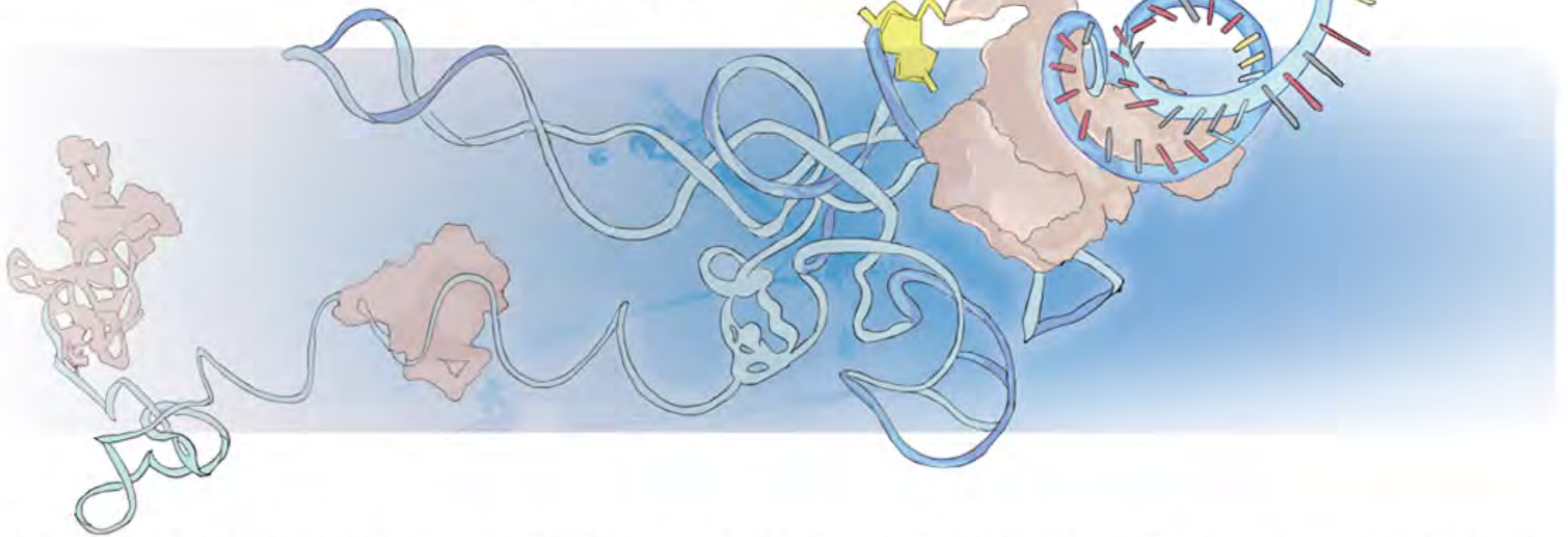


# RNA-binding Proteins

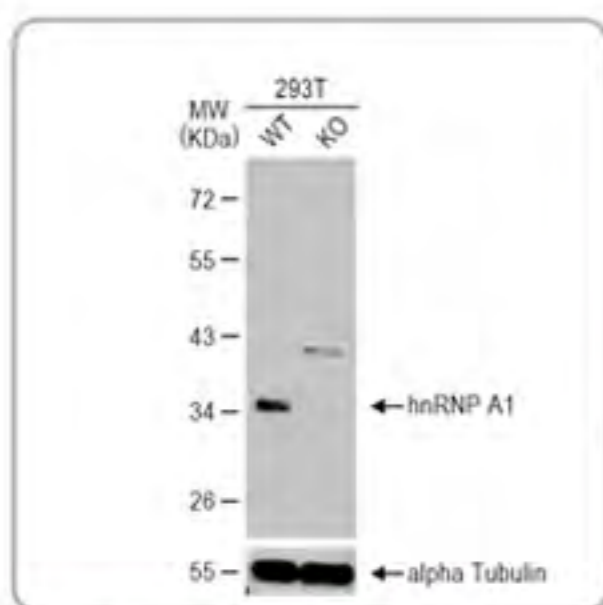
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Accelerated Discovery

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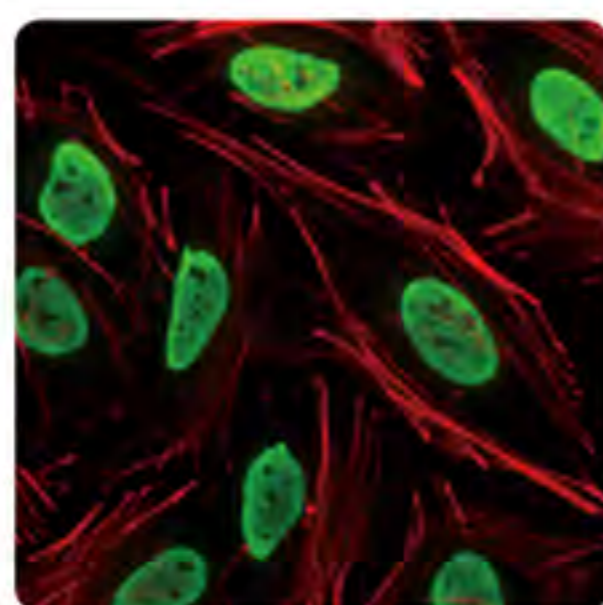


RNA-binding proteins (RBPs) are crucial regulators of all aspects of RNA metabolism (i.e., processing, nuclear export, intracellular targeting, translation, and degradation). Many of these proteins possess defined RNA-binding domains (RBDs) arrayed in repeats or different configurations to enhance affinity or specificity for their target RNAs. In addition, new approaches for exploring the RNA-protein interactome have revealed RBPs with atypical RBDs, further expanding the scope of their impact on cellular homeostasis and disease. Though RBP dysfunction is associated with a number of disorders, there has been particular interest in the relationship with various cancers. This includes the roles of RBPs in controlling the expression of oncoproteins and tumor suppressor factors (Trends Cancer. 2017 Jul;3(7):506-528).

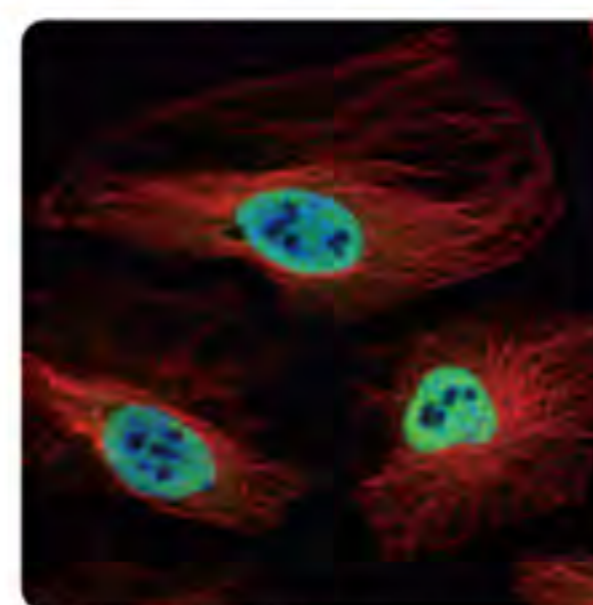
Citation Support KO/KD Validation Orthogonal Validation



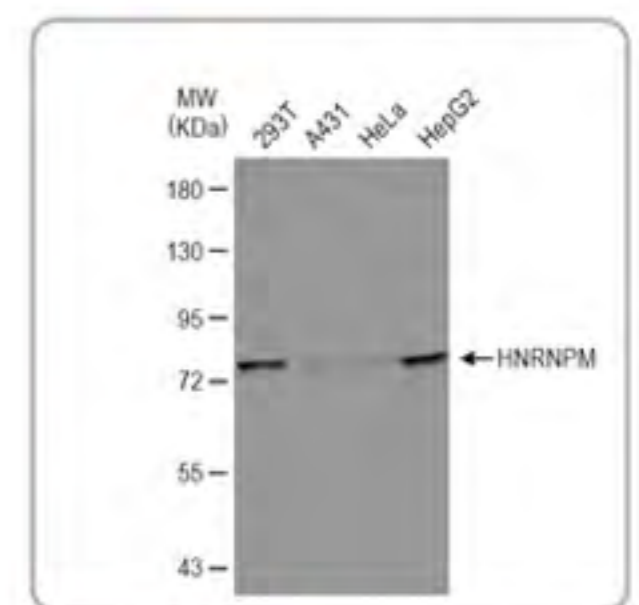
hnRNP A1 antibody (GTX106208)



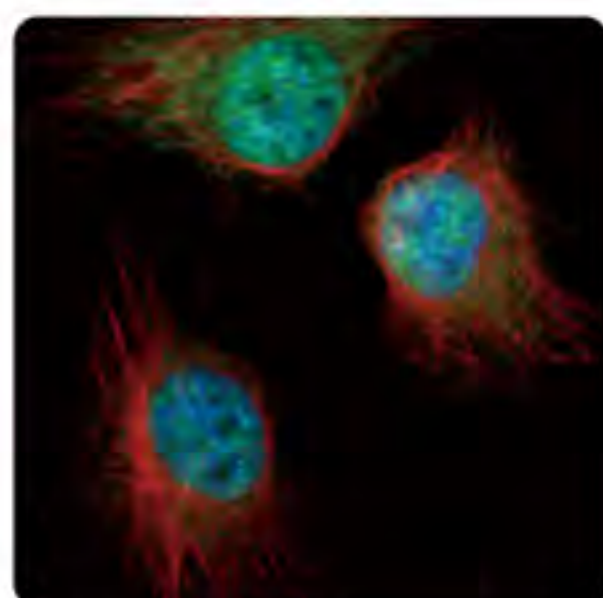
hnRNP A2/B1 antibody (GTX127928)



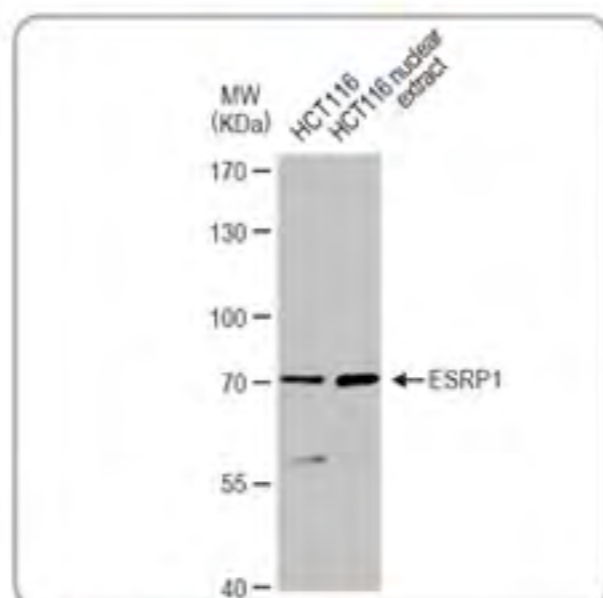
hnRNP H antibody (GTX102061)



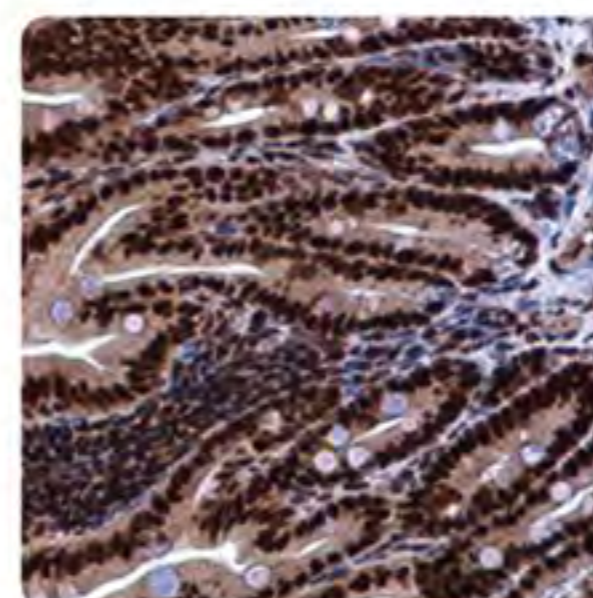
hnRNP M antibody (GTX114999)



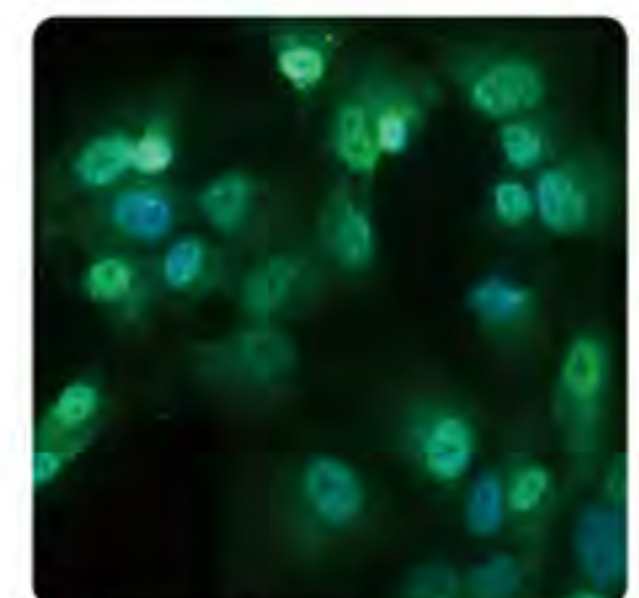
AUF1 antibody (GTX101813)



ESRP1 antibody (GTX131373)








KHSRP antibody (GTX131804)















QKI antibody [GT1589] (GTX633920)



# Proto-oncogenic

 Citation Support
  KO/KD Validation
  Protein Overexpression
  Comparative Abs
  Orthogonal Validation

RBP	Mechanism	Cancer Type	Putative targets
<b>CPEB1 (GTX122410)</b> Reactivities: Hu Applications: IHC, WB	mRNA localization mRNA translation polyadenylation	Breast, Liver	BUB3, MMP9, TJP1 VEGF
<b>CPEB4 (GTX122727)</b>  Reactivities: Hu, Rat Applications: IHC-P, WB	mRNA translation polyadenylation	Breast, colon, head and neck lung, pancreas, renal	MITF, RAB72A, TPA VEGF
<b>ESRP1 (GTX131373)</b>  Reactivities: Hu Applications: WB	Alternative splicing mRNA translation	Breast, colon, melanoma	CD44, CTNND1, ENAH FGFR2, SNAIL
<b>ESRP2 (GTX123665)</b>  Reactivities: Hu Applications: WB, ICC/IF			
<b>hnRNPA1 (GTX106208)</b>   Reactivities: Hu, Ms, Rat Applications: ICC/IF, IHC-P, WB	Alternative splicing	Brain	BIN1, CASP9, CFLAR, PKM2, RON, WWOX
<b>hnRNPA2 (GTX127928)</b>   Reactivities: Hu, Ms, Rat Applications: ICC/IF, IHC-P, IP, WB			
<b>hnRNPD/AUF1 (GTX101813)</b>  Reactivities: Hu Applications: ICC/IF WB	mRNA stability mRNA translation	Breast, colon, liver, lung, sarcoma, thyroid	CCNA1, CCNB1, CCND1, CDKN1A, CDKN2A, CDKN1B, DICER1, FOS, JUN, MYC NEAT1, lncRNA, RB1
<b>hnRNPH (GTX102061)</b>  Reactivities: Hu, Ms Applications: ICC/IF, IHC-P, WB	Alternative splicing	Brain	MADD, RON
<b>hnRNPM (GTX114999)</b>  Reactivities: Hu Applications: ICC/IF, IHC-P, WB	Alternative splicing	Breast	CD44
<b>HuR (GTX54044)</b> Reactivities: Hu, Ms, Rat Applications: ICC/IF, IHC-P, WB	mRNA stability mRNA translation	Brain, breast, cervical, colon, gastric, liver, leukemia, prostate	CCNA1, CCNB1, CCNE1, COX2, IL8, MDM2 MYC, PTMA, SIRT1, SNAIL, VEGF, XIAP
<b>IMP1 (GTX54359)</b> Reactivities: Hu, Ms, Rat Applications: IHC-P, WB	mRNA localization mRNA stability mRNA translation	Breast, colon	ACTB, ACTN1, CD44 CDH1, IGF2, H19 MYC, LEF1
<b>KHSRP (GTX131804)</b> Reactivities: Hu, Ms, Rat Applications: ICC/IF, IHC-P, WB	miRNA processing	Liver, lung	miR-26a
<b>LARP1 (GTX120884)</b> Reactivities: Hu Applications: ICC/IF, WB	mRNA stability mRNA translation	Cervical, colon, lung, ovarian, prostate	AKT1,2, BCL2, BIK, MAPK11,12, TWIST1, MTOR
<b>LIN28A (GTX628138)</b>   Reactivities: Hu, Ms Applications: FACS, ICC/IF, IHC-P, WB	mRNA translation	Breast, ovary	BMP4, HER2, HMGA1
<b>LIN28B (GTX131546)</b> Reactivities: Hu Applications: IHC-P, WB			
<b>MSI1 (GTX101540)</b>  Reactivities: Hu, Ms Applications: ICC/IF, IHC-Fr, IP, WB	mRNA translation	Brain, breast, colon, leukemia	BMPR1A, CDKN1A, JAG1, LRIG1, NUMB, PTEN
<b>MSI2(GTX117808)</b>   Reactivities: Hu, Ms, Rat Applications: ICC/IF, IHC-Fr, IHC-P, IP, WB			
<b>SAM68 (GTX115462)</b>  Reactivities: Hu, Ms, Rat Applications: IHC-P, WB	Alternative splicing	Breast, prostate, renal	CCND1, CD44
<b>SRSF1 (GTX114918)</b> Reactivities: Hu, Ms, Rat Applications: ICC/IF, IHC-P, WB	Alternative splicing	Breast, colon, lung, prostate	BCL2L11, BIN1, CCND1 DFFA, MKNK2, RAC1 RON, RPS6KB1, TEAD1
<b>TIA1 (GTX113280)</b> Reactivities: Hu Applications: ICC/IF, WB	mRNA translation	Leukemia	BRCA1



# Tumor-suppressing.....

Citation Support

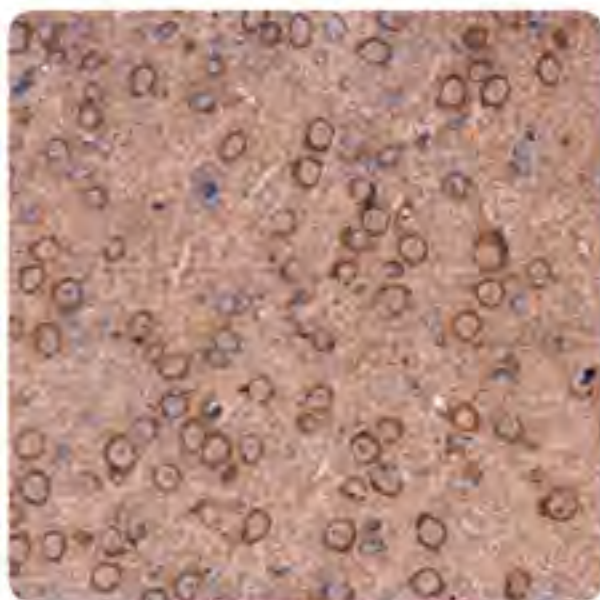
KO/KD Validation

Protein Overexpression

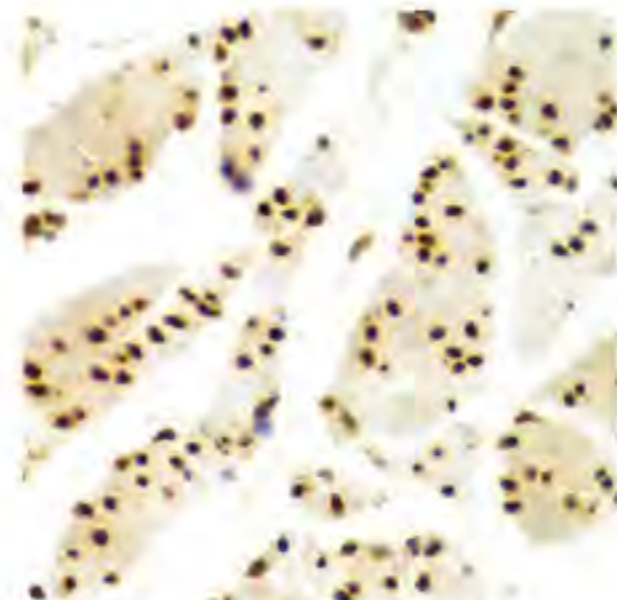
Comparative Abs

Orthogonal Validation

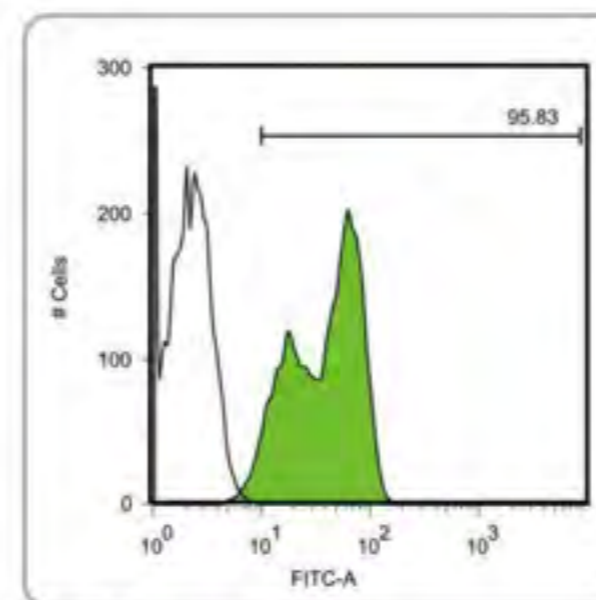
RBP	Mechanism	Cancer Type	Putative targets
ESRP1 (GTX131373) Reactivities: Hu Applications: WB ESRP2 (GTX123665) Reactivities: Hu Applications: WB, ICC/IF	Alternative splicing	Breast, colon, head and neck	CD44, CTNND1, ENAH ENO1, EXOC7, FGFR1-3 RAC1, RALGPS2, TCF7L2 Vimentin
hnRNPD/AUF1 (GTX101813) Reactivities: Hu Applications: ICC/IF WB	mRNA stability transcription	Multiple cell types	CDKN1A, CDKN2A, TERT, inflammatory cytokines
hnRNPH (GTX102061) Reactivities: Hu, Ms Applications: ICC/IF, IHC-P, WB	Alternative splicing	Breast	ERBB2
hnRNPK (GTX101786) Reactivities: Hu, Ms, Rat Applications: ICC/IF, IHC-P, WB	Transcription mRNA translation	Liver, leukemia	CDKN1A, CEBPA, CEBPB
KHSRP (GTX131804) Reactivities: Hu, Ms, Rat Applications: ICC/IF, IHC-P, WB	Alternative splicing	Breast, multiple cell types	CD44, ENAH, FGFR2
LARP7 (GTX131082) Reactivities: Hu Applications: WB	snRNA stability	Breast, gastric	RN7SK
QKI (GTX633920) Reactivities: Hu, Ms, Rat Applications: ICC/IF, IHC-Fr, IHC-P, WB	Alternative splicing	Brain, colon, lung	CDKN1B, FOS, miR-20a NUMB
RBM10 (GTX115074) Reactivities: Hu Applications: ICC/IF, WB	Alternative splicing	Lung	NUMB
RBM47 (GTX47272) Reactivities: Hu Applications: IHC-P, WB	Alternative splicing mRNA stability	Breast, lung	CASP7, CUL3, DKK1 HBP1, HTATIP2, KEAP1 MDM4, MXI1, SLK TNC
TIA1 (GTX113280) Reactivities: Hu Applications: ICC/IF, WB	mRNA translation	Leukemia, lung	BAX, CDKN1A, EIF4A1, EIF4E2, EEF1B2, GADD45A, GADD45B, HIF1A, MMP13, MYC, NUP98, PUMA



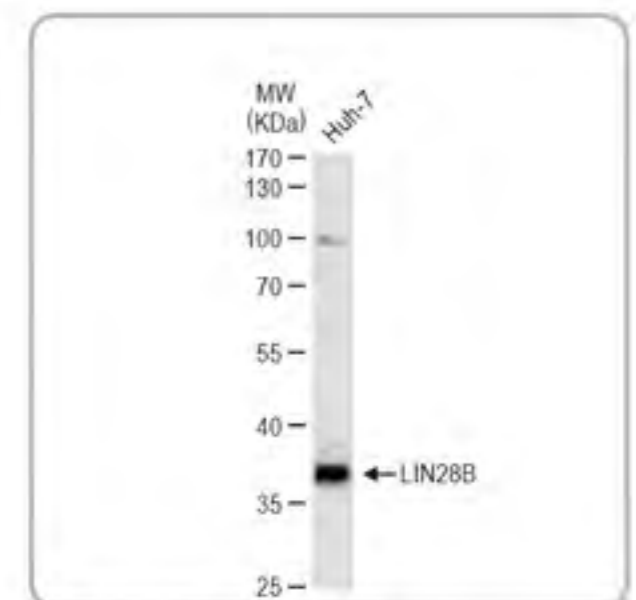
CPEB4 antibody [N1N2],  
N-term (GTX122727)



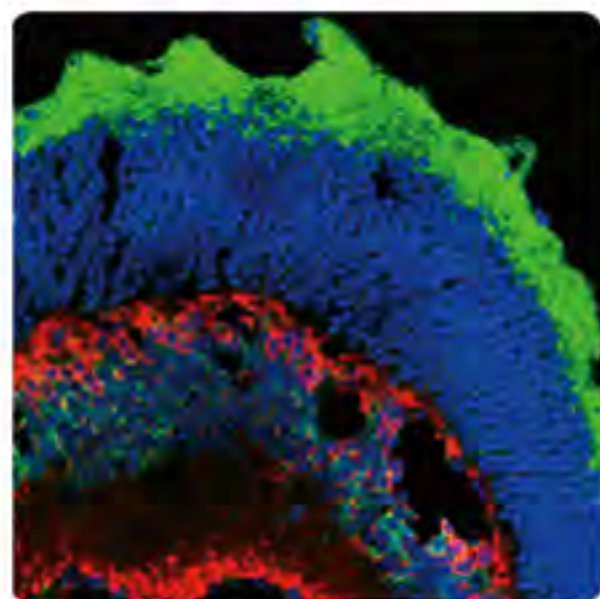
ELAVL1 (HuR) antibody  
(GTX54044)



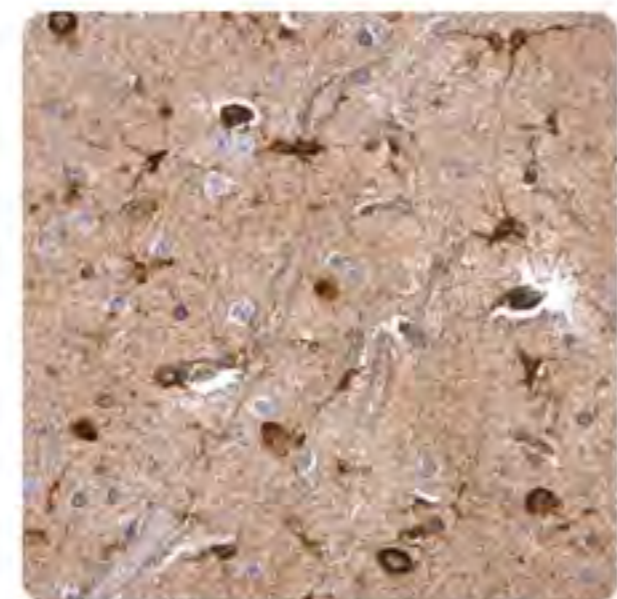
Lin28A antibody  
(GTX628138)



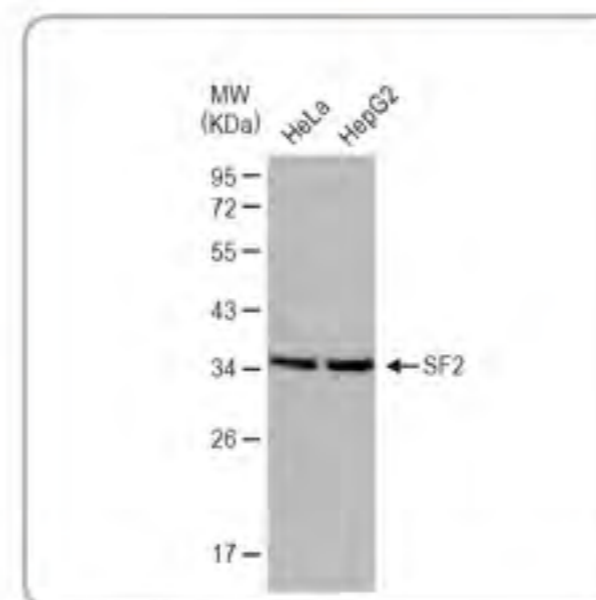
LIN28B antibody  
(GTX131546)



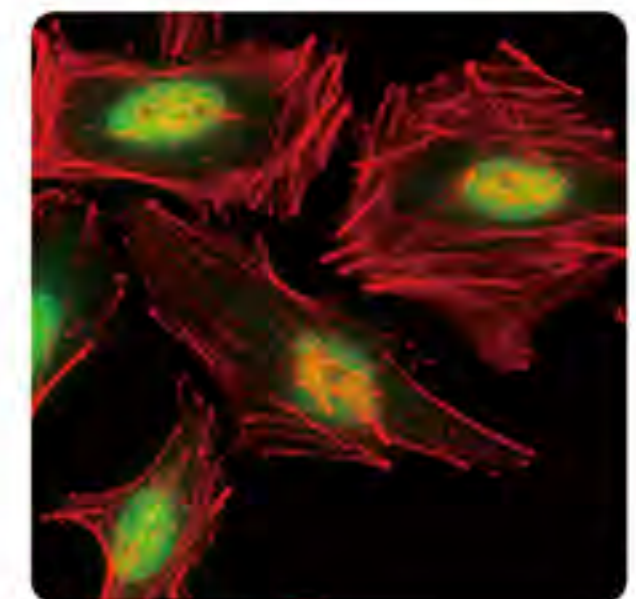
Musashi 1 antibody  
(GTX101540)



Musashi 2 antibody  
(GTX117808)

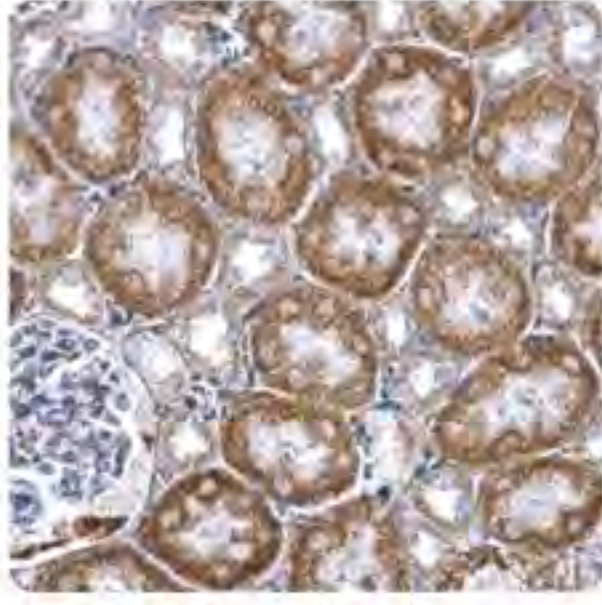


SF2 antibody  
(GTX114918)

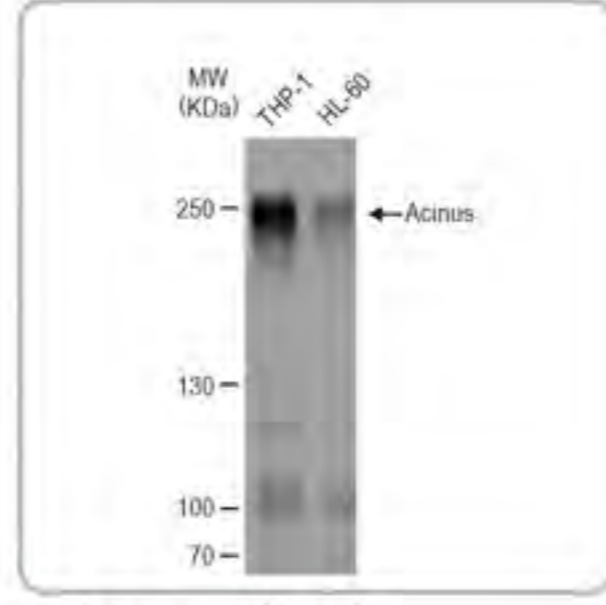


TIA1 antibody  
(GTX113280)

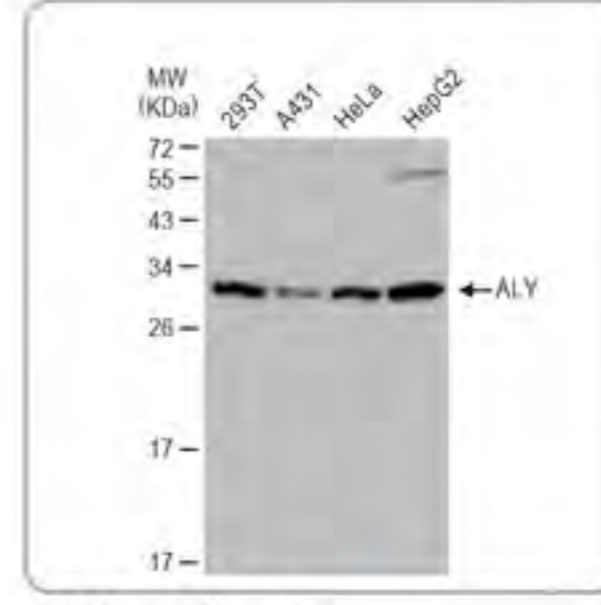




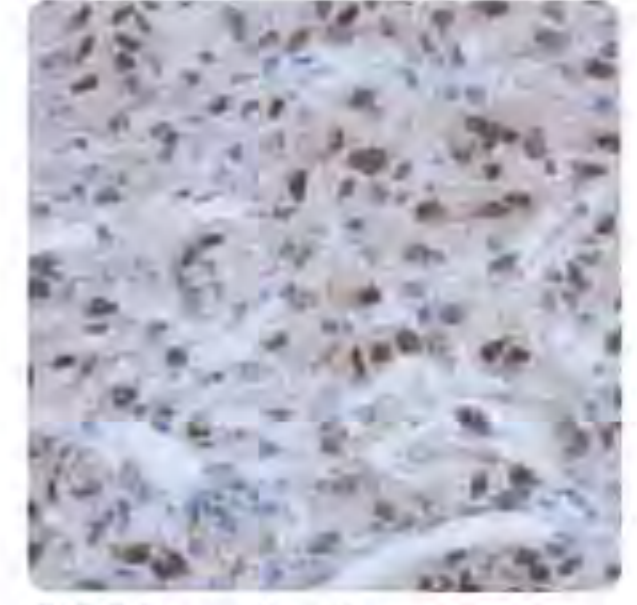
Pumilio 2 antibody  
(GTX107995)



Acinus antibody  
(GTX132296)

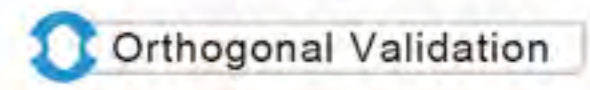
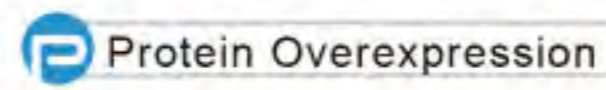
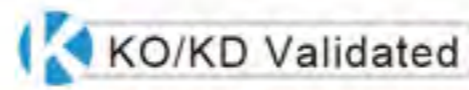
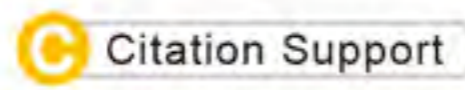


ALY antibody  
(GTX113917)



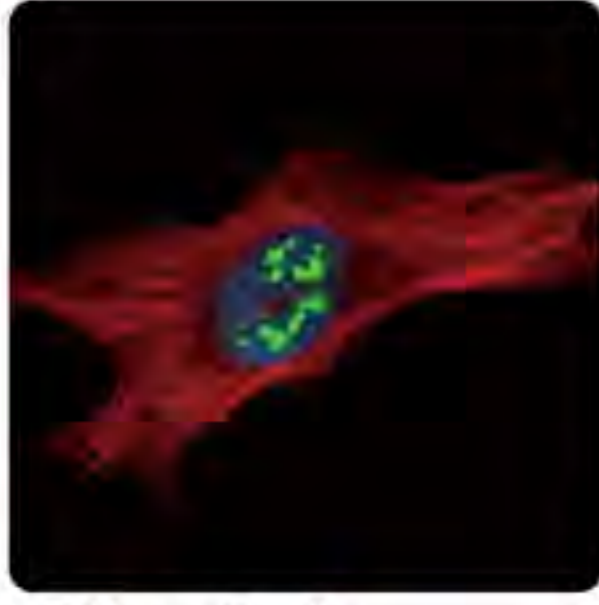
CIRBP antibody  
(GTX120184)

## Hot Products

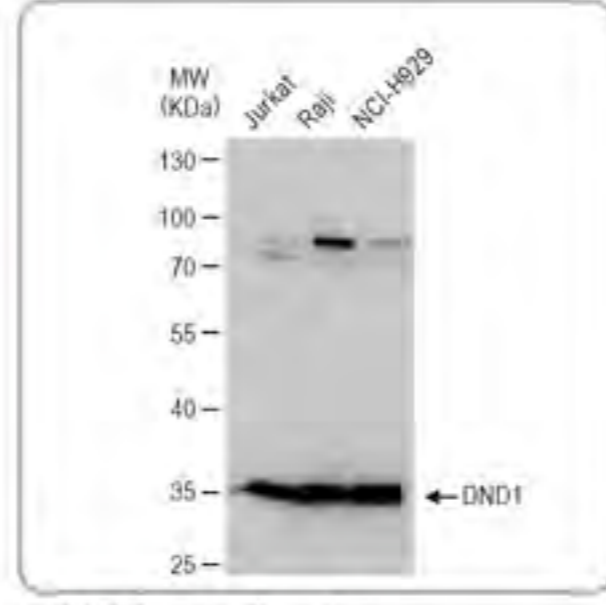


Cat. No.	Product Name	Reactivity	Application	Validation
GTX132296	Acinus antibody	Hu	WB	
GTX115067	AKAP1 antibody	Hu	ICC/IF, IHC-P, WB	
GTX113917	ALY antibody	Hu, Ms	ICC/IF, IHC-P, IP, WB	
GTX115568	ANKHD1 antibody	Hu	IHC-P, WB	
GTX119872	ARS2 antibody	Hu	ICC/IF, IHC-P, WB	
GTX101814	AUF1 antibody	Hu, Ms	WB	
GTX116791	BOLL antibody	Ms	WB	
GTX121390	BRUNOL4 antibody	Hu	IHC-P, WB	
GTX120536	C14orf21 antibody	Hu	IHC-P, WB	
GTX118112	Caper antibody	Hu, Ms	WB	
GTX110892	CCAR1 antibody	Hu, Ms	ICC/IF, IHC-P, WB	
GTX120184	CIRBP antibody	Hu	ICC/IF, IHC-P, IP, WB	
GTX123357	CPEB1 antibody	Hu	IHC-P, WB	
GTX117457	CPEB2 antibody	Hu	WB	
GTX122727	CPEB4 antibody	Hu, Rat	IHC-P, WB	
GTX115498	CPSF4 antibody	Hu	WB	
GTX115537	CPSF6 antibody	Hu, Ms, Rat	ICC/IF, IHC-P, WB	
GTX116218	CSDE1 antibody	Hu	ICC/IF, IHC-P, WB	
GTX114994	CSTF2 antibody	Hu	ICC/IF, IHC-P, WB	
GTX114129	CUGBP1 antibody	Hu	IHC-P, WB	
GTX117035	CUGBP2 antibody	Hu, Ms	ICC/IF, IHC-P, WB	
GTX103662	Cyclophilin E antibody	Hu, Ms	IHC-P, WB	
GTX109981	DAZ2 antibody	Hu	ICC/IF, WB	
GTX106859	DAZ3 antibody	Hu	ICC/IF, IHC-P, WB	
GTX100230	DAZL antibody	Hu, Ms	WB	
GTX119498	DDX43 antibody	Hu	IHC-P, WB	
GTX109000	DKC1 antibody	Hu	ICC/IF, IHC-P, IP, WB	
GTX104456	DNAJC17 antibody	Hu	ICC/IF, WB	
GTX130960	DND1 antibody	Hu	WB	
GTX130011	eIF2 alpha antibody	Hu	WB	
GTX112612	eIF4B antibody	Hu, Ms	ICC/IF, IHC-P, WB	
GTX121223	eIF4H antibody	Hu	ICC/IF, WB	
GTX131373	ESRP1 antibody	Hu	WB	
GTX123665	ESRP2 antibody	Hu	ICC/IF, WB	
GTX114069	EWSR1 antibody	Hu, Ms, Rat	ICC/IF, IHC-P, IP, WB	
GTX115154	FUBP1 antibody	Hu, Ms, Rat	ICC/IF, IHC-P, IP, WB	
GTX115918	FUBP3 antibody	Hu, Rat	ICC/IF, IHC-P, WB	
GTX101810	FUS antibody	Hu, Ms	IHC-P, WB	
GTX109465	FXR2 antibody	Hu	IHC-P, WB	
GTX112191	G3BP1 antibody	Hu	ICC/IF, IHC-P, WB	

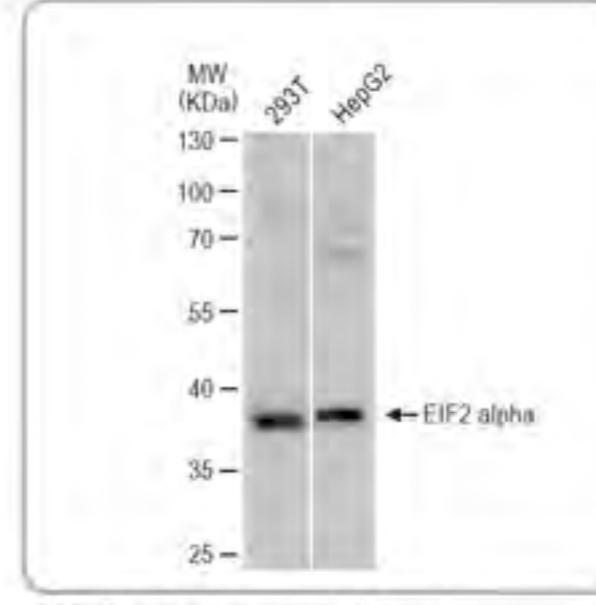




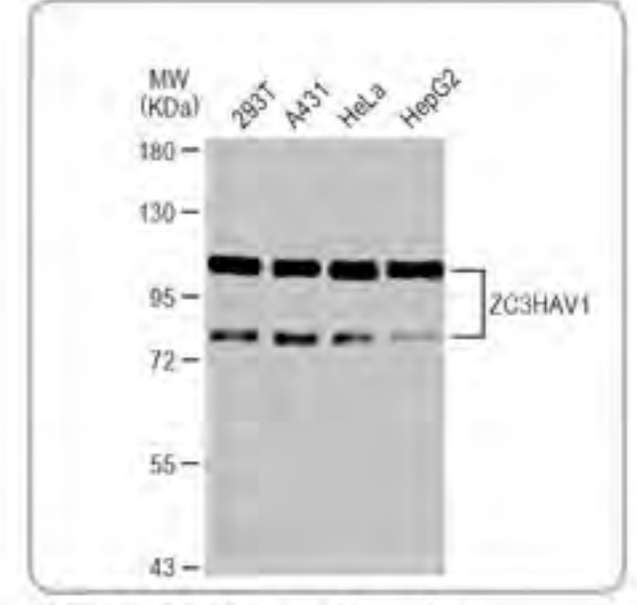
DKC1 antibody  
(GTX109000)



DND1 antibody  
(GTX130960)



eIF2 alpha antibody  
(GTX130011)

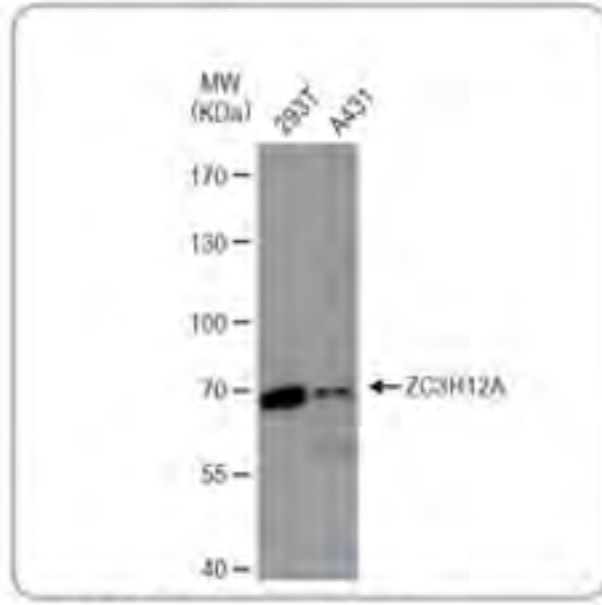




ZC3HAV1 antibody  
(GTX120134)

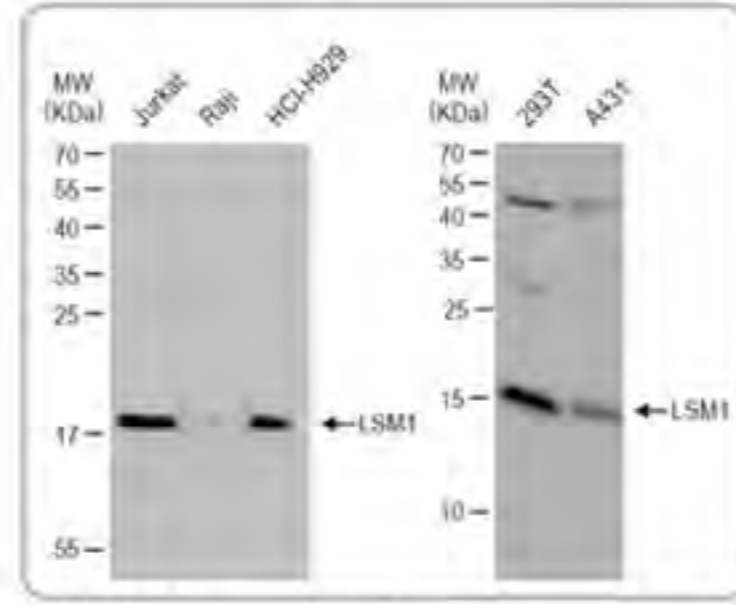
Hot Products ..... Citation Support KO/KD Validated Protein Overexpression Orthogonal Validation

Cat. No.	Product Name	Reactivity	Application	Validation
GTX112369	HDLBP antibody	Hu, Ms, Rat	IP, WB	
GTX106208	hnRNPA1 antibody	Hu, Ms, Rat	ICC/IF, IHC-P, WB	
GTX117578	hnRNPA2B1 antibody	Hu	ICC/IF, IHC-P, WB	
GTX102061	hnRNP H antibody	Hu, Ms	ICC/IF, IHC-P, WB	
GTX106825	hnRNP H2 antibody	Ms, Rat	IHC-P, WB	
GTX101815	hnRNP K antibody	Hu	ICC/IF, WB	
GTX114999	hnRNP M antibody	Hu	ICC/IF, IHC-P, WB	
GTX106526	hnRNP R antibody	Hu	ICC/IF, IP, WB	
GTX124044	HNRPD antibody	Hu, Ms, Rat	ICC/IF, IHC-P, WB	
GTX131442	HTF9C antibody	Hu	ICC/IF, IHC-P, WB	
GTX134128	HuC antibody	Ms, Rat	ICC/IF, IHC-P, WB	
GTX134099	HuD antibody	Hu, Ms, Rat	IHC-P, WB	
GTX113923	IGF2BP2 antibody	Hu	WB	
GTX115459	IMP3 antibody	Hu	ICC/IF, IHC-P, WB	
GTX120874	KHDRBS3 antibody	Hu	ICC/IF, WB	
GTX131804	KHSRP antibody	Hu, Ms, Rat	ICC/IF, IHC-P, WB	
GTX118675	KIAA0020 antibody	Hu	IHC-P, WB	
GTX105761	KRR1 antibody	Hu	ICC/IF, IHC-P, WB	
GTX131082	LARP7 antibody	Hu	WB	
GTX628139	Lin28A antibody	Hu	FACS, ICC/IF, IHC-P, WB	
GTX131546	LIN28B antibody	Hu	IHC-P, WB	
GTX130240	LSM1 antibody	Hu	IP, WB	
GTX119039	LSM11 antibody	Hu	WB	
GTX117766	LSM4 antibody	Hu	ICC/IF, WB	
GTX115291	MATR3 antibody	Hu	ICC/IF, WB	
GTX107366	MBNL3 antibody	Hu	ICC/IF, WB	
GTX117793	MCTS1 antibody	Hu, Ms, Rat	IHC-P, WB	
GTX106459	MKRN1 antibody	Hu, Rat	IHC-P, WB	
GTX115732	MKRN2 antibody	Hu	WB	
GTX101540	Musashi 1 antibody	Hu, Ms	ICC/IF, IHC-Fr, IP, WB	
GTX117808	Musashi 2 antibody	Hu, Ms, Rat	ICC/IF, IHC-Fr, IHC-P, IP, WB	
GTX120926	NIP7 antibody	Hu	ICC/IF, WB	
GTX129790	NOL8 antibody	Hu	IP, WB	
GTX102831	NOVA1 antibody	Hu	ICC/IF, WB	
GTX107157	NSUN6 antibody	Hu	ICC/IF, WB	
GTX118425	NUFIP1 antibody	Hu	ICC/IF, IHC-P, WB	
GTX113954	PABP antibody	Hu, Ms, Rat	ICC/IF, IHC-P, WB	
GTX114612	PABPC3 antibody	Hu	IHC-P, WB	
GTX122079	PABPC4 antibody	Hu, Ms	IHC-P, WB	
GTX119883	PABPC5 antibody	Hu, Ms, Rat	IHC-P, WB	

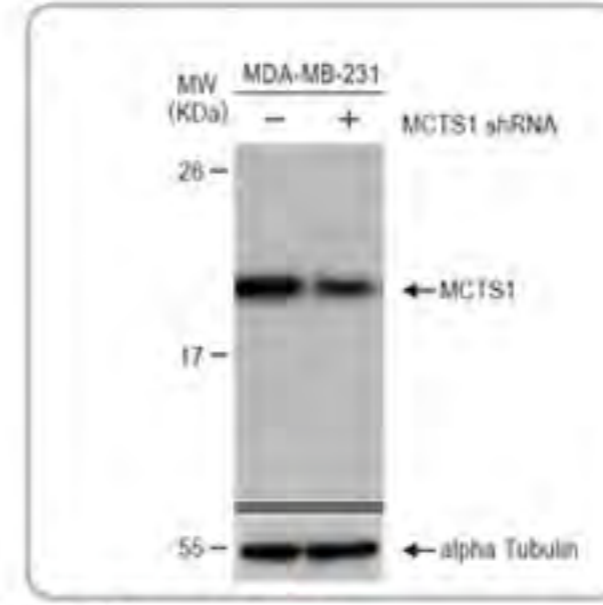






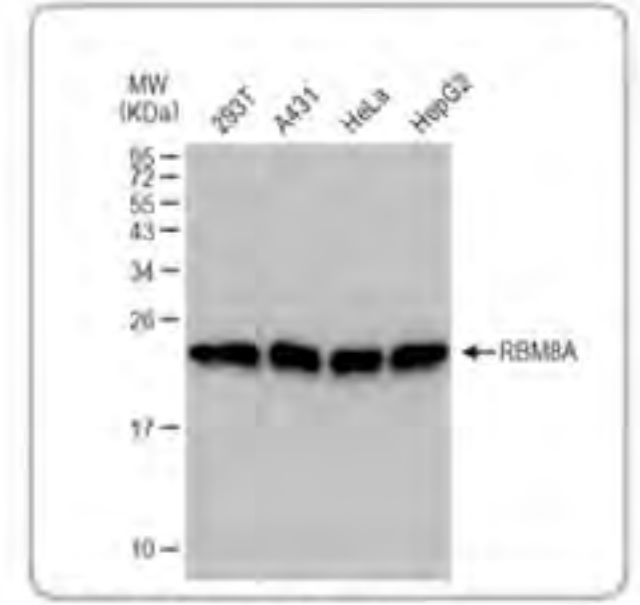
ZC3H12A antibody  
(GTX110807)  



LSM1 antibody  
(GTX130240)






MCTS1 antibody  
(GTX117793)  



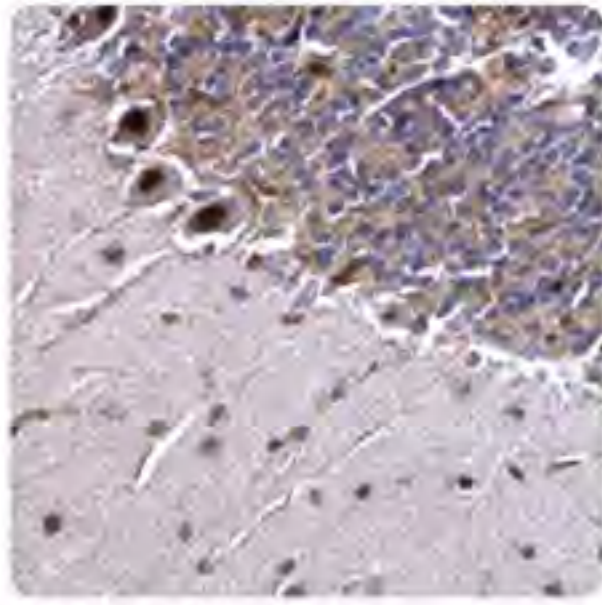
RBM8A antibody  
(GTX131387)

## Hot Products

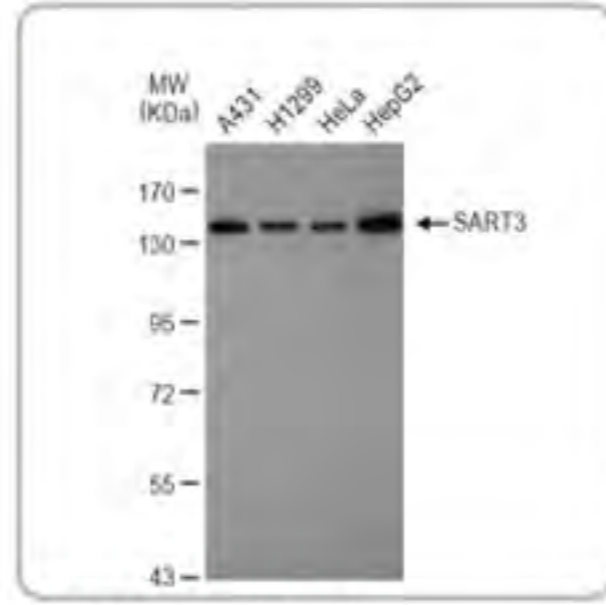
 Citation Support  KO/KD Validation  Protein Overexpression

Cat. No.	Product Name	Reactivity	Application	Validation
GTX101490	 PABPN1 antibody	Hu, Ms	ICC/IF, IHC-Fr, IHC-P, WB	
GTX115020	 PARN antibody	Hu, Ms	IP, WB	
GTX131920	PARP14 antibody	Hu	IP, WB	
GTX114617	PCBP2 antibody	Hu, Ms	ICC/IF, IHC-P, IP, WB	
GTX118656	PCBP3 antibody	Hu, Ms, Rat	ICC/IF, WB	
GTX129682	PGC1 beta antibody	Rat	WB	
GTX118737	 PNase antibody	Hu	ICC/IF, IHC-P, IP, WB	
GTX122304	 POLDIP3 antibody	Hu	WB	
GTX108874	 POLR2G antibody	Hu, Ms	IHC-P, IP, WB	
GTX117014	 PPIL4 antibody	Hu	ICC/IF, IP, WB	
GTX119744	PSPC1 antibody	Hu, Ms, Rat	ICC/IF, IHC-P, WB	
GTX101481	PTBP1 antibody	Hu	IHC-P, WB	
GTX116704	PTBP2 antibody	Hu, Ms, Rat	ICC/IF, IHC-P, WB	
GTX629886	PUF60 antibody	Hu, Ms, Rat	ICC/IF, IHC-P, WB	
GTX115280	Pumilio 1 antibody	Hu, Ms	ICC/IF, IHC-P, WB	
GTX114172	Pumilio 2 antibody	Hu, Ms	WB	
GTX115969	QKI antibody	Hu, Ms, Rat	ICC/IF, IHC-Fr, IHC-P, WB	
GTX117389	 RALY antibody	Hu, Ms, Rat	ICC/IF, IHC-P, IP, WB	
GTX115074	RBM10 antibody	Hu	ICC/IF, WB	
GTX118694	RBM11 antibody	Hu	WB	
GTX109899	 RBM15 antibody	Hu	ICC/IF, IP, WB	
GTX120047	 RBM17 antibody	Hu, Ms	WB	
GTX119443	RBM22 antibody	Hu	ICC/IF, WB	
GTX120227	RBM26 antibody	Hu	ICC/IF, WB	
GTX110268	RBM28 antibody	Hu	ICC/IF, WB	
GTX121565	RBM4 antibody	Hu, Ms	WB	
GTX118659	RBM41 antibody	Hu	WB	
GTX118781	RBM48 antibody	Hu	WB	
GTX129783	RBM5 antibody	Hu	IP, WB	
GTX131387	RBM8A antibody	Hu, Rat	ICC/IF, IHC-P, WB	
GTX116327	RBM9 antibody	Hu	WB	
GTX114710	RBMS1 antibody	Hu	WB	
GTX110098	RBM1A1 antibody	Hu	IHC-P, WB	
GTX122973	RBM1Y1F antibody	Hu	ICC/IF, WB	
GTX118619	 RBPMS antibody	Hu, Ms, Mk, Rat	ICC/IF, IHC, IHC-Fr, IHC-P, WB, IHC-Wm	
GTX129780	RC3H1 antibody	Hu	WB	
GTX129789	 RNPS1 antibody	Hu	WB	
GTX115327	ROD1 antibody	Hu	WB	
GTX115272	SAFB2 antibody	Hu, Ms	ICC/IF, IHC-P, WB	
GTX115462	SAM68 antibody	Hu, Ms, Rat	IHC-P, WB	

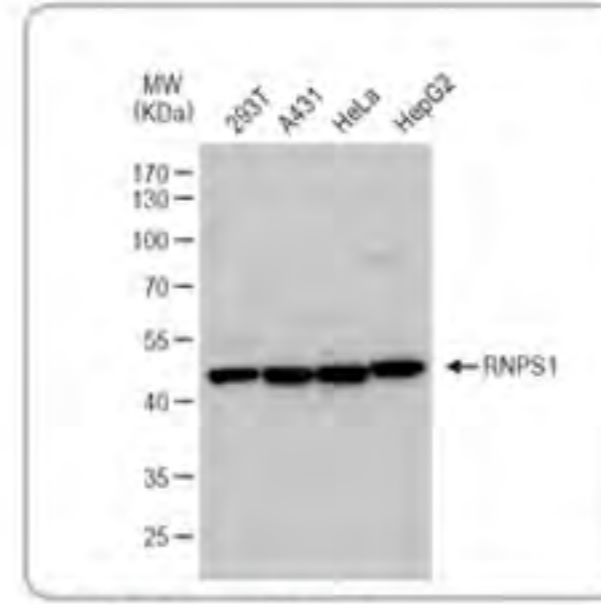




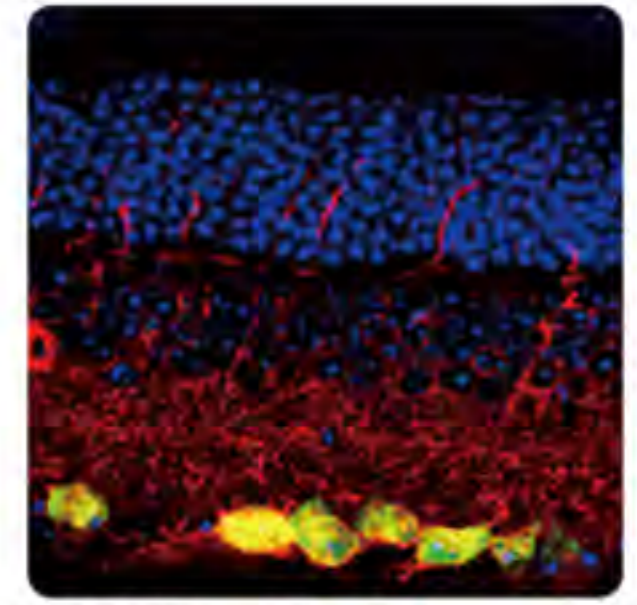
SSB antibody  
(GTX113555)



SART3 antibody  
(GTX107684)



RNPS1 antibody  
(GTX129789)



RBPMS antibody  
(GTX118619)

## Hot Products



Citation Support



KO/KD Validation



Orthogonal Validation

Cat. No.	Product Name	Reactivity	Application	Validation
GTX122549	SAMD4B antibody	Hu	IHC-P, WB	
GTX107684	SART3 antibody	Hu	ICC/IF, IHC-P, IP, WB	
GTX130194	SETD1A antibody	Hu, Ms	ICC/IF, IHC-P, WB	
GTX114918	SF2 antibody	Hu, Ms, Rat	ICC/IF, IHC-P, WB	
GTX117942	SF3B4 antibody	Hu, Ms	WB	
GTX114209	SFPQ antibody	Hu, Ms	ICC/IF, IHC-P, IP, WB	
GTX117248	SFRS12 antibody	Hu	WB	
GTX101465	SFRS9 antibody	Hu	ICC/IF, WB	
GTX101883	SNRPB antibody	Hu	ICC/IF, WB	
GTX129802	SNRPB2 antibody	Hu	WB	
GTX101846	SNRPD2 antibody	Hu, Ms	ICC/IF, IHC-P, WB	
GTX129801	SNRPE antibody	Hu	WB	
GTX114927	SNRPN antibody	Hu, Ms, Rat	IHC-P, WB	
GTX113555	SSB antibody	Hu, Ms, Rat	ICC/IF, IHC-P, WB	
GTX103116	TAF15 antibody	Hu, Ms	ICC/IF, IHC-P, IP, WB	
GTX630197	TDP43 antibody	Hu, Ms, Rat	ICC/IF, IHC-P, WB	
GTX129795	TDRKH antibody	Hu, Ms	WB	
GTX122789	THUMPD2 antibody	Hu	IHC-P, WB	
GTX106796	THUMPD3 antibody	Hu	IHC-P, WB	
GTX113280	TIA1 antibody	Hu	ICC/IF, WB	
GTX114838	TIAL1 antibody	Hu	WB	
GTX117545	TOE1 antibody	Hu	ICC/IF, IHC-P, WB	
GTX114752	TRA2B antibody	Hu, Ms, Rat	IHC-P, WB	
GTX102663	TROVE2 antibody	Hu, Ms	IHC-P, WB	
GTX121341	TTC14 antibody	Hu	WB	
GTX119546	U1SNRNPBP antibody	Hu, Ms	ICC/IF, IHC-P, WB	
GTX115622	U2AF65 antibody	Hu	ICC/IF, IHC-P, WB	
GTX120163	UNKL antibody	Hu	ICC/IF, WB	
GTX130493	UPF3B antibody	Hu	IHC-P, WB	
GTX131630	YB1 antibody	Hu	WB	
GTX116127	YBX2 antibody	Hu, Ms	ICC/IF, IHC-P, WB	
GTX121156	ZC3H10 antibody	Hu	WB	
GTX110807	ZC3H12A antibody	Hu, Ms	FACS, ICC/IF, IHC, IHC-P, IP, WB	
GTX107008	ZC3H8 antibody	Hu	ICC/IF, IHC-P, WB	
GTX120134	ZC3HAV1 antibody	Hu	ICC/IF, IHC-P, WB	
GTX118632	ZNF239 antibody	Hu	WB	
GTX120667	ZNF638 antibody	Hu	WB	
GTX114892	ZNF74 antibody	Hu	ICC/IF, WB	




# Five Pillars of Ab Validation


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**A**t GeneTex, we understand that researchers need high-quality antibodies to achieve accurate and reproducible experimental results. We recognize the importance of stringent validation of our reagents through the use of various analytic strategies to confirm antibody specificity. Based on the guidelines described by the International Working Group on Antibody Validation (IWGAV), GeneTex has been employing multiple approaches to certify antibody performance in our quality assurance process:

 **KO/KD Validation**    **Knockout/Knockdown**


Complete or significant reduction of signal following genome editing or RNA interference of target protein.

 **Comparative Abs**    **Comparative Antibodies**

Correlation between two antibodies against the same target with different epitopes across several samples, preferentially with different expression levels of the target protein.

 **IP-MS Analysis**    **IP-MS**

Mass spec analysis of target protein peptide sequences from samples immunoprecipitated by antibody from lysates.

 **Orthogonal Validation**    **Biological and Orthogonal Characteristics**

Change of antibody signal in accordance with defined biological characteristics of target protein following specific sample preparation parameters, including drug treatments, hypoxia conditions, or subcellular fractionation. Also, analysis of signals from various cell lines that either do or do not express the target in the context of protein or mRNA levels.

 **Protein Overexpression**    **Protein Overexpression**

To confirm the endogenous signals detected by the antibody are the target protein, transfected cells with cDNA encoding the target protein are used as a positive control and independently validated by western blot.

To facilitate your search, antibodies that satisfied at least one of these validation methods are identified by the certification icons.

**References:** *Nat Methods*. 2016 Oct;13(10):823-7.

