

Supplementary table S1

Proteins involved in mRNA 3'end processing				
Cellular function	Mammalian factor	Function in 3'end processing	Reference	
Constitutive 3'end processing				
RNA Cleavage				
	Cleavage stimulation factor (CstF)			
		CstF77	Cleavage, dimerization	(Takagaki et al, 1990)
		CstF64/ τ	Cleavage	(Shi et al, 2009; Takagaki et al, 1990; Wallace et al, 1999)
		CstF50	Cleavage, dimerization	(Takagaki et al, 1990)
	Cleavage factor I (CFIm)			(Awasthi & Alwine, 2003; Ruegsegger et al, 1996; Ruegsegger et al, 1998)
		CFIm 25	Cleavage, dimerization	(Coseno et al, 2008; Dettwiler et al, 2004; Ruegsegger et al, 1996)
		CFIm 59/68/ 72	Cleavage	(Brown & Gilmartin, 2003; Ruegsegger et al, 1996)
	Cleavage factor II (CFIIm)			(de Vries et al, 2000)
		hPcf1 1	Transcription termination	(Shi et al, 2009)
		hClp1	RNA 5' kinase	(de Vries et al, 2000; Haddad et al, 2012)
RNA cleavage & polyadenylation				
	Cleavage and polyadenylation specificity factor (CPSF)			
		CPSF160	Polyadenylation	(Bienroth et al, 1991; Keller et al, 1991; Murthy & Manley, 1995)
		CPSF100	Endonuclease?	(Jenny et al, 1994; Kyburz et al, 2006)
		CPSF73	Endonuclease	(Mandel et al, 2006)

		CPSF30		(Barabino et al, 1997; Bienroth et al, 1991)
		hFip1	PAP stimulation	(Kaufmann et al, 2004)
		Symplekin	Cleavage, scaffolding	(Takagaki & Manley, 2000)
		Wdr33	Scaffolding	(Shi et al, 2009)
RNA polyadenylation				
	Poly(A) Polymerases			
		PAP	Poly(A) Polymerase	(Takagaki et al, 1988) ENREF 33
		Neo-PAP/ PAPOLG	Poly(A) Polymerase	(Topalian et al, 2001)
		Star-PAP	Poly(A) Polymerase (specific mRNAs)	(Mellman et al, 2008)
		TPAP (PAP β)	Testis-specific poly(A) polymerase	(Kashiwabara et al, 2000)
		PAP γ	Nuclear poly(A) polymerase	(Kyriakopoulou et al, 2001)
	Retinoblastoma binding protein (Rbbp6)		Linking 3'end processing-tumorigenesis	(Shi et al, 2009)
	Protein phosphatase 1 α/β (PP1α/β)		Serine/threonine phosphatase	(Shi et al, 2009)
Polyadenylation, mRNA export, translation				
	Poly(A)-binding proteins (PABP)			
		PABPN1	Poly(A) tail length control, PAP stimulation	(Wahle, 1991)
		PABPC(1,2,4,5)	Poly(A) binding	(Blanco et al, 2001; Feral et al, 2001; Grange et al, 1987; Yang et al, 1995)
Other components of the 3'end processing complex				
	RNA polymerase II-associated factor complex (PAF)			(Shi et al, 2009)
	Facilitates chromatin transcription complex (FACT)			(Shi et al, 2009)

	DNA-damage-response factors	DNA-PK, Ku 70, Ku 86/XRCC5, Rpb11		(Shi et al, 2009)
	Transcription factors	TFII/I, TAF15		(Shi et al, 2009)
	Splicing factors	SF3A, SF3A60, SF3B, Prpf38b, SRm300, U1 70K, U2AF, PRP19, p54nrb, PSF, PUF60, UAP56, SF1		(Shi et al, 2009)
	Exosome	SKIV2L2 (hMTR4)		(Shi et al, 2009)
	Translation factors	eEF1- α - γ , eIF2A, eIF4A, eIF3- γ , eIF3S2/5/6/9S, eIF3A, eIF4G1, RACK1/GNB2L1 /lung cancer oncogene 7		(Shi et al, 2009)
	DEAD box polypeptides			(Shi et al, 2009)
	DEAH box polypeptides			(Shi et al, 2009)
	Integrator complex (INT)	INTS2/3/4/6/7/8/9/10		(Baillat et al, 2005; Shi et al, 2009) ENREF 7
	RNA binding motif proteins			(Shi et al, 2009)
	Zinc finger, CCHC domain containing 8 (ZCCHC8)			(Shi et al, 2009)
	EBNA2 coactivator p100 (SND1)			(Shi et al, 2009)
	Gamma-catenin (JUP)			(Shi et al, 2009)
	Ras-GTPase-activating protein SH3-domain-binding protein (G3BP)			(Shi et al, 2009)
	Protein phosphatase 1 nuclear-targeting subunit (PNUTS)			(Shi et al, 2009)
	Interferon-induced protein with tetratricopeptide repeats (IFIT)			(Shi et al, 2009)

Regulated 3'end processing				
Core 3'end processing factors				
	CFIm		APA	(Gruber et al, 2012; Sartini et al, 2008)
		CFIm 25	APA	(Kubo et al, 2006)
		CFIm 59/68/72	quantitative regulation of 3'end processing, APA	(Brown & Gilmarin, 2003; Martin et al, 2012; Venkataraman et al, 2005)
	PABPN1		PAP stimulation, APA, poly(A) length control	(de Klerk et al, 2012; Jenal et al, 2012)
	Rbbp6		Linking 3'end processing-tumorigenesis	(Shi et al, 2009)
	CstF64/τ		(Tissue-specific) APA	(Chennathukuzhi et al, 2001; Chuvpilo et al, 1999; Dass et al, 2007; Hockert et al, 2011; Li et al, 2012; Shell et al, 2005; Shi et al, 2009; Takagaki et al, 1996) ENREF 7
Transcription-associated factors				
	CTD (RNAP II)		Linking 3'end processing-transcription polyadenylation inhibition	(Hirose & Manley, 1998; McCracken et al, 1997)
	Transcription factor II D (TFIID)		CPSF recruitment	(Dantanel et al, 1997)
	Bromodomain testis-specific protein (BRDT)		3'-UTR processing regulation in round spermatids	(Berkovits et al, 2012)
	Elongation factor, RNA polymerase II, 2 (ELL2)		APA	(Martincic et al, 2009)
	Mediator complex subunit 23 (MED23)		APA	(Huang et al, 2012)
	E2F		Global stimulation of genes encoding 3'-end processing proteins in proliferation	(Elkon et al, 2012)
Transcription-/nuclear export-associated factors				
	THO complex 5 (THOC5)		APA	(Katahira et al, 2013)

Splicing factors				
	heterogeneous nuclear ribonucleoprotein I (hnRNPI)		Quantitative regulation of 3'end processing, APA	(Blechingberg et al, 2007; Castelo-Branco et al, 2004; Danckwardt et al, 2011; Danckwardt et al, 2007; Hall-Pogar et al, 2007; Lou et al, 1999; Millevoi et al, 2009; Moreira et al, 1998) ENREF 3
	heterogeneous nuclear ribonucleoprotein L (hnRNPL)		APA	(Hung et al, 2008)
	heterogeneous nuclear ribonucleoprotein H/H' (hnRNP H/H')		Polyadenylation stimulation	(Alkan et al, 2006; Bagga et al, 1998; Dalziel et al, 2007; Millevoi et al, 2009)
	heterogeneous nuclear ribonucleoprotein F (hnRNP F)		Cleavage inhibition	(Veraldi et al, 2001)
	U2 auxiliary factor (U2AF)	U2AF35	3'end processing stimulation	(Danckwardt et al, 2011; Danckwardt et al, 2007; Hall-Pogar et al, 2007) ENREF 3
		U2AF65	Quantitative regulation of 3'end processing, PAP inhibition, poly(A) length control	(Danckwardt et al, 2011; Danckwardt et al, 2007; Hall-Pogar et al, 2007; Millevoi et al, 2006; Vagner et al, 2000b)
	Ribo-nucleoprotein PTB-binding 1 (RAVER1)		Quantitative regulation of 3'end processing?	(Danckwardt et al, 2011; Danckwardt et al, 2007; Gromak et al, 2003; Hall-Pogar et al, 2007)
	KH-Type Splicing Regulatory Protein (FBP2, KHSRP)		3'end processing inhibition	(Danckwardt et al, 2011)
	Far upstream element-binding protein 3 (FBP3)		3'end processing inhibition	(Danckwardt et al, 2011)
	CUG repeat binding protein 1 (CUGBP1)			(Danckwardt et al, 2011)
	Translational repression by RNA-binding protein (TIAR)			(Danckwardt et al, 2011)
	T-cell-restricted intracellular antigen-1 (TIA1)			(Danckwardt et al, 2011)
	U1 small nuclear ribonucleoproteins	U1 snRNP	Quantitative regulation of 3'end processing, APA, shielding of cryptic poly(A) sites	(Andersen et al, 2012; Awasthi & Alwine, 2003; Berg et al, 2012; Gunderson et al, 1998; Hall-Pogar et al, 2007; Kaida et al, 2010; Lou et al, 1998; Lutz et al, 1996; Vagner et al, 2000a)
		U1A, U1A snRNP	Quantitative regulation of 3'end processing	(Boelens et al, 1993; Gunderson et al, 1998; Hall-Pogar et al, 2007;

				Lutz & Alwine, 1994; Lutz et al, 1996; Phillips et al, 2004)
	U2 small nuclear ribonucleoproteins (SF3 subunits)		Linking splicing to 3'-end processing	(Kyburz et al, 2006)
	54-kDa nuclear RNA-binding protein (p54nrb)		3'end cleavage stimulation	(Hall-Pogar et al, 2007; Kaneko et al, 2007; Liang & Lutz, 2006)
	p54nrb-protein-associated splicing factor (PSF)		Transcription-dependent stimulation of pre-mRNA processing	(Rosonina et al, 2005)
	Neuronal RNA binding protein (Nova)		Quantitative regulation of 3'end processing	(Licatalosi et al, 2008)
	Serine/arginine-rich proteins	SRp20	APA	(Lou et al, 1998)
		SRp75	PAP and polyadenylation inhibition	(Ko & Gunderson, 2002)
		SRm160	3'end cleavage stimulation	(McCracken et al, 2003)
Chaperones				
	14-3-3ε		Polyadenylation inhibition	(Kim et al, 2003)
Tumor suppressors				
	BRCA1/BARD1-complex (breast cancer 1/BRCA1 associated RING domain 1)		3'end processing inhibition	(Edwards et al, 2008; Kim et al, 2006; Kleiman et al, 2005)
	PAF complex (Cdc73)		3'end processing stimulation, linking transcription to 3'end processing	(Rozenblatt-Rosen et al, 2009)
	p53		3'end processing inhibition	(Nazeer et al, 2011)
3'-exoribonuclease				
	Poly(A)-specific ribonuclease (PARN)		3' cleavage inhibition under DNA-damaging conditions	(Cevher et al, 2010)
Kinases				
	Polo		Auto-regulation via APA	(Pinto et al, 2011)
Other enzymes				

	Poly(ADP-ribose)-Polymerase 1 (PARP1)		PAP and polyadenylation inhibition upon heat shock	(Di Giammartino et al, 2013)
	Ubiquitin specific peptidase 22 (USP22)		3'-end processing regulation of JAK-STAT-inducible genes	(Chipumuro & Henriksen, 2012)
Heat shock factor proteins				
	Heat shock factor protein 1 (HSF1)		3' processing stimulation	(Xing et al, 2004)
	Cellular stress response 1 (CSR1)		CPSF73 inactivation, polyadenylation inhibition	(Zhu et al, 2009)
Others				
	Cold-inducible RNA-binding protein (CIRBP)		APA	(Liu et al, 2013)
	ELAV-like protein 1 (HuR)		3' processing inhibition, auto-regulation via APA	(Dai et al, 2012; Danckwardt et al, 2011; Mansfield & Keene, 2012; Zhu et al, 2009)
	Inositol 1,4,5-triphosphate (IP3) receptor-binding protein released with IP3 (IRBIT)		Controlling cytoplasmic/nuclear partitioning of Fip1, PAP inhibition	(Kiefer et al, 2009)
	Leucine-rich PPR motif-containing protein (LRPPRC)		Polyadenylation regulation in mitochondria	(Ruzzenente et al, 2012)
	LRPPRC/SRA stem-loop interacting RNA binding protein complex (LRPPRC/SLIRP)		Polyadenylation stimulation in mitochondria	(Chujo et al, 2012)
	RNA Binding Motif Protein 3 (RBMP3)		APA	(Liu et al, 2013)
	Suppressor of forked protein (Su(f))		Auto-regulation via regulated 3' end processing	(Audibert & Simonelig, 1998)
	TAR DNA-binding protein 43 (TDP-43)		Auto-regulation via regulated 3' end processing	(Avendano-Vazquez et al, 2012)
	PolyC-binding protein (αCP)		APA	(Ji et al, 2013) ENREF 10 7

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