.09	0.13	0.04	0.03	0.03	0.04
H3Ac/H3	GAPDH	Promoter	0.62	0.59	0.89	0.71	0.16	0.38	0.55	0.32
H3K4me3/H3	HBB	Promoter	2.42	3.40	3.24	3.26	0.44	0.89	0.43	0.90
H3K4me3/H3	HNRNPK	Promoter	2.97	3.68	3.89	3.88	0.89	0.87	0.45	0.50
H3K4me3/H3	TUBB6	Promoter	4.36	4.85	5.66	6.10	2.25	1.22	1.81	1.04
H3K4me3/H3	HSP70	Promoter	3.43	4.37	5.09	5.02	1.57	0.69	1.64	0.70
H3K4me3/H3	HNRNPH	Promoter	3.98	5.97	5.57	6.21	1.33	1.45	1.56	0.90
H3K4me3/H3	RPS7	Promoter	4.33	5.74	6.40	6.30	1.94	0.86	1.34	0.96
H3K4me3/H3	EGR1	Promoter	5.09	6.23	6.90	7.03	3.06	1.77	3.03	0.98
H3K4me3/H3	GAPDH	Promoter	4.73	6.43	7.68	7.60	2.42	0.64	2.41	0.41
H3K27me3/H3	HBB	Promoter	1.46	1.38	1.52	1.61	0.32	0.28	0.28	0.25
H3K27me3/H3	HNRNPK	Promoter	0.41	0.34	0.37	0.39	0.08	0.07	0.06	0.05
H3K27me3/H3	TUBB6	Promoter	0.49	0.41	0.44	0.49	0.03	0.06	0.08	0.14
H3K27me3/H3	HSP70	Promoter	0.31	0.29	0.34	0.36	0.26	0.20	0.20	0.39
H3K27me3/H3	HNRNPH	Promoter	0.21	0.21	0.26	0.22	0.09	0.03	0.05	0.11
H3K27me3/H3	RPS7	Promoter	0.37	0.24	0.27	0.37	0.05	0.02	0.05	0.10
H3K27me3/H3	EGR1	Promoter	0.60	0.52	0.70	0.65	0.08	0.08	0.09	0.21
H3K27me3/H3	GAPDH	Promoter	0.21	0.18	0.24	0.22	0.01	0.03	0.11	0.15

Heterochromatin	PARP	Intergenic	Intergenic	2.60	2.70	2.80	2.76	0.71	0.07	0.02	0.12
	PARP	RHO	intron_2	2.81	3.27	4.21	3.74	0.12	0.10	0.81	0.67
	PARP	RHO	exon_5	3.19	2.81	3.68	3.07	0.55	0.14	0.14	0.33
	PARP	HBB	Promoter	1.82	2.51	3.06	1.97	0.35	0.27	0.69	0.13
	Mean				2.60	2.82	3.44	2.88	0.58	0.33	0.63
Euchromatin	PARP	HNRNPK	Promoter	1.88	1.69	1.99	1.66	0.33	0.28	0.08	0.29
	PARP	TUBB6	Promoter	1.14	1.29	1.30	1.06	0.27	0.12	0.39	0.33
	PARP	HSP70	Promoter	1.30	1.42	1.11	1.45	0.10	0.34	0.41	0.01
	PARP	HNRNPH	Promoter	0.21	0.43	0.37	0.33	0.09	0.11	0.03	0.15
	PARP	RPS7	Promoter	0.97	0.84	0.94	0.74	0.37	0.23	0.37	0.13
	PARP	EGR1	Promoter	0.44	0.43	0.69	0.56	0.17	0.29	0.15	0.10
	PARP	GAPDH	Promoter	0.93	0.99	1.54	1.03	0.18	0.15	0.38	0.11
	Mean				0.98	1.01	1.14	0.97	0.55	0.49	0.54

	Mean RNAPII	Mean H3Ac/H3	RNAPII/H3Ac RATIO
HBB	1.82	0.03	69
HNRNPK	11.63	0.58	20
TUBB6	11.25	0.67	17
HSP70	20.16	0.43	47
HNRNPH	6.98	0.61	11
RPS7	10.10	0.45	23
EGR1	8.99	0.13	67
GAPDH	10.24	0.70	15