

RiboCluster ProfilerTM Product Catalog

Research tools for post-transcriptional regulation

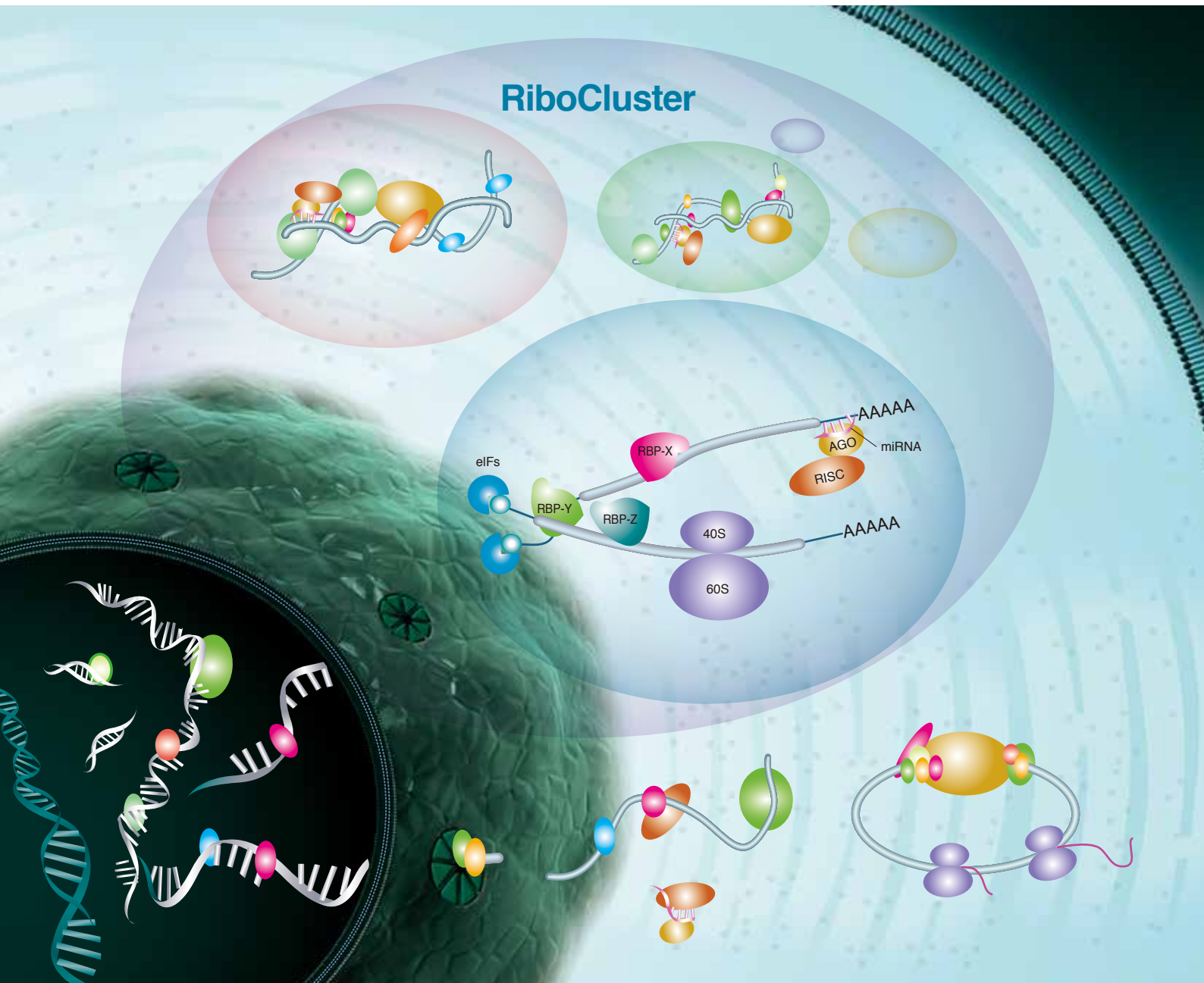
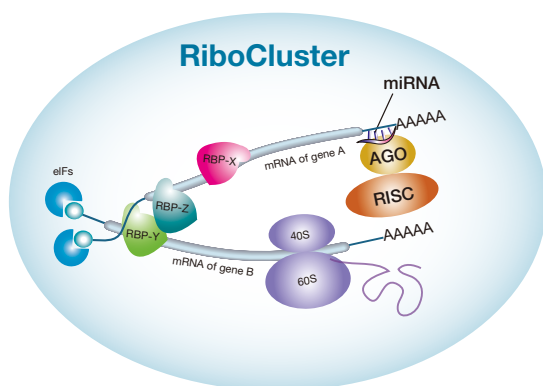


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mRNAs and miRNAs associated with specific diseases or functions are considered to form clusters (RiboClusters) that are mediated by RNA binding proteins (RBPs). RiboCluster Profiler™ is an optimized unique tool which enables customers to extensively analyze the certain disease- or function-related genes.



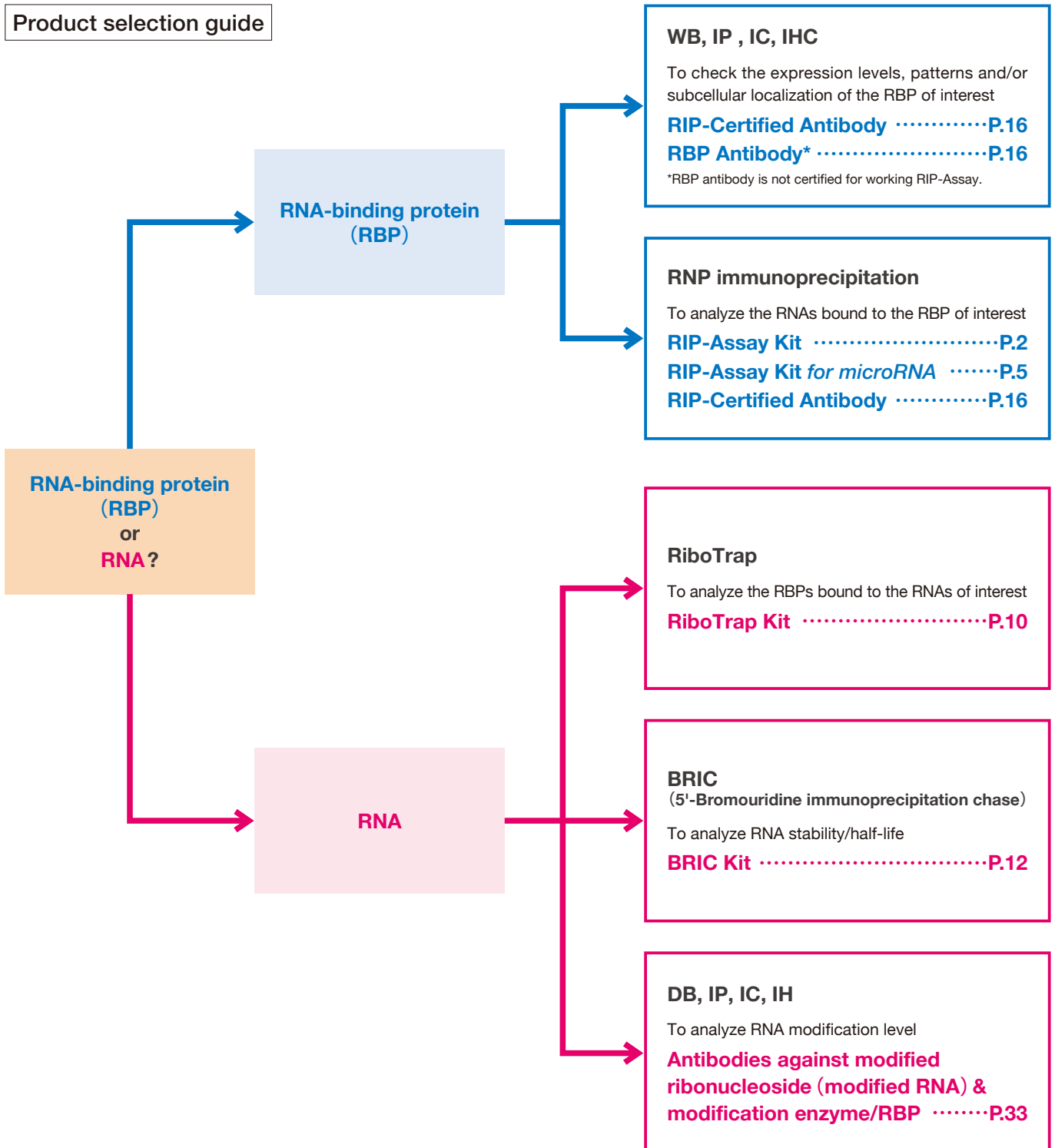
Introduction

RiboCluster Profiler™

Research tools for post-transcriptional regulation

Post-transcriptional regulation of gene expression is important in most cellular processes. RNP complexes are the fundamental units of post-transcriptional regulation of mRNA. RNA molecules, including mRNA and non-coding species such as microRNA (miRNA), exists in RNP complexes with specific RNA binding proteins (RBPs).

MBL offers kits and antibodies for the research of post-transcriptional regulation. For the latest information, please visit our website (<http://ruo.mbl.co.jp/je/rip-assay/>).



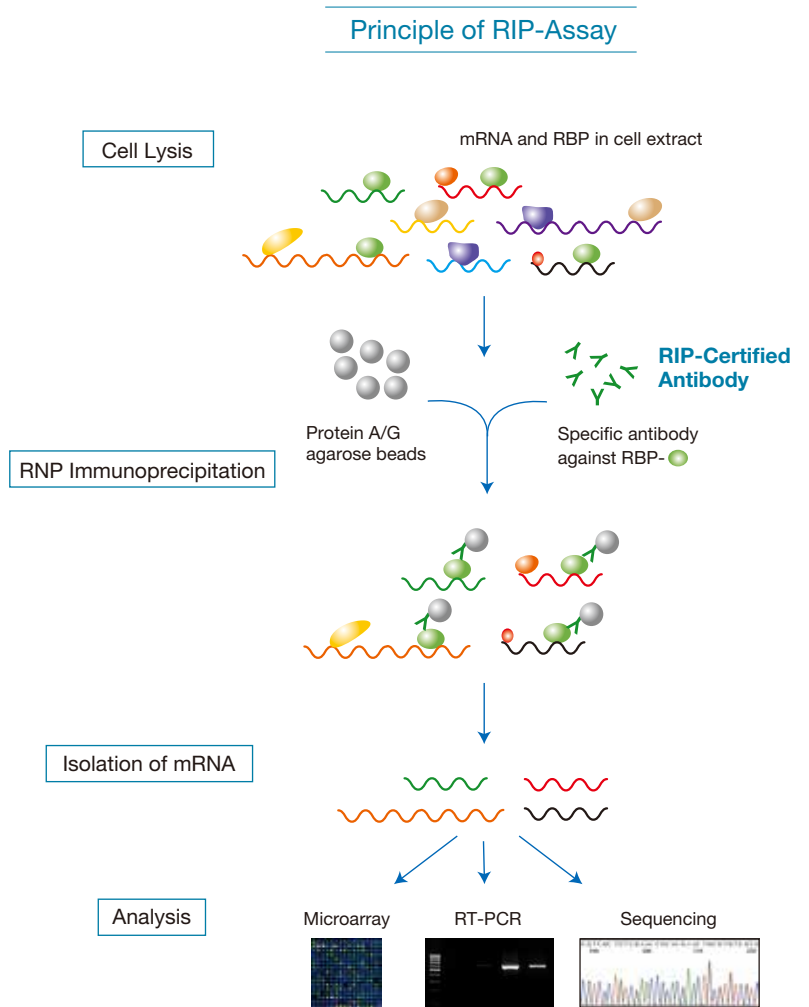
RIP-Assay Kit

- Highly optimized, ready-to-use kit for RIP-Assay.
- Eco-friendly, no-phenol containing, proprietary buffers for RNA isolation.
- High quality, high yield RNAs work for the all kind of post-RIP-Assay.

MBL has developed and marketed the RIP-Assay Kit, which enables customers to immunoprecipitate the mRNA-RBP complexes with RBP specific antibodies. The RIP-Certified Antibodies against a large variety of RBPs are also available from MBL.

RIP-Chip works on the same principle as the widely used ChIP-Chip. It immunoprecipitates the ribonucleoprotein (RNP) from the cell extracts using an antibody raised against the RBP of interest. This simple procedure is then followed by microarray analysis. While microarrays determine the sequences of the RNA targets by hybridization, direct sequencing approaches (RIP-Seq) can also be used to reveal RNA targets of RBPs.

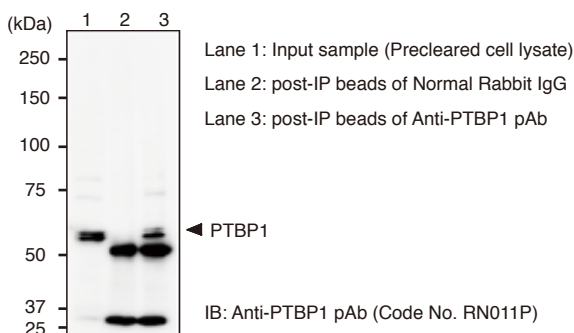
RIP-Chip or RIP-Seq data provides insights into new cellular pathway components leading to potential therapeutic targets and can also provide informations regarding the effects of drugs on post-transcriptional processes. This technology can be applied to essentially any cellular system or animal model.



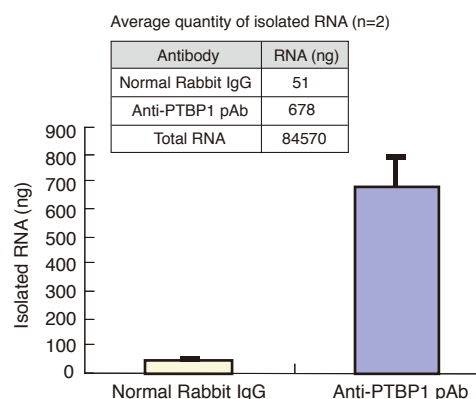
Example of RIP-Assay results

Cells:	Jurkat
Cell number:	6×10^6 cells/sample
Antibodies:	Normal Rabbit IgG Anti-PTBP1 pAb (Code No. RN011P)
Amount used:	15 μ g

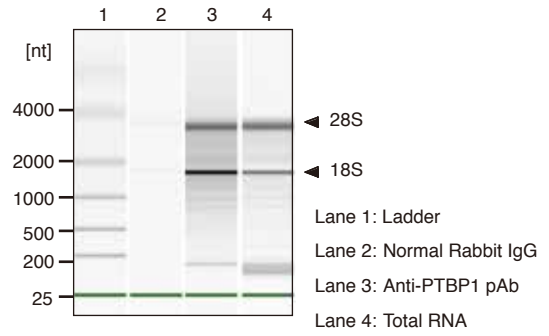
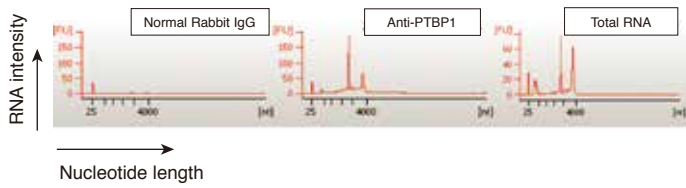
1. The binding of RNP with the beads was confirmed by WB after immunoprecipitation.



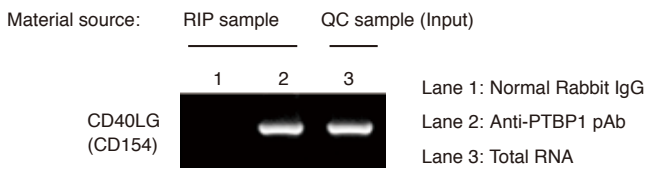
2. The amount of isolated RNAs was measured.



3. Isolated RNAs were analyzed by Bioanalyzer.



4. Isolated RNAs were identified by RT-PCR.



After the isolation of RNAs that bound with PTBP1 in Jurkat cells by using RIP-Assay Kit, the RNAs were identified by RT-PCR. CD40LG was detected at a significant level in the sample precipitated by anti-PTBP1 antibody rather than by control IgG. CD40LG has been reported to be target of PTBP1. Thus this data indicated the ability of RIP-Assay Kit for profiling the target mRNAs of RNP complex.

Kit components

Reagent	Size
Lysis Buffer	26 mL
Wash Buffer	35 mL × 2 bottles
Normal Rabbit IgG	200 µL
High-Salt Solution	6 mL
Solution I	260 µL
Solution II	10 mL
Solution III	7 mL
Solution IV	55 µL

Code	Product	Size
RN1001	RIP-Assay Kit	10 assays

Materials required but not provided

 Protease inhibitor

 RNase inhibitor

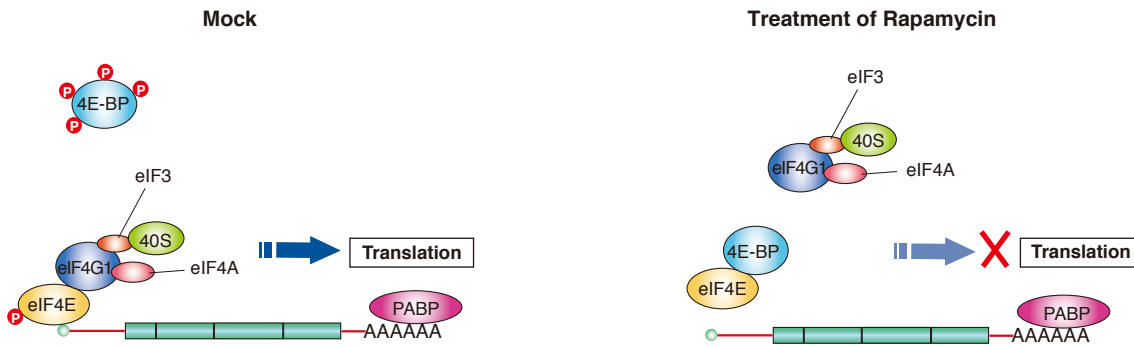
 Protein A or Protein G agarose beads

 DTT



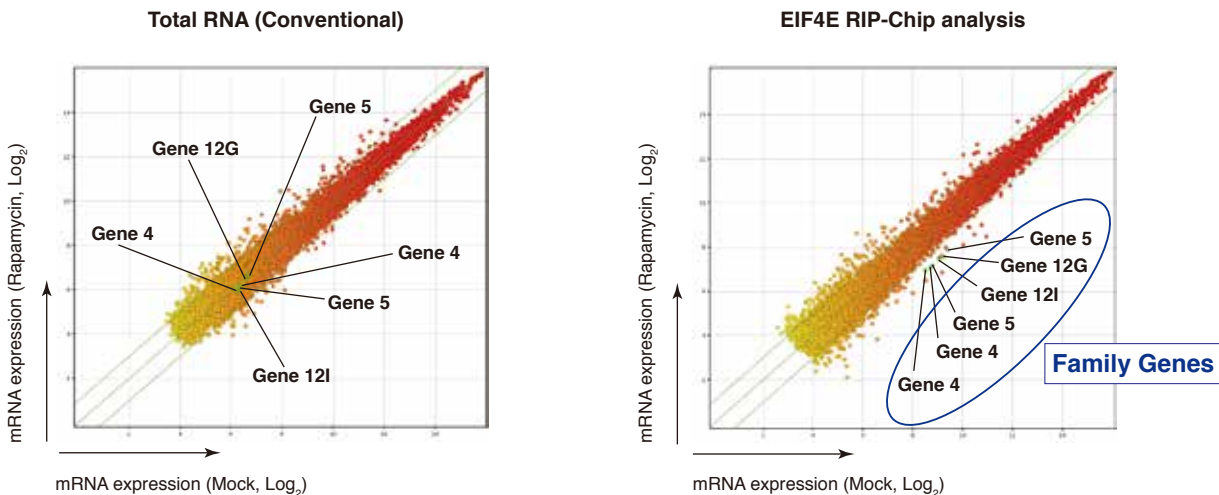
RIP-Chip Analysis

Analysis of mRNAs of which binding status with eIF4E are changed by the treatment of Rapamycin.



Unlike conventional gene expression analysis based on the measurement of mRNAs, RIP-Chip is a tool to compare the binding status of RNAs with RBPs that have specific functions. For example, when a 5'-cap binding protein, eIF4E, is used as a target RBP for RIP-Chip analysis, it is possible to detect the changes of the population of target mRNAs affected by the treatment with Rapamycin (generic name: Sirolimus). The cap-binding complex eIF4F is involved in ribosome recruitment during the initiation phase of translation, thus the changes of the binding statuses with its target mRNAs are supposed to greatly affect the translational efficacy of its target mRNAs. Rapamycin is known to be capable of changing this binding status, thus used in clinical treatment as an immunosuppressant and anti-cancer agent.

Results



Expression profile of certain genes (Gene 4, 5, 12I, 12G) did not change in Rapamycin treated cells and in Mock sample.

Effect of Rapamycin at post-transcriptional level cannot be detected by conventional gene expression analysis.

Certain genes showed down-regulated expression profile in Rapamycin treated cells.

Effect of Rapamycin at post-transcriptional level can be detected by EIF4E RIP-Chip analysis.

RIP-Chip makes it possible to extensively analyze the changes occurred at translational level, which is impossible to be observed by using conventional method.

The expression levels of the mRNAs, indicated green spots, have not changed by treatment of Rapamycin, however, the cap-binding ratio is decreased. That is to say, drug treatment decreases the translational efficiency of these mRNAs, and the expression of the proteins is regulated at translational level rather than at transcriptional level.

RBP is known to regulate the mRNAs that are functionally related via cluster. RIP-Chip analysis using anti-EIF4E antibody (right graph) showed that Gene 4, 5, 12I and 12G were down-regulated. We found that those mRNAs were functionally related (data not shown).

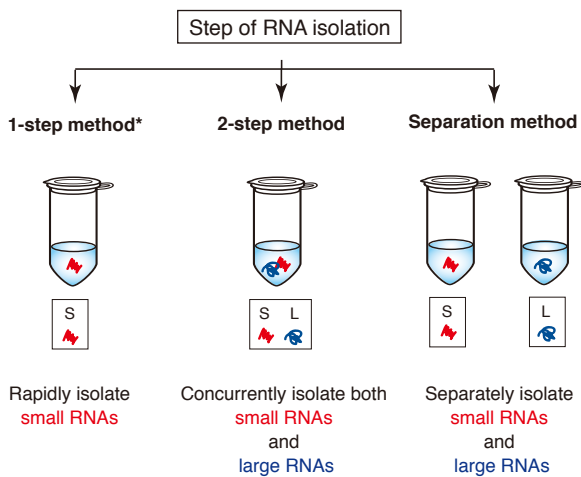
RIP-Assay Kit for *microRNA*

- It is possible to isolate miRNA and mRNA in one tube or in two (2) tubes separately.
- miRNA and mRNA can be isolated by antibodies against either RISC components or other RBPs.
- Eco-friendly, high efficient reagents are optimized for extraction of miRNAs/mRNAs work for all kinds of application.

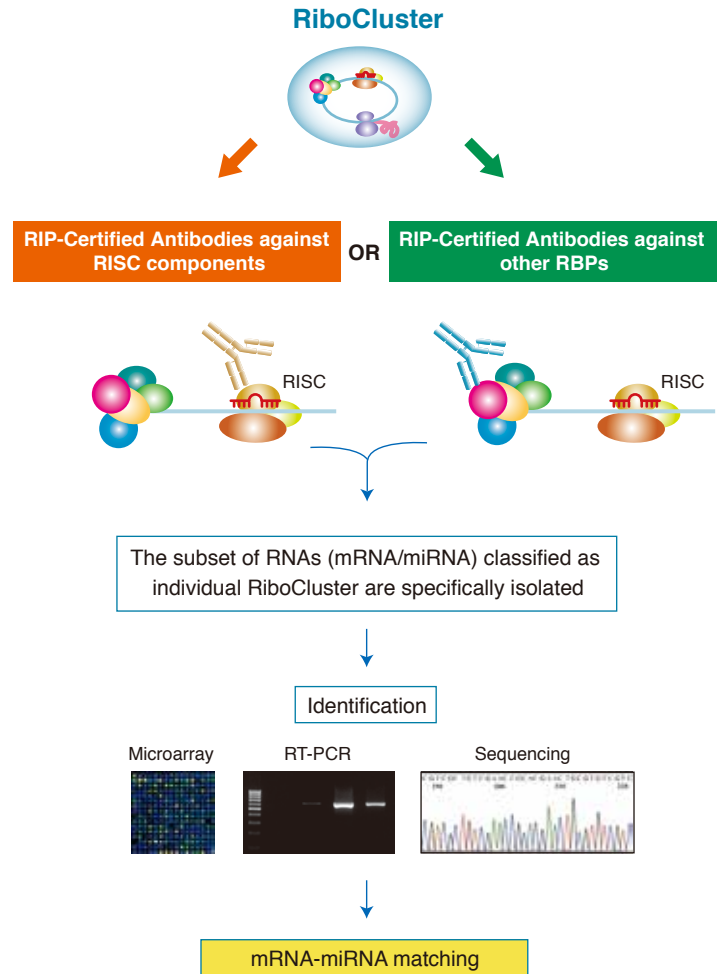
RIP-Assay Kit for *microRNA* is an optimized kit to isolate functionally related mRNAs and miRNAs. The kit provides three (3) different RNA isolation protocols on customer's demand.

- To rapidly isolate small RNAs (1-step method)
- To simultaneously isolate both small RNAs and large RNAs (2-step method)
- To separately isolate small RNAs and large RNAs (separation method)

Any one of these isolation methods recovers miRNA more efficiently than conventional phenol extraction method. This kit is useful to identify the disease or function related miRNAs as well as to extensively analyze their target mRNAs.



*This is not suitable for isolating large RNAs because the recovery for large RNAs is inefficient compared with the other 2 methods.



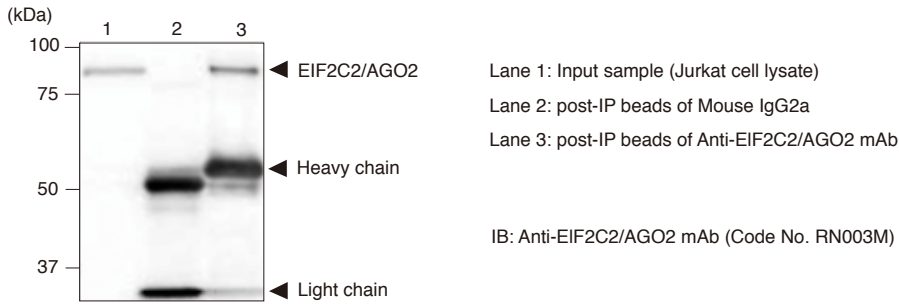
Example of RIP-Assay Results

RIP-Assay through RISC components

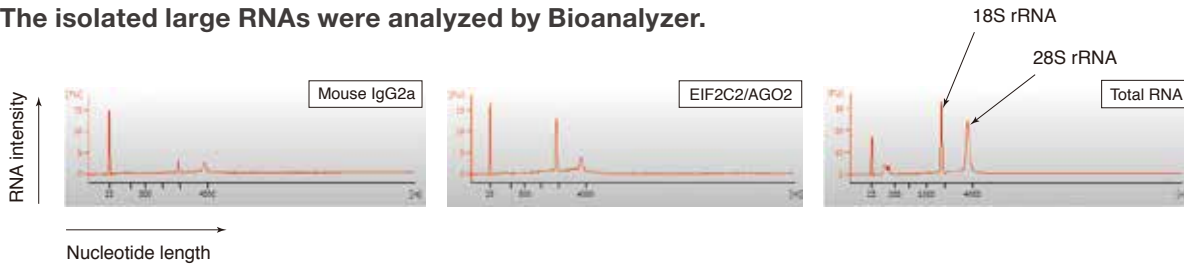
RIP-Assay was performed by using antibody against AGO2 which takes a central role of RISC.

Cells:	Jurkat
Cell number:	1×10^7 cells/sample
Antibodies:	Mouse IgG2a (Code No. M076-3) Anti-EIF2C2/AGO2 mAb (Code No. RN003M)
Amount used:	15 μ g
RNA isolation:	Separation method

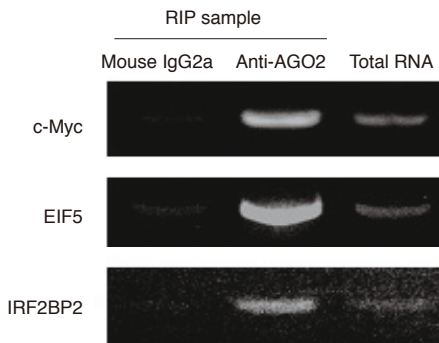
1. The binding of AGO2 with the beads was confirmed by WB after immunoprecipitation.



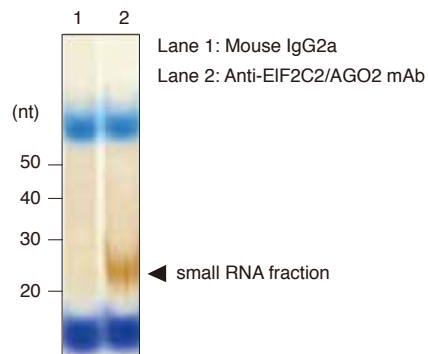
2. The isolated large RNAs were analyzed by Bioanalyzer.



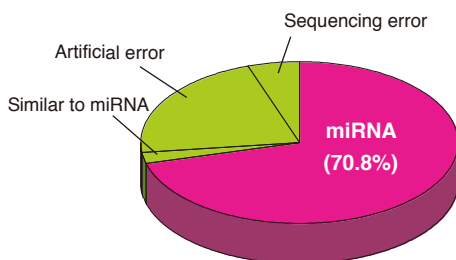
3. The isolated large RNAs were analyzed by RT-PCR.



4. The isolated small RNAs were confirmed by silver staining.



5. Purified small RNAs were analyzed by sequencing.



miRNA: coverage>90%, identity>90%
 Similar to miRNA: coverage>80%, identity>80%
 Artificial error: The error arising from cloning process
 Sequencing error: The error arising from sequencing process

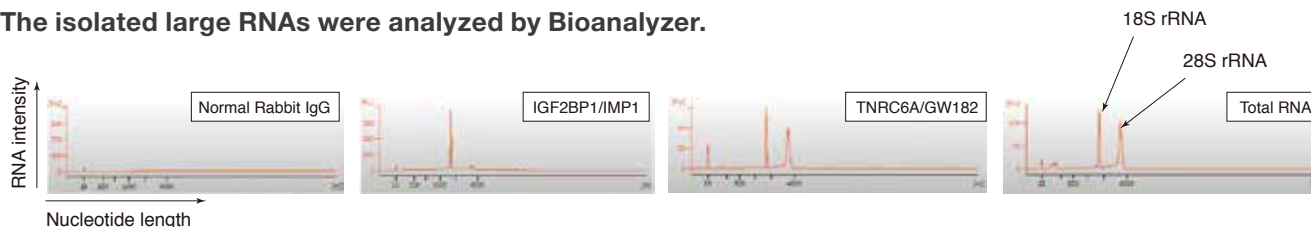
Compared with the large RNA fraction prepared from post-IP beads of isotopic control, mRNAs of c-Myc, EIF5 and IRF2BP2 were highly enriched in the anti-AGO2 post-IP beads (3). Additionally, a variety of miRNAs were significantly enriched in the small RNA fraction of anti-AGO2 post-IP beads (4). Sequencing analysis showed that 70.8% of small RNAs were miRNAs (5). Excluding the artificial error and sequencing error, 90% of isolated small RNAs were miRNAs.

RIP-Assay through RISC components and other RBPs

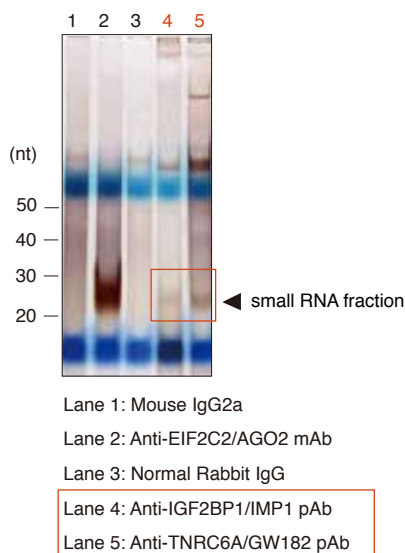
RIP-Assay was performed by using antibodies against IGF2BP1/IMP1 which is not a RISC component and TNRC6A/GW182 which is a RISC component.

Cells:	K562
Cell number:	1×10^7 cells/sample
Antibodies:	Mouse IgG2a (Code No. M076-3), Anti-EIF2C2/AGO2 mAb (Code No. RN003M) Normal Rabbit IgG, Anti-IGF2BP1/IMP1 pAb (Code No. RN007P), Anti-TNRC6A/GW182 pAb (Code No. RN033P)
Amount used:	Mouse IgG2a, Anti-EIF2C2/AGO2 mAb: 15 μ g, Other antibodies: 25 μ g
RNA isolation:	Separation method

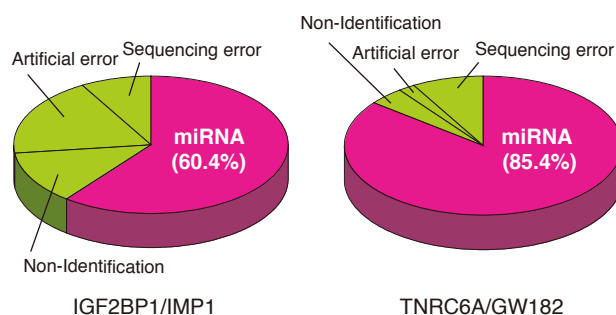
1. The isolated large RNAs were analyzed by Bioanalyzer.



2. The isolated small RNAs were confirmed by silver staining.



3. Purified small RNAs were analyzed by sequencing.



miRNA: (coverage>90%, identity>90%)
Non-Identification: Non-Identification, may be novel miRNA sequencing
Artificial error: The error arising from cloning process
Sequencing error: The error arising from sequencing process

Compared with anti-AGO2 post-IP beads, less miRNAs were detected in the small RNA fractions of anti-IGF2BP1/IMP1, which is not a RISC component, and anti-TNRC6A/GW182, which is a RISC component (2). Sequencing analysis showed that the miRNAs identified in small RNA fractions obtained from anti-IMP1 post-IP beads and anti-GW182 post-IP beads were 60.4% and 85.4%, respectively (3).

Kit components

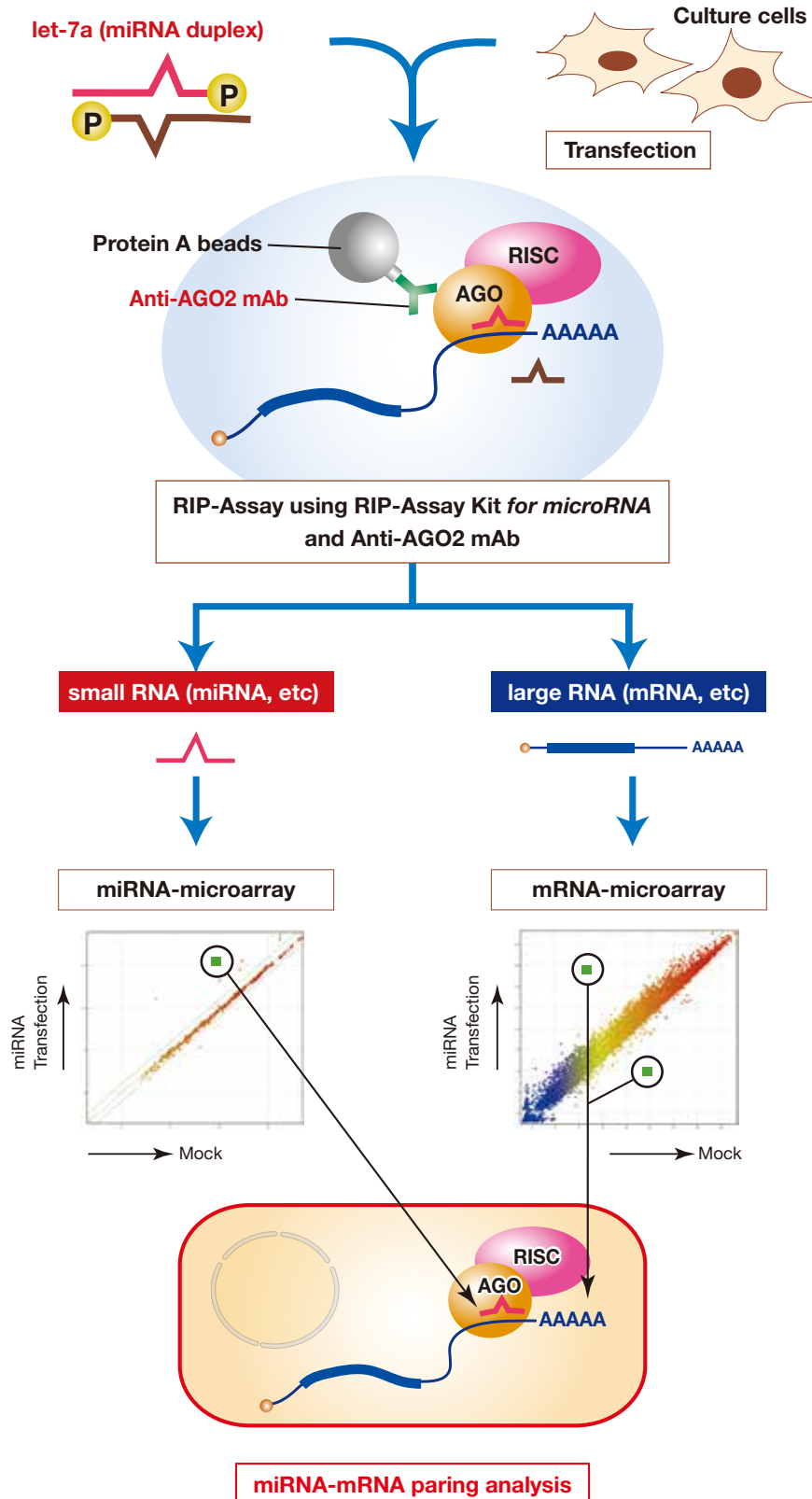
Reagent	Size
Immunoprecipitation reagents	
mi-Lysis Buffer	26 mL \times 1 bottle
mi-Wash Buffer	35 mL \times 2 bottles
Normal Rabbit IgG	0.33 mL \times 1 vial
High-Salt Solution	6 mL \times 1 vial
Reagents for RNA isolation	
mi-Solution I	0.26 mL \times 1 vial
mi-Solution II	6 mL \times 1 vial
mi-Solution III	4 mL \times 1 vial
mi-Solution IV	0.2 mL \times 1 vial
Gel extraction reagents	
Gel Extraction Buffer	25 mL \times 1 vial
3 M NaOAc	1 mL \times 1 vial
miSPIKE™	100 pmoles \times 1 vial



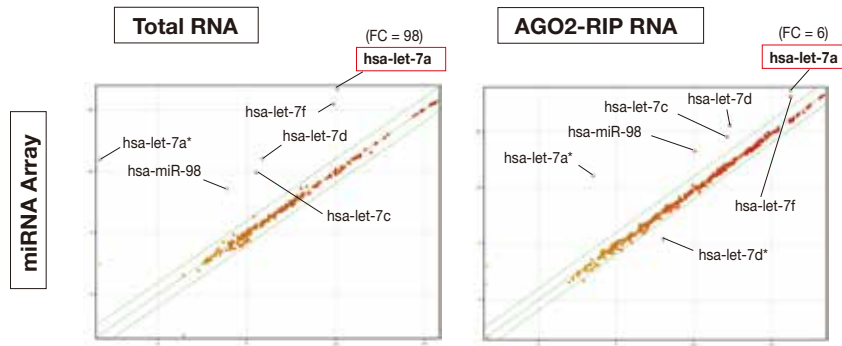
Code	Product	Size
RN1005	RIP-Assay Kit for microRNA	10 assays

Screening for target mRNAs of let-7a

miRNA:	let-7a-1 (duplex, 3' overhang)
Cell:	HEK293T
Antibodies:	Anti-EIF2C2 (AGO2) (Human) mAb (Code No. RN003M) Mouse IgG2a (Code No. M076-3)
Kit:	RIP-Assay Kit for <i>microRNA</i> (Code No. RN1005)

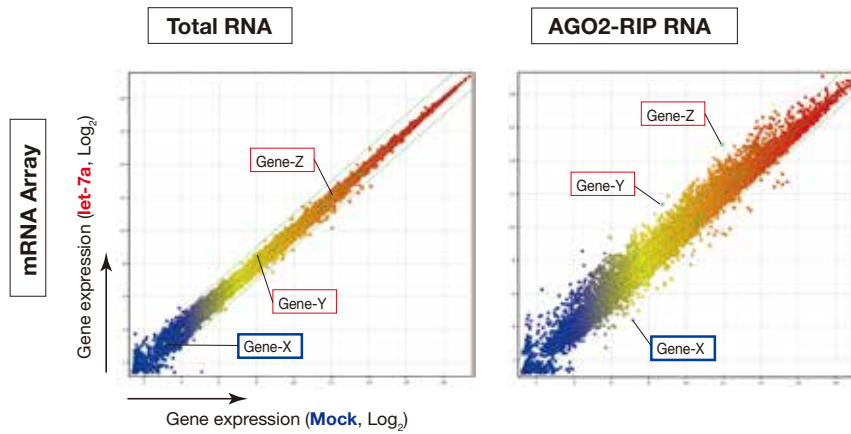


1. Result of miRNA-microarray (AGO2 RIP-Chip)



Both let-7a expression levels and the AGO2-binding ratio of let-7a were increased upon transfection (Total RNA: FC (Fold change) =98, AGO2-RIP-RNA: FC=6). Detection of other let-7a family miRNAs was considered a cross-reaction with let-7a because of a common consensus seed sequence.

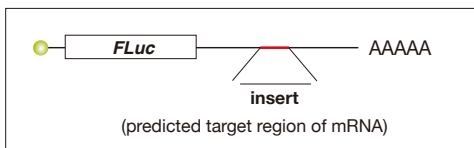
2. Result of mRNA-microarray (AGO2 RIP-Chip)



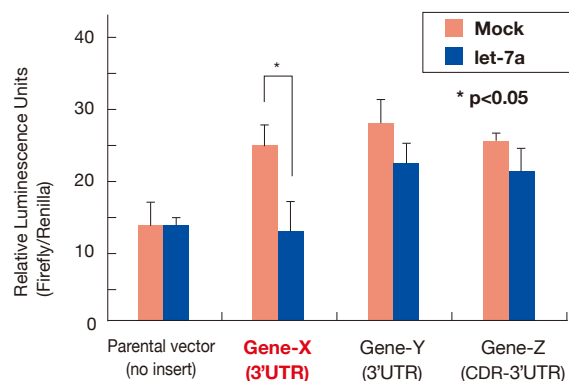
The data of AGO2-RIP-RNA showed that the AGO2-binding ratio of Gene X, Y and Z were significantly changed (FC ≥ 6). The binding status between AGO2 and mRNA was changed depending on expression level of let-7a-1.

3. Luciferase assay for confirmation of target mRNA candidates

Construct (Dual-Glo® Luciferase Assay System)



Symbol	Region	Predicted target site	AGO2-RIP FC value
Gene-X	3'UTR	1	6.5
Gene-Y	3'UTR	1	6.4
Gene-Z	CDR	3	8.4



Luciferase assay of Gene-X showed the repression of translation, which reflect on its binding status.

RIP-Chip technology is useful for efficient identification of miRNA targets

RiboTrap Kit

- RNA pull-down method to explore the RNA-protein and RNA-RNA interactions by using RNA of interest as a bait.
- No denaturing agent is used for elution, making it possible to work for a wide range of experimental purpose.
- Nucleus and cytoplasmic fraction can be extracted separately, making it possible to analyze the RNP components of both fractions.

The RiboTrap Kit is used to isolate RBPs and other proteins that are associated with mRNA, ribosomal RNA (rRNA), transfer RNA (tRNA), viral RNA, miRNA or any other RNA of interest from either the cytoplasmic or nuclear extract of cultured mammalian cells.

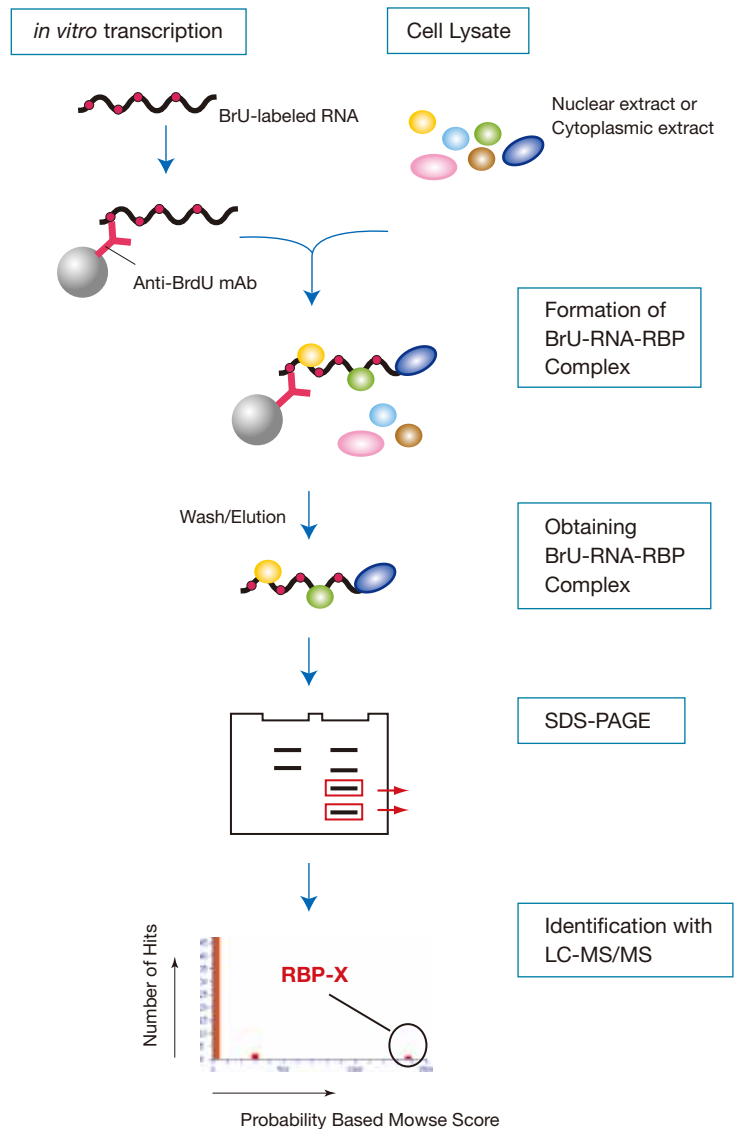
The RNA of interest is modified with 5-bromo-UTP (BrUTP) by *in vitro* transcription, followed by incubation with a cell lysate (cytoplasmic extract or nuclear extract) to form the assembled RNA-RBP complexes. The BrU-labeled RNA-RBP complexes are then immunoaffinity-purified by anti-BrdU monoclonal antibody (mAb), which cross-reacts with BrUTP. RBPs associated with the BrU-labeled RNA can be identified by immunoblotting or mass spectroscopy.

Three (3) different wash buffers provided in the RiboTrap Kit allow for analysis of both weakly and tightly bound RBPs.

- Wash Buffer I : mild condition (primary screening)
- Wash Buffer II : stringent condition (high-ionic strength)
- Wash Buffer III : stringent condition (strong detergent)

Antisense RNA (corresponding to complementary RNA of interest) or truncated RNA of interest is used to exclude nonspecific binding proteins. Elution buffer composed of the optimal concentration of BrdU allows specific recovery of BrU-RNA/protein complexes. RBPs isolated with native conformations can be used in several downstream applications.

Principle of RiboTrap Kit



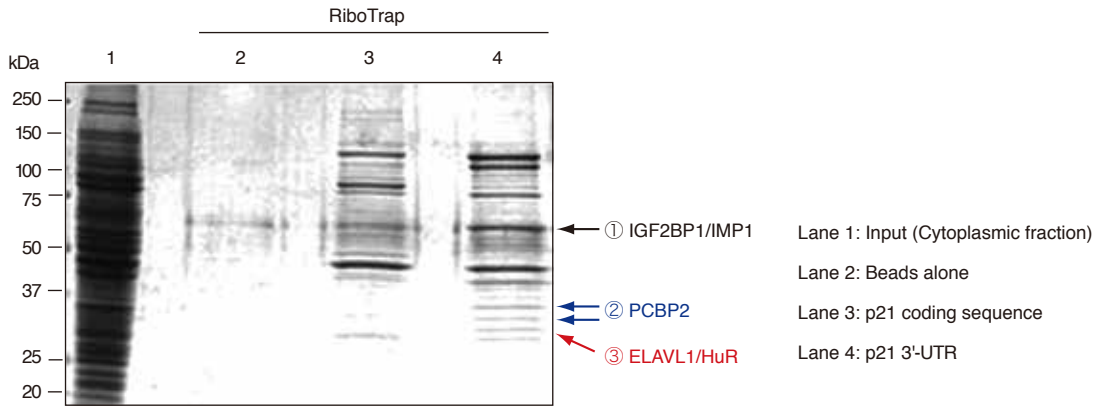
Comparison of three different wash buffers

	Wash Buffer I (Basic buffer)	Wash Buffer II	Wash Buffer III
Ionic strength	Low	High	Low
Detergent strength	Mild	Mild	Strong
Wash conditions	Mild	Stringent	Stringent
Retained tightly bound RBPs	Yes	Yes	Yes
Retained weakly bound RBPs	Yes	No	No
Contamination of nonspecifically bound RBPs	Likely present	Negligible	Negligible

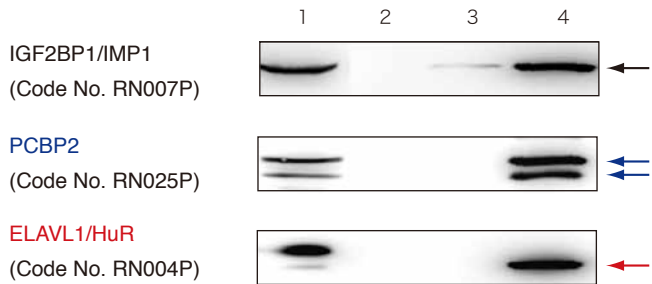
Example of RiboTrap results

Cells:	HEK293T
Cell number:	8×10^7 cells
Cell lysate:	Cytoplasmic fraction
Bait RNA:	p21 coding sequence (0.5 kb), p21 3'-UTR (1.5 kb)
Wash Buffer:	Wash Buffer I

1. The isolated proteins were resolved by SDS-PAGE.



2. Endogenous proteins bound to bait RNA were analyzed by Western blotting.



BrU-labeled 3'-UTR of p21 mRNA was incubated with cytoplasmic fraction of HEK293T cells to form mRNA-protein complex followed by immunoaffinity-purification using anti-BrdU antibody.

Endogenous proteins bound to bait RNA were identified by LC-MS/MS, and these binding statuses were confirmed by Western blotting using antibodies against each protein.

Kit components

Reagent	Size
[RN1012]	
Reagents for cell lysis (Store at 2-8°C)	
CE Buffer	15 mL × 1 bottle
CE Wash Buffer	13 mL × 3 bottles
NE Buffer	6 mL × 1 bottle
Dilution Buffer	9 mL × 1 bottle
Detergent Solution	0.75 mL × 1 vial
High-Salt Solution	0.45 mL × 1 vial
Wash reagents (Store at 2-8°C)	
Wash Buffer I	48 mL × 1 bottle
Wash Buffer II	48 mL × 1 bottle
Wash Buffer III	48 mL × 1 bottle
Beads Wash Buffer	38 mL × 1 bottle

Reagent	Size
[RN1011]	
RiboTrap reagents (Store at -20°C)	
Anti-BrdU mAb	0.5 mL × 1 vial
BrdU/DMSO	0.05 mL × 1 vial
5-Bromo-UTP (50 mM)	0.018 mL × 1 vial
Column (For Elution) †	10 columns
† Column can be stored at 2-8°C or -20°C or room temperature.	

Code	Product	Size
RN1011	RiboTrap Kit	10 assays
RN1012*		

*RN1012 and RN1011 are sold as a set.
 RN1012 and RN1011 should be stored at different temperature.
 RN1011: -20°C RN1012: 2-8°C

BRIC Kit

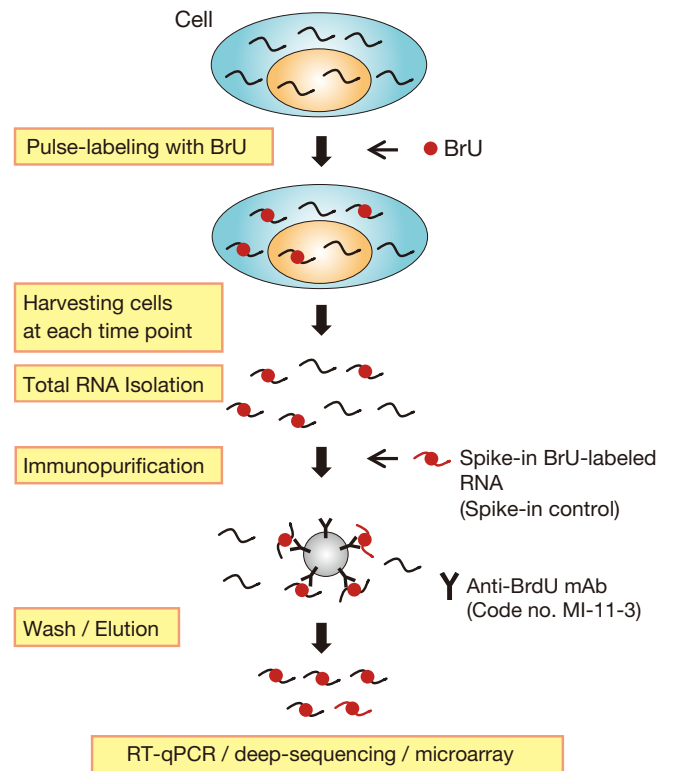
- **Pulse chase of BrU and immunoprecipitation for RNA stability/half-life analysis.**
- **Lower toxicity than the conventional method**
- **Easy to use and reproducible**
- **Phenol-free RNA isolation reagents which reduce hazardous waste**

Regulation of gene expression by RNA degradation is a critical step for the coordination of various physiological processes. In order to analyze RNA degradation, transcriptional inhibitors have been widely used so far. However, the use of them alter the stability and localization of RNA, and it has been shown to interfere with the results of analysis.

BRIC Kit is based on 5-bromouridine immunoprecipitation chase (BRIC) method. In this method, RNA is transcriptionally pulse-labeled with 5-bromouridine (BrU) and BrU-labeled nascent RNA is isolated using anti-bromodeoxyuridine (BrdU) antibody through its cross-reactivity.

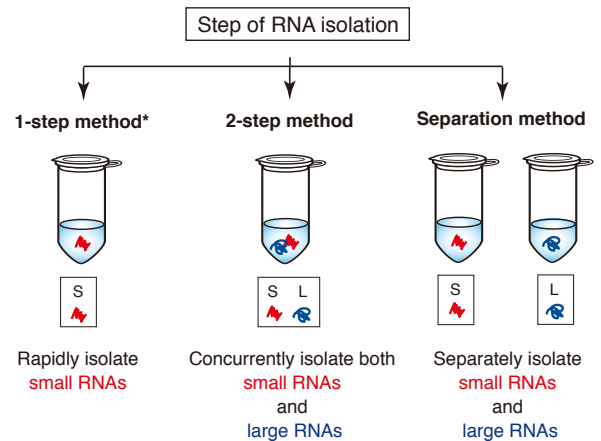
Due to the low toxicity of BrU, BRIC enables determination of RNA stability by chasing chronological decreases of BrU-labeled RNA under physiologically undisturbed conditions. Moreover, in combination with RT-qPCR, deep sequencing or microarray, BRIC allows identification of novel ncRNA and transcripts as well as analysis of RNA stability/half-life.

Principle of BRIC



<References>

- Maekawa S *et al.* Analysis of RNA decay factor mediated RNA stability contributions on RNA abundance. BMC Genomics. 16, 154 (2015) (PMID: 25879614)
- Tani H *et al.* Genome-wide determination of RNA stability reveals hundreds of short-lived noncoding transcripts in mammals. Genome Res. 22, 947-56 (2012) (PMID: 22369889)
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- Tani H *et al.* The RNA degradation pathway regulates the function of GAS5 a non-coding RNA in mammalian cells. PLoS One 8, e55684 (2013) (PMID: 23383264)
- Tani H *et al.* Identification of hundreds of novel UPF1 target transcripts by direct determination of whole transcriptome stability. RNA Biol. 9, 1370-9 (2012) (PMID: 23064114)



*This is not suitable for isolating large RNAs because the recovery for large RNAs is inefficient compared with the other 2 methods.

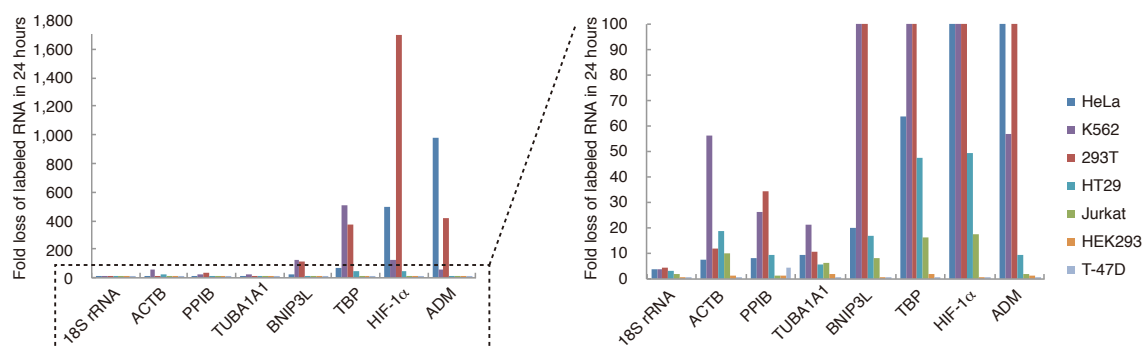
Examples of BRIC Analysis

1. BrU-labeling efficiency of various cell lines

Labeling efficiency*	Cell lines	BrU concentration (μM)	
		150	500
High	HeLa, K562	Yes	Yes
Moderate	293T, HT29	Yes	Yes
Low	Jurkat, HEK293, T-47D, PC3	Yes	No
Very Low	MCF-7, ZR-75-1, KATO III, MEG-01, WERI-Rb-1	No	No

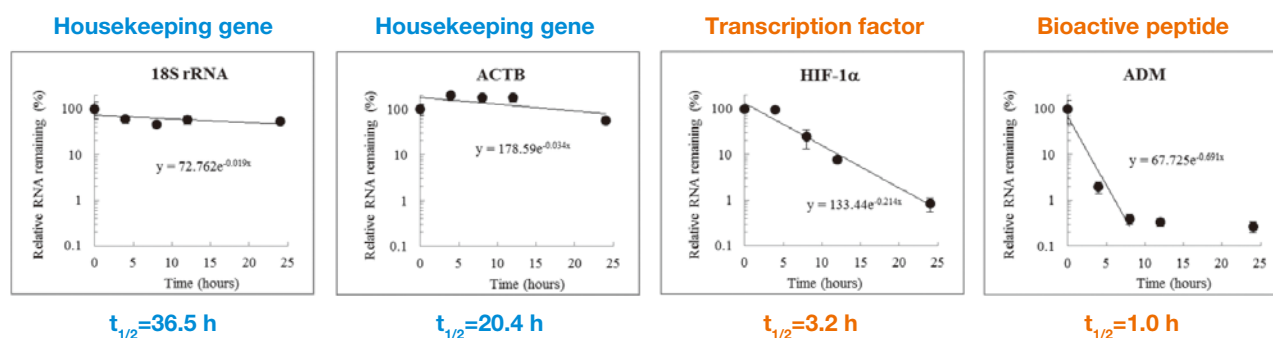
*Cells were pulse-labeled with BrU at 150 or 500 mM for 24 hours. Then, the cells were washed and harvested at chase time 0 hour. After RNA extraction using RNAiso Plus (Takara Bio), BrU-labeled RNA was isolated by BRIC Kit. The isolated BrU-labeled RNA was quantified with a spectrophotometer (NanoDrop) according to manufacturer's instructions (Thermo Fisher Scientific Inc.). "Yes" means BrU-labeled RNA can be quantified with NanoDrop. "No" means BrU-labeled RNA cannot be quantified with NanoDrop.

2. Target RNA decay in 24 hours



HeLa, K562, 293T, HT29, Jurkat, HEK293 and T-47D cells were pulse-labeled with 150 μ M BrU for 24 hours. Then, the cells were washed and harvested at chase time 0 and 24 hours. After RNA extraction, BrU-labeled RNA was isolated by BRIC Kit. The isolated BrU-labeled RNAs were analyzed by RT-qPCR. The RNAs derived from housekeeping genes such as 18S rRNA and ACTB were stable in most of cell lines, while HIF-1 α and ADM were unstable. The labeling efficiency was low in Jurkat, HEK293 and T-47D cells, which indicates labeling efficiency varies depending on the cell lines.

3. Half-life analysis by RT-qPCR



HeLa cells were pulse-labeled with 150 μ M BrU for 24 hours. Then, cells were washed and harvested at chase time 0, 4, 8, 12 and 24 hours. After RNA extraction, BrU-labeled RNA was isolated by BRIC Kit. Isolated BrU-labeled RNA was analyzed by RT-qPCR. As expected, the transcripts derived from housekeeping genes, such as 18S rRNA and ACTB, showed relatively long half-lives, while HIF-1 α and ADM* showed much shorter half-lives.

*ADM gene encodes a potent hypotensive peptide which plays important roles in both normal and disease conditions.

Kit components

Reagent	Size	Code	Product	Size	Storage temp.
1. RNA-IP buffer	18 mL \times 2 bottles	RN1007	BRIC Kit	20 assays	-20°C
2. Wash buffer	41 mL \times 3 bottles	RN1008*			4°C
3. mi-Solution I	240 μ L \times 1 vial: enzyme solution				
4. mi-Solution II	5.8 mL \times 1 vial: diluent for Solution I				
5. mi-Solution III	3.6 mL \times 1 vial: protein dissolvent				
Solution III can dissolve proteins and dissociate immunocomplex.					
6. mi-Solution IV	90 μ L \times 1 vial: co-precipitator				
Solution IV can increase RNA precipitation efficiently.					
7. Protein G-Magnetic beads	1.5 mL \times 4 vials				
8. BrU solution (100 mM)	1.1 mL \times 2 vials				
9. Anti-BrdU mAb	450 μ L \times 1 vial				
10. Spike-in control	80 μ L \times 1 vial				
1% beads slurry (mouse IgG binding capacity: 7 μ g/mg beads)					

FAQ

RIP-Assay Kit

RIP-Assay Kit for *microRNA*

How many cells are needed for RIP-Assay ?

→ It differs depending on the cell. Please prepare a sample of 4×10^6 - 2×10^7 cells. Initially, we recommend considering 1×10^7 cells/sample.

Can it be used when performing RIP-Assay with in-house antibodies ?

→ The ability of RIP differs depending on the antibodies used. At times, RNA is not isolated even upon precipitation of RBPs. Hence, we recommend the use of purified antibodies and an examination of whether sufficient quantity/quality of RNA is isolated and if the addition of High-Salt Solution is necessary before performing the actual experiment.

Can you carry out RIP-Assay using Tag antibodies ?

→ We have confirmed that Anti-Myc-tag mAb (MBL; code no. M047-3 (clone: PL14)) from MBL can be used in RIP. Other antibodies have not been tested.

I would like to use magnetic beads. Is it possible ?

→ Dynabeads® (Thermo Fisher Scientific K.K.) can be used for Protein A and Protein G. You can also use Protein G-Magnetic Beads (MBL; code no. MJS002V2).

Is there any particular recommendation or warning when using beads that can be used with the RIP-Assay Kit ?

→ In some cases, the background may be increased depending on the strength of the cross-linking, when using agarose beads. We recommend reagents such as the listed below;
Protein A (or G) Sepharose CL-4B (GE Healthcare)
Immobilized Protein G Plus (Thermo Fisher Scientific K.K.; code. 22852)

Can you isolate the RNP clusters in the nucleus ?

→ The RIP-Assay Kit is intended for analyzing the "RNP in the cytoplasm". Lysis buffer provided RIP-Assay Kit does not completely solubilize nuclear membrane, hence nuclear RNPs can be hardly collected.

I would like to do RIP-Assay with cross-linking using RIP-Assay Kit. Is it possible ?

→ RIP-Assay Kit does not support cross-linking. You will need some protocol modifications.

Can the RIP-Assay Kit be used for tissue samples ?

→ Yes. The kit can be used for tissue samples; however, the tissue lysate should be prepared immediately upon excision in order to prevent RNA degradation.

What is the difference between RIP-Assay Kit for *microRNA* and RIP-Assay Kit ?

→ For the recovery of small RNAs, RIP-Assay Kit for *microRNA* should be used.
RIP-Assay Kit is designed to recover large RNAs but not small RNAs.
RIP-Assay Kit for *microRNA* is designed to recover both small RNAs and large RNAs. Moreover, by following different procedures, small RNAs and large RNAs can be isolated separately, or only small RNAs can be recovered. By recovering small RNAs which bind to RBPs/large RNAs, RIP-Assay Kit for *microRNA* enables you to study how the intracellular event of your interest is regulated by not only RBPs but also small RNAs. The kit is also useful for the identification of target RNAs that specifically bind to miRNAs of your interest.

What is the suitable RNA isolation method to obtain miRNAs most efficiently ?

→ If the contamination of large RNAs does not affect the following experiments, 2-step method is appropriate, since the recovery rates are high for both small RNAs and large RNAs. If the contamination of large RNAs should be avoided, isolate small RNAs by Separation method or 1-step method.

RiboTrap Kit

What is the difference between RiboTrap and EMSA (gel shift assay) ?

→ RiboTrap is used to identify proteins that bind to a specific RNA. It enables to identify unknown proteins as well as known proteins. EMSA is used to detect the binding between specific sequences of nucleic acids and proteins.

How do you perform BrU-RNA synthesis ?

→ We synthesize BrU-labeled RNA by adding BrUTP to the reactive substrate of *in vitro* transcription. The recommended molar ratio of BrUTP to standard UTP is 1:1 to 1:3. To determine the appropriate ratio, uracil content in the RNA sequence should be considered. We recommend using synthesized oligonucleotides as bait if you need BrU labeling at the specific positions in the RNA.

Is there any possibility that BrU labeling inhibits the binding of RNAs and proteins ?

→ Yes. The BrU incorporated into RNA may influence the RNA-protein interactions depending on the RNA sequence.

How much protein should be used in RiboTrap Kit ?

→ Although, we have not adjusted the amount of protein required, we start our experiments 1-10x10⁷ cells.

What is the difference among three Wash Buffers ?

→ · Wash Buffer I: The buffer with the mildest conditions. It allows the isolation of weakly-bound proteins as well as tightly-bound proteins. On the other hand, the mild condition gives higher background than Wash Buffer II and III.
· Wash Buffer II: The buffer with high ionic strength. It is suitable to isolate the proteins that tightly bind to RNAs.
· Wash Buffer III: The buffer with high detergency. It reduces proteins that indirectly bind to the target RNA.
Please select the wash buffer best suited for your purpose.

BRIC Kit

How do you check the BrU incorporation rate in the cells ?

→ The BrU incorporation rate can be confirmed by the following methods:
· Flow cytometry using BrU-labeled cells
· RNA-IP, Dot blot, or ELISA using total RNA derived from BrU-labeled cells
Please select the method best suited for your purpose.

BrU is not efficiently incorporated into the cells.

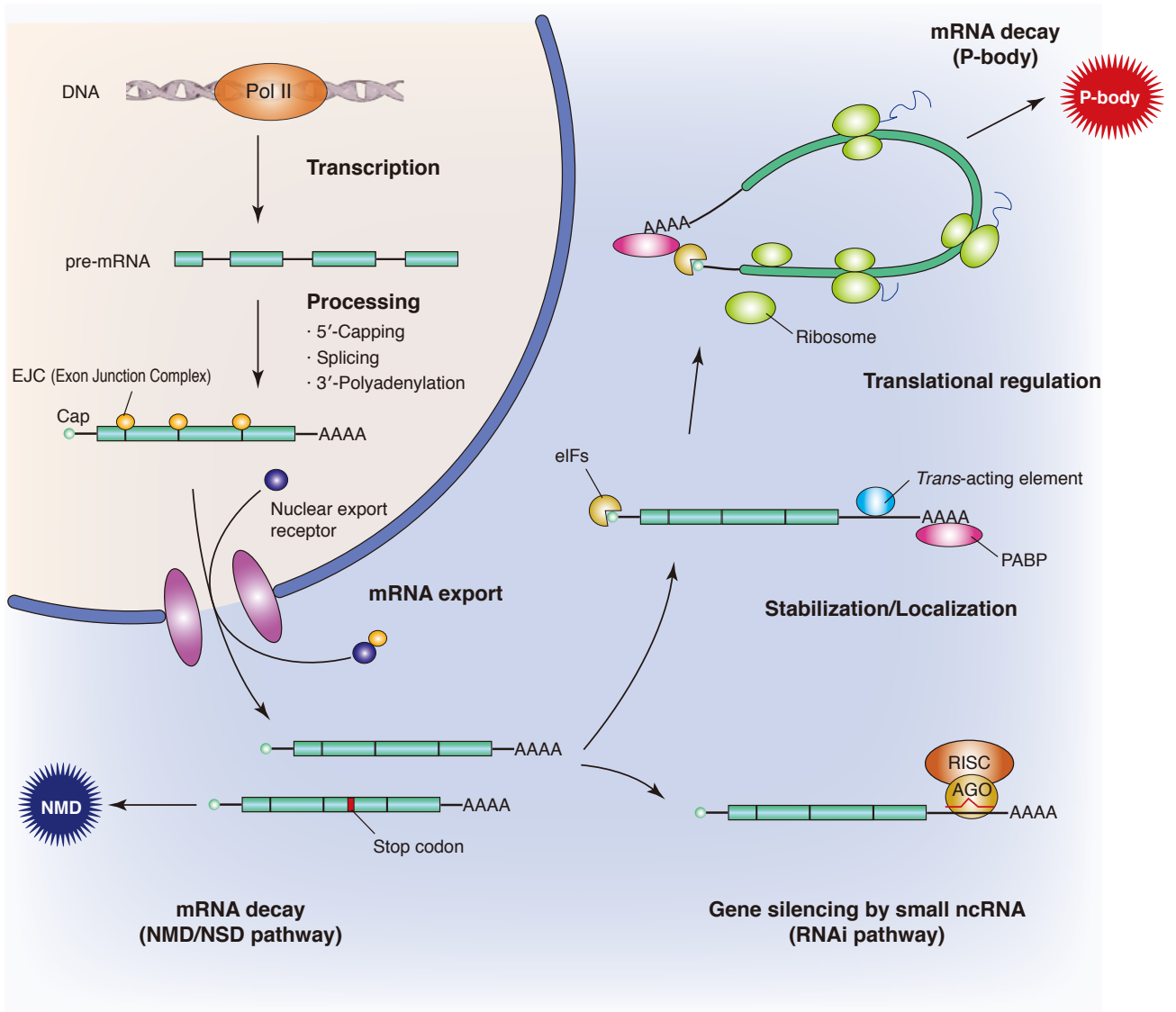
→ Please optimize the BrU concentration, pulse-time, or chase-time. BrU concentrations of more than 500 μM may affect cell growth and/or other biological processes.

BrU-labeled RNA cannot be corrected.

→ Please optimize the amount of input, antibody, or beads.

RIP-Certified Antibody & RBP Antibody Product list

*RBP Antibody is not certified for working RIP-Assay.



In eukaryotic cells, there are a lot of regulatory mechanisms, which control quality of mRNA in various steps from processing of precursor mRNA (pre-mRNA) in nucleus to translation into protein through cytoplasmic ribosome. Among these processes, RBPs play a primary role in regulating the behavior of the functionally related genes by forming the ribonucleoprotein (RNP) clusters.

Abbreviations for applications:

- | | | |
|--|-------------------------------------|-------------------------|
| WB: Western Blotting | RIP: RNP Immunoprecipitation | IC: Immunocytochemistry |
| DB: Dot Blotting | ChIP: Chromatin Immunoprecipitation | IF: Immunofluorescence |
| IP: Immunoprecipitation | IH: Immunohistochemistry | FCM: Flow Cytometry |
| CLIP: Cross-linking immunoprecipitation (including HITS-CLIP, PAR-CLIP, iCLIP and eCLIP) | | |

For applications and reactivity:

Hu: Human Mo: Mouse Rab: Rabbit Ham: Hamster Mky: Monkey (w): weak

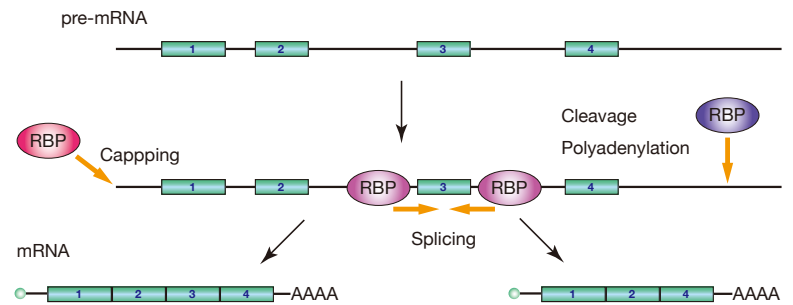
*: The use is reported in a research article (Not tested by MBL).

** : The use is reported from the licenser (Under evaluation or not tested by MBL).

For storage temperature: RT: room temperature

Processing

After being transcribed from genomic DNA, the precursor mRNA (pre-mRNA) is processed into mature mRNA through 5'-capping, splicing, and 3'-polyadenylation. Splicing removes the introns in the pre-mRNA and joins the exons together. Great varieties of RBPs are involved in inducing the alternative splicing. The resulting different mRNAs may be translated into different proteins in isoforms and thus increase the diversity of the protein.



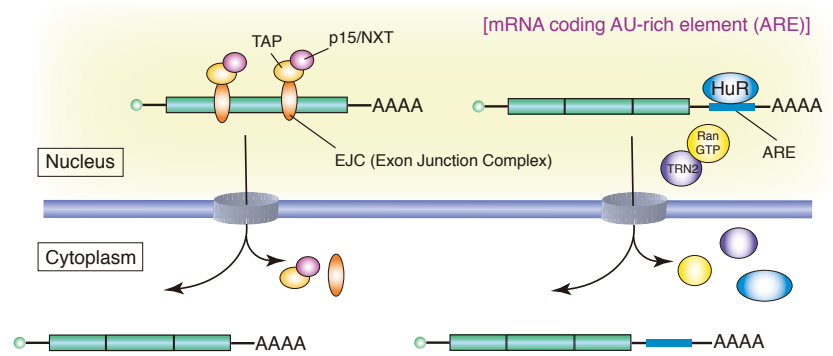
Code	Product Gene name	Clone Applications	Isotype Reactivity	Size	Function, localization, etc.
RIP-Certified Antibody					
RN019P	Anti-HNRNPK pAb HNRNPK	Polyclonal WB, IP, RIP, IC*, CLIP*	Rabbit Ig (aff.) Hu, Mo, Rat	200 µL	HNRNPK, one of the components of hnRNP complexes, shuttles between the nucleus and the cytoplasm. HNRNPK is a multifunctional protein that plays a role in the regulation of mRNA splicing, transport and translation.
RN021P	Anti-KHDRBS1 pAb p62, SAM68	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu, Mo, Rat	200 µL	KHDRBS1, a DNA/RNA binding protein, plays a role in alternative splicing by regulating inclusion of CD44 exon v5. It is also reported that KHDRBS1 contributes to stabilization and translational regulation of mRNA.
RN041P	Anti-KHDRBS2 (SLM1) pAb	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	200 µL	KHDRBS2 is phosphorylated during mitosis and binds to proteins containing SH2 and SH3 domains. KHDRBS2 is involved in alternative splicing via regulating the selection of splice site and exon inclusion.
RN009M	Anti-PABPC1 mAb PABP1	10E10 WB, IP, RIP, IC	Mouse IgGκ Hu, Ham	200 µg/200 µL	PABPC1 shuttles between the nucleus and the cytoplasm. PABPC1 is translocated to the nucleus in viral infections and may be involved in viral RNA or host mRNA processing and/or export.
RN011P	Anti-PTBP1 (Human) pAb HNRNPI	Polyclonal WB, IP, RIP, IF*, CLIP*	Rabbit Ig (aff.) Hu	200 µL	PTBP1 is related to alternative splicing and negatively regulates the splice sites via binding to intronic clusters of pre-mRNA.
RN045P	Anti-SLBP pAb HBP	Polyclonal WB, IP, RIP, CLIP*	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	200 µL	SLBP participates in processing, transport, translation and decay of histone mRNA by binding to the stem-loop structure in the 3' end of histone pre-mRNA. SLBP is also involved in cell cycle regulation.
RN014P	Anti-TIA1 pAb	Polyclonal WB, IP, RIP, IC, IF, CLIP*	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	200 µL	TIA1 shuttles between the nucleus and the cytoplasm. TIA1 is involved in alternative splicing of Fas and FGFR2 mRNAs.
RN015P	Anti-YBX1 pAb YB-1	Polyclonal WB, IP, RIP, ChIP*	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	200 µL	YBX1, a member of cold shock protein family, is one of the main components of cytoplasmic mRNP particles. YBX1 is involved in the regulation of gene expression at transcriptional/translational level by binding to both DNA and RNA.
RBP Antibody					
RN122PW	Anti-ALKBH5 pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo	100 µL	ALKBH5 is a mammalian m ⁶ A demethylase, which is localized in nuclear speckles and catalyzes the direct removal of the m ⁶ A modification on nuclear RNA. The demethylation activity of ALKBH5 affects RNA processing and RNA export.
RN087PW	Anti-ALYREF (THOC4) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Ham	100 µL	ALYREF is one of the components of EJC (exon junction complex). ALYREF is implicated in spliceosome formation through binding to pre-mRNA.
RN083PW	Anti-AQR (IBP160) pAb	Polyclonal WB, IP, IC, IF	Rabbit Ig (aff.) Hu, Mo	100 µL	In the spliceosome C1 complex, AQR (IBP160) plays a role in the folding of snoRNA sequences and snoRNP assembly via binding to the intron located upstream of the branch site of pre-mRNA in a sequence-independent manner. IBP160 also contributes to the binding of EJC (exon junction complex) components to intron.
RN117PW	Anti-CCAR2 (DBC1) pAb KIAA1967	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	CCAR2 is a subunit of the newly identified DBIRD complex and simultaneously plays a role in alternative splicing and transcription elongation by linking RNA polymerase II with mRNPs containing hnRNPs.
RN012MW	Anti-Coil (Coilin) mAb	#4 WB, IC, IH	Mouse IgG1κ Mo, Rat	100 µg/100 µL	Coilin is a major Cajal body component that plays a role in the processing of U snRNAs, snoRNAs, scaRNAs and telomerase RNAs by binding to them. It is also reported that the phosphorylation level of Coilin influences the formation of the Cajal body.
RN002MW	Anti-CUGBP1 mAb CELF1	3B1 WB, IP, RIP*	Mouse IgG1κ Hu, Mo, Rat	100 µg/100 µL	CUGBP1 binds to GU-rich elements in mRNAs of c-jun and TNFRSF1B in order to regulate their alternative splicing and degradation. It is reported that CUGBP1 plays a role in the pathogenesis of the trinucleotide expansion diseases, namely, myotonic dystrophy type 1 (DM1).
RN034PW	Anti-CUGBP1 pAb CELF1	Polyclonal WB	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	CUGBP1 binds to GU-rich elements in mRNAs of c-jun and TNFRSF1B in order to regulate their alternative splicing and degradation. It is reported that CUGBP1 plays a role in the pathogenesis of the trinucleotide expansion diseases, namely, myotonic dystrophy type 1 (DM1).
RN035PW	Anti-CUGBP2 pAb CELF2	Polyclonal WB	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	CUGBP2 is highly expressed in most tissues including muscle. CUGBP2 induces apoptosis in tumor cells via binding to the 3'-UTR of Mcl-1 mRNA.

Code	Product Gene name	Clone Applications	Isotype Reactivity	Size	Function, localization, etc.
RBP Antibody					
RN090PW	Anti-DDX21 pAb	Polyclonal WB, IP, IC, IF	Rabbit Ig (aff.) Hu	100 µL	DDX21, a DEAD box nucleolar protein exhibiting RNA helicase activity, is related to rRNA processing and transcriptional control.
RN091PW	Anti-DDX23 pAb PRP28, U5-100K	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	DDX23 is one of the components of U5 snRNP. DDX23 is phosphorylated by SRPK2 and participates in stable association of U4/U6-U5 tri-snRNA and/or spliceosome B complex.
RN116PW	Anti-DDX39B (UAP56) pAb BAT1	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	DDX39B (UAP56) is a DEXD/H-box family RNA helicase involved in pre-mRNA splicing and mRNA nuclear export. UAP56 is required for spliceosome assembly.
RN101PW	Anti-FBL (Fibrillarin) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	Fibrillarin plays a role in pre-rRNA processing via association with U3, U8 and C/D box U13 snoRNAs. Fibrillarin is located in the dense fibrillar component of the nucleolus and is also found in the Cajal body involved in transcription and RNA editing.
RN064PW	Anti-FUSIP1 (SRSF10) pAb TASR	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Ham	100 µL	FUSIP1 (SRSF10) is activated by dephosphorylation in response to meiosis or heat shock, and negatively regulates pre-mRNA splicing.
RN102PW	Anti-GEMIN2 (Human) pAb SIP1	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 µL	GEMIN2 is one of the core components of the SMN complex required for spliceosomal snRNP assembly in the cytoplasm. The SMN complex is involved in pre-mRNA splicing and is localized to a subnuclear body called "gems" in the nucleus.
RN050PW	Anti-GRSF1 pAb	Polyclonal WB, IP, IC*, IF*	Rabbit Ig (aff.) Hu	100 µL	GRSF1 localizes to mitochondrial RNA granules and plays a role in the regulation of processing and translation of mitochondrial RNAs.
RN114PW	Anti-HNRNPA1 pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham (w)	100 µL	HNRNPA1 is a multifunctional DNA/RNA binding protein involved in transcription, mRNA splicing, stability, translation and miRNA biogenesis. HNRNPA1 regulates alternative splicing by competing with SR proteins for binding to pre-mRNA.
RN052PW	Anti-HNRNPC pAb	Polyclonal WB, IP, CLIP*	Rabbit Ig (aff.) Hu, Mo	100 µL	HNRNPC is involved in alternative splicing through forming a tetrameric complex followed by binding to the splice site of pre-mRNA.
RN065PW	Anti-KHSRP pAb FBP2, KSRP	Polyclonal WB, IP, CLIP*	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	KHSRP functions as an intronic splicing enhancer during splicing of c-src mRNA.
RN066PW	Anti-KIAA0020 pAb hPuf-A, PUM3	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat	100 µL	KIAA0020, newly identified as a PUF family protein, localizes to the nucleolus. KIAA0020 has 11 PUM repeats that is involved in pre-rRNA processing.
RN089PW	Anti-MAGOH pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Ham	100 µL	MAGOH, a major component of EJC (exon junction complex), forms a heterodimer with Y14. The MAGOH-Y14 heterodimer plays a role in the regulation of splicing, transport, degradation and translation.
RN042PW	Anti-MBNL1 pAb	Polyclonal WB	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	MBNL1 is related to alternative splicing. It is reported that expanded CUG/CCUG repeats in the 3'-UTR of DMPK mRNA, which prone to tether MBNL1, lead to pathogenesis of myotonic dystrophy type 1 (DM1).
RN103PW	Anti-NCBP1 (CBP80) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo	100 µL	NCBP1 (CBP80) is a component of the nuclear cap-binding complex (CBC) that plays a role in transcription, splicing, export and degradation of the mRNA by binding to the 5'-cap structure of newly synthesized mRNA. CBC supports the pioneer round of translation and promotes NMD (nonsense-mediated mRNA decay).
RN013MW	Anti-Nono (P54NRB) mAb	C5 WB, IP, IC, IH	Mouse IgG2aκ Mo, Rat, Ham	100 µg/100 µL	NONO (P54NRB), a DNA/RNA binding protein, is involved in transcriptional regulation, splicing and nuclear retention of A-to-I edited RNA. P54NRB binds to NEAT1 ncRNA and participates in the structural maintenance of paraspeckle.
RN092PW	Anti-NONO (P54NRB) pAb	Polyclonal WB, IP, IC, IF	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	NONO (P54NRB), a DNA/RNA binding protein, is involved in transcriptional regulation, splicing and nuclear retention of A-to-I edited RNA. P54NRB binds to NEAT1 ncRNA and participates in the structural maintenance of paraspeckle.
RN043PW	Anti-NOVA1 (Human) pAb	Polyclonal WB	Rabbit Ig (aff.) Hu	100 µL	NOVA1 is a neuron specific splicing factor. NOVA1 has been discovered from the serum of a patient with POMA, an autoimmune disease.
RN044PW	Anti-NOVA2 pAb ANOVA	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Rat	100 µL	NOVA2 serves as a neuron specific alternative splicing factor via binding to YCAY clusters of pre-mRNA.
RN023PW	Anti-PABPN1 pAb PABP2	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo	100 µL	PABPN1, a nuclear RNA binding protein, participates in cleavage and polyadenylation at the 3' end of pre-mRNA. PABPN1 is also involved in the promotion of splicing.
RN054PW	Anti-PCBP3 pAb HNRNPE3	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	PCBP3 activates splicing of Tau exon 10 by binding to C triplet in the intronic splicing enhancer located downstream of the exon.
RN068PW	Anti-PPP1R8 pAb ARD1, NIPP1	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	PPP1R8 binds to U-rich sequences in pre-mRNA and mediates the regulation of splicing.
RN093PW	Anti-PRPF4 pAb PRP4, PRP-4	Polyclonal WB	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	PRPF4, a component of U4/U6.U5 tri-snRNP complex, is involved in splicing. PRPF4 is recruited to U4/U6 snRNP complex by binding to HPRP3.
RN094PW	Anti-PRPF8 pAb PRP8	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	PRPF8, one of the components of U5-snRNP, recognizes G-U dinucleotides. PRPF8 plays a role in splicing regulation via direct binding to the 5' splice site and the branch point of pre-mRNA.
RN015MW	Anti-PSPC1 (PSP1) mAb	1L4 WB, IP, IC, IH	Mouse IgG1κ Hu, Mo, Rat	100 µg/100 µL	PSPC1 (PSP1), one of core paraspeckle proteins, is required for the structural maintenance of paraspeckles. PSP1 belongs to the DBHS family that is involved in RNA processing, splicing and transcription.
RN047PW	Anti-PTBP2 (Human) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 µL	PTBP2, specifically expressed in brain, is involved in alternative splicing. PTBP2 serves as a negative regulator by binding to the intronic-cluster of pre-mRNA.

Code	Product Gene name	Clone Applications	Isotype Reactivity	Size	Function, localization, etc.
RBP Antibody					
RN120PW	Anti-RBM8A (Y14) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	RBM8A (Y14) functions as a core component of EJC (exon junction complex) that plays an important role in pre-mRNA splicing, mRNA export, NMD (nonsense-mediated mRNA decay) and mRNA translation.
RN069PW	Anti-RBM14 pAb PSP2	Polyclonal WB, IP, IC, IF	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	RBM14, localized in paraspeckle, functions as a splicing modulator.
RN124PW	Anti-RNMT (Human) pAb KIAA0398, RG7MT1	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 µL	RNMT is the enzyme that catalyzes the methylation of the guanosine cap at the N-7 position to produce the 7-methylguanosine cap. RNMT consists of a methyltransferase domain and an N-terminal non-catalytic domain that is required for RNMT recruitment to transcription initiation sites.
RN070PW	Anti-RPS10 pAb S10	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 µL	RPS10, one of the component of the 40S ribosomal subunit, is related to rRNA processing and translational regulation. RPS10 is also involved in cap-independent translation via binding to IRES (internal ribosome entry site) in HCV RNA.
RN071PW	Anti-RPS19 pAb DBA, S19	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	RPS19, one of the components of the 40S ribosomal subunit, is related to cleavage of site E in the 3' end maturation of rRNA and assembly of 40S ribosome subunits. RPS19 and RPS10 genes are responsible for Diamond-Blackfan anemia (DBA).
RN072PW	Anti-RPS6 pAb S6	Polyclonal WB	Rabbit Ig (aff.) Hu, Mo	100 µL	RPS6 is related to rRNA processing and translational repression. RPS6 is a mTOR downstream molecule and negatively regulates translation by binding to oligopyrimidine tracts in the 5'-UTR (5'-TOP) of mRNAs. RPS6 is also involved in cap-independent translation along with RPS10.
RN073PW	Anti-RPS9 pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	RPS9, one of the components of the 40S ribosomal subunit, is involved in 18S rRNA biogenesis and activation of p53 pathway.
RN014MW	Anti-SFPQ (PSF) mAb	C23 WB, IP, IC, IH	Mouse IgG2aκ Hu, Mo, Rat, Ham	100 µg/100 µL	SFPQ (PSF) is one of core paraspeckle proteins that participates in the structural maintenance of paraspeckles by binding to P54NRB and NEAT1 ncRNA. PSF functions as a repressor of exon skipping of CD45 and inclusion of Tau exon 10.
RN106PW	Anti-SFPQ (PSF) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	SFPQ (PSF) is one of core paraspeckle proteins that participates in the structural maintenance of paraspeckles by binding to P54NRB and NEAT1 ncRNA. PSF functions as a repressor of exon skipping of CD45 and inclusion of Tau exon 10.
RN077PW	Anti-SMN1 pAb	Polyclonal WB, IP, IC, IF	Rabbit Ig (aff.) Hu	100 µL	SMN1 gene is a responsible for spinal muscular atrophy (SMA). SMN1 is related to snRNP assembly by binding to U snRNA and post-transcriptional modification of U snRNA in Cajal body.
RN078PW	Anti-SMNDC1 pAb SMNR, SPF30	Polyclonal WB, IP, IC, IF, CLIP*	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	SMNDC1 localizes to nuclear speckles and Cajal body. SMNDC1 is involved in the assembly of U4/U5/U6 and U2 snRNP with spliceosome.
RN095PW	Anti-SNRNP200 pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Ham	100 µL	SNRNP200, one of the components of U4/U5-U6 spliceosome, is required for unwinding of U4/U6 snRNAs in activation of spliceosome. It is reported that the mutation of SNRNP200 gene causes autosomal-dominant retinitis pigmentosa.
RN096PW	Anti-SNRNP40 pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	SNRNP40, one of the components of U5 snRNP, is involved in splicing via interaction with PRPF8.
RN097PW	Anti-SNRNP70 pAb U1-70K	Polyclonal WB	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	SNRNP70, one of the components of U1 snRNP, plays a role in pre-mRNA splicing via binding to loop I of U1 snRNA.
RN084PW	Anti-SRRM1 (SRM160) pAb	Polyclonal WB	Rabbit Ig (aff.) Hu, Mo, Ham	100 µL	SRRM1 (SRM160), a nuclear matrix protein, functions as an activator for splicing of PIP85A pre-mRNA. SRRM1 is required for the cleavage of 3' end of transcripts and involved in RNA transport.
RN080PW	Anti-SRSF3 (SRp20) pAb	Polyclonal WB, IP, IC, IF	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	SRSF3 (SRp20) plays a role in alternative splicing of exon 11 of insulin receptor via interaction with CUGBP1.
RN082PW	Anti-SRSF5 (SRP40) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	SRSF5 promotes splicing of the upstream of the 3' splice site and binding U1 snRNP to the 5' splice site via interaction with purin-rich region in HIV-1 exon 5.
RN079PW	Anti-SRSF7 (9G8) pAb	Polyclonal WB, IP, CLIP*	Rabbit Ig (aff.) Hu, Mo, Ham	100 µL	SRSF7 (9G8) suppresses exon inclusion by binding to the intronic silencer located downstream of Tau exon 10.
RN081PW	Anti-SRSF9 (SRp30c) pAb	Polyclonal WB, IP, CLIP*	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	SRSF9 (SRp30c) functions as a splicing repressor in alternative splicing of hnRNP A1, Bcl-x and Tau mRNAs.
RN046PW	Anti-SYNCRIP (HNRNPQ) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	SYNCRIP, one of the components of spliceosome, is related with efficient splicing of pre-mRNA.
RN107PW	Anti-TARDBP (TDP-43) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Ham	100 µL	TARDBP (TDP-43) is a nuclear DNA/RNA binding protein involved in mRNA splicing, nuclear export, stability, miRNA biogenesis and transcriptional repression. TDP-43 promotes alternative splicing of CFTR, apoA-II and H-ras pre-mRNAs.
RN059PW	Anti-TIAL1 pAb TIAR	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Rat, Ham	100 µL	TIAL1 regulates splicing by binding to U-rich regions of mRNA. TIAL1 also represses skipping of exon 7 in SMN2 gene by binding to the intron.
RN085PW	Anti-U2AF1 pAb U2AF35	Polyclonal WB, IP, IC, IF	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	U2AF1, a splicing regulator, binds to AG-dinucleotides of the 3' splice site of pre-mRNA. U2AF1 is involved in the recruitment of tri-snRNP and the formation of stable spliceosome through interaction with SMNDC1.
RN086PW	Anti-U2AF2 pAb U2AF65	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	U2AF2 plays a role in alternative splicing by binding to a polypyrimidine tract neighbouring the 3' splice site. U2AF2 also contributes to the spliceosome formation.

Nuclear export

Once transcribed in nucleus, mRNAs undergo a series of processing (5'-capping, splicing and 3'-polyadenylation) followed by export to the cytoplasm mediated by proteins including TAP, RanGTP and RBPs. The RNA export from the nucleus to the cytoplasm is strictly regulated. During the export process, RBP also plays a primary role for quality control of mRNAs.

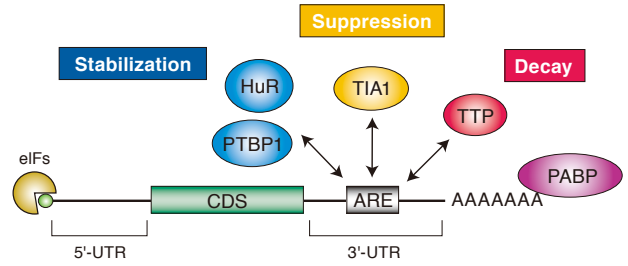


Code	Product Gene name	Clone Applications	Isotype Reactivity	Size	Function, localization, etc.
RIP-Certified Antibody					
RN006M	Anti-EIF4E mAb	C107-3-5 WB, IP, RIP	Mouse IgG2 α Hu, Mo, Rat, Ham	200 μ g/200 μ L	EIF4E, one of the translation-initiation factor, binds to the m ⁷ G cap structure. EIF4E is involved in nuclear export of Cyclin D1 and c-myc mRNAs which contains EIF4E-sensitive elements in the 3'-UTRs.
RN001P	Anti-EIF4E pAb	Polyclonal WB, IP, RIP, IC, IF	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	200 μ L	EIF4E, one of the translation-initiation factor, binds to m ⁷ G cap structure. EIF4E is involved in nuclear export of Cyclin D1 and c-myc mRNAs which contains EIF4E-sensitive elements in the 3'-UTRs.
RN007M	Anti-ELAVL1 (HuR) mAb	C67-1 WB, IP, RIP	Mouse IgG2 α Hu, Mo, Rat, Ham	200 μ g/200 μ L	ELAVL1 (HuR), a ubiquitously expressed protein, binds to both poly(A) and AU-rich elements of mRNA. HuR participates in the regulation of mRNA export via shuttling between the nucleus and the cytoplasm.
RN004P	Anti-ELAVL1 (HuR) pAb	Polyclonal WB, IP, RIP, IC, IF	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	200 μ L	ELAVL1 (HuR), a ubiquitously expressed protein, binds to both poly(A) and AU-rich elements of mRNA. HuR participates in the regulation of mRNA export via shuttling between the nucleus and the cytoplasm.
RN016P	Anti-FMR1 pAb FMRP	Polyclonal WB, IP, RIP, CLIP*	Rabbit Ig (aff.) Hu, Mo, Rat	200 μ L	FMR1 is necessary for neurogenesis and strongly binds to poly(G) sequences. The expanded CGG repeats within the FMR1 genes is found in Fragile X syndrome patients.
RN017P	Anti-FXR1 pAb	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu, Mo, Rat	200 μ L	FXR1, known as a paralogue of FMR1, shuttles between the nucleus and the cytoplasm. FXR1 also mediates the binding to 60S ribosomal subunits of polysome and AGO proteins.
RN018P	Anti-FXR2 pAb	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu, Mo, Rat	200 μ L	FXR2, functionally-related to FMR1 and FXR1, shares high sequence homology with FXR1. These family proteins have the ability to bind to RNA and polysome and shuttle between the nucleus and the cytoplasm.
RN019P	Anti-HNRNPK pAb HNRPK	Polyclonal WB, IP, RIP, IC*, CLIP*	Rabbit Ig (aff.) Hu, Mo, Rat	200 μ L	HNRNPK, one of the components of hnRNP complex, shuttles between the nucleus and the cytoplasm. HNRNPK is a multifunctional protein that plays a role in the regulation of mRNA splicing, transport and translation.
RN001M	Anti-IGF2BP1 (IMP1) mAb ZBP1	6H6 WB, IP, RIP	Mouse IgG2 α Hu, Mo	200 μ g/200 μ L	Together with FMRP, IGF2BP1 (IMP1) binds to β -actin mRNA and transports it from the nucleus to the cytoplasm.
RN007P	Anti-IGF2BP1 (IMP1) pAb ZBP1	Polyclonal WB, IP, RIP, IC, IF, CLIP*	Rabbit Ig (aff.) Hu, Mo	200 μ L	Together with FMRP, IGF2BP1 (IMP1) binds to β -actin mRNA and transports it from the nucleus to the cytoplasm.
RN008P	Anti-IGF2BP2 (IMP2) pAb	Polyclonal WB, IP, RIP, IC, IF, CLIP*	Rabbit Ig (aff.) Hu, Mo, Rat	200 μ L	IGF2BP2 (IMP2) binds to the UTR of IGF2 leader 3 mRNA, which is related to development and proliferation, and regulates its translation.
RN009P	Anti-IGF2BP3 (IMP3) pAb	Polyclonal WB, IP, RIP, CLIP*	Rabbit Ig (aff.) Hu, Mo	200 μ L	IGF2BP3 (IMP3) binds to the 5'-UTR of IGF2 leader 3 mRNA, which is related to development and proliferation, and regulates its translation.
RN020P	Anti-ILF3 (Human) pAb NF90, MMP4	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu	200 μ L	ILF3, a dsRNA-binding protein, stabilizes IL-2 mRNA via binding to the AU-rich elements in the 3'-UTR. ILF3 is also related to mRNA transport from the nucleus to the cytoplasm.
RN021P	Anti-KHDRBS1 pAb p62, SAM68	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu, Mo, Rat	200 μ L	KHDRBS1, a DNA/RNA binding protein, is involved in the export of HIV RNA. KHDRBS1 also contributes to stabilization and translational regulation of mRNA.
RN009M	Anti-PABPC1 mAb PABP1	10E10 WB, IP, RIP, IC	Mouse IgG κ Hu, Ham	200 μ g/200 μ L	PABPC1 shuttles between the nucleus and the cytoplasm. PABPC1 is translocated to the nucleus in viral infections and may be involved in viral RNA or host mRNA processing and/or export.
RN045P	Anti-SLBP pAb HBP	Polyclonal WB, IP, RIP, CLIP*	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	200 μ L	SLBP participates in processing, transport, translation and decay of histone mRNA by binding to the stem-loop structure in the 3' end of histone pre-mRNA. SLBP is also involved in cell cycle regulation.
RN012P	Anti-STAU1 (Human) pAb	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu	200 μ L	STAU1 forms RNA granules in neuronal cells. It is reported that STAU1 regulates nuclear export and localization of mRNA via binding to dsRNAs and microtubules.
RN013P	Anti-STAU2 (Human) pAb	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu	200 μ L	STAU2, a paralogue of STAU1, shuttles between the nucleus and the cytoplasm. STAU2 participates in SMD (Staufen-mediated mRNA decay) together with STAU1.

Code	Product Gene name	Clone Applications	Isotype Reactivity	Size	Function, localization, etc.
RBP Antibody					
RN122PW	Anti-ALKBH5 pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo	100 µL	ALKBH5 is a mammalian m ⁶ A demethylase, which is localized in nuclear speckles and catalyzes the direct removal of the m ⁶ A modification on nuclear RNA. The demethylation activity of ALKBH5 affects RNA processing and RNA export.
RN087PW	Anti-ALYREF (THOC4) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Ham	100 µL	ALYREF mediates the transport of mature mRNA to TAP-p15 by forming a complex with UAP56 in an ATP-dependent manner.
RN116PW	Anti-DDX39B (UAP56) pAb BAT1	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	DDX39B (UAP56) is a DExD/H-box family RNA helicase involved in pre-mRNA splicing and mRNA nuclear export. UAP56 functions as a core component of the TREX (transcription export) complex that regulates nuclear export of mRNAs and viral RNAs.
RN008MW	Anti-ELAVL1 (HuR) mAb	C54-6 WB, IP	Mouse IgG1κ Hu, Mo, Rat, Ham	100 µg/100 µL	ELAVL1 (HuR), a ubiquitously expressed protein, binds to both poly(A) and AU-rich elements of mRNA. HuR participates in the regulation of mRNA export via shuttling between the nucleus and the cytoplasm.
RN048PW	Anti-G3BP1 pAb G3BP	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 µL	G3BP1, a DNA/RNA helicase, is related to the formation of stress granules. G3BP1 also mediates mRNA export via interaction with nuclear pore complex.
RN049PW	Anti-G3BP2 pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	G3BP2 forms a stress granule with PKCα, PABPC1 and IMP3 in response to heat shock. G3BP2 shuttles between the nucleus and the cytoplasm in a cell cycle dependent manner.
RN051PW	Anti-HDLBP (Vigilin) pAb	Polyclonal WB, IP, CHIP*	Rabbit Ig (aff.) Hu, Mo	100 µL	HDLBP (Vigilin) is involved in the export of tRNAs from the nucleus to the cytoplasm. Vigilin also functions as a negative regulator of translation by competing with HuR for binding to the 3'-UTR of c-fms mRNA, results in its degradation.
RN114PW	Anti-HNRNPA1 pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham (w)	100 µL	HNRNPA1 is a multifunctional DNA/RNA binding protein involved in transcription, mRNA splicing, stability, translation and miRNA biogenesis. HNRNPA1 shuttles between the nucleus and the cytoplasm and is also involved in nuclear export.
RN052PW	Anti-HNRNPC pAb	Polyclonal WB, IP, CLIP*	Rabbit Ig (aff.) Hu, Mo	100 µL	HNRNPC is related to nuclear export of mRNAs via binding to both the cap binding complex and the neighborhood of cap structure of mRNA, of which the length is more than 200 nt.
RN089PW	Anti-MAGOH pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Ham	100 µL	MAGOH, a major component of EJC (exon junction complex), forms a heterodimer with Y14. The MAGOH-Y14 heterodimer plays a role in the regulation of splicing, transport, degradation and translation.
RN103PW	Anti-NCBP1 (CBP80) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo	100 µL	NCBP1 (CBP80) is a component of the nuclear cap-binding complex (CBC) that plays a role in transcription, splicing, export and degradation of the mRNA by binding to the 5'-cap structure of newly synthesized mRNA. CBC supports the pioneer round of translation and promotes NMD (nonsense-mediated mRNA decay).
RN088PW	Anti-NXF1 (TAP) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	NXF1 (TAP), one of the components of nuclear pore complex, plays a central role in mRNA export. TAP directly binds to mRNA through an N-terminal arginine-rich motif and transport it from the nucleus to the cytoplasm.
RN120PW	Anti-RBM8A (Y14) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	RBM8A (Y14) functions as a core component of EJC (exon junction complex) that plays an important role in pre-mRNA splicing, mRNA export, NMD (nonsense-mediated mRNA decay) and mRNA translation.
RN084PW	Anti-SRRM1 (SRM160) pAb	Polyclonal WB	Rabbit Ig (aff.) Hu, Mo, Ham	100 µL	SRRM1 (SRM160), a nuclear matrix protein, functions as an activator for splicing of PIP85A pre-mRNA. SRRM1 is required for the cleavage of 3' end of transcripts and involved in RNA transport.
RN080PW	Anti-SRSF3 (SRp20) pAb	Polyclonal WB, IP, IC, IF	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	SRSF3 (SRp20) shuttles between the nucleus and the cytoplasm. SRSF3 is related to the transport of histone mRNA by binding to TAP together with SRSF7.
RN082PW	Anti-SRSF5 (SRP40) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	SRSF5 is involved in the transport of non-spliced gag-pol mRNA and partially spliced env mRNA of HIV-1.
RN079PW	Anti-SRSF7 (9G8) pAb	Polyclonal WB, IP, CLIP*	Rabbit Ig (aff.) Hu, Mo, Ham	100 µL	SRSF7 (9G8) shuttles between the nucleus and the cytoplasm. SRSF7 is related to the transport of histone mRNA through interaction with TAP.
RN107PW	Anti-TARDBP (TDP-43) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Ham	100 µL	TARDBP (TDP-43) is a nuclear DNA/RNA binding protein involved in mRNA splicing, nuclear export, stability, miRNA biogenesis and transcriptional repression. TDP-43 is mainly localized in the nucleus, but shuttles between the nucleus and the cytoplasm.
RN086PW	Anti-U2AF2 pAb U2AF65	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	U2AF2 specifically binds to mRNAs containing expanded CAG repeats, caused by polyglutamine degeneration and serves as an adaptor protein to links TAP with the CAG repeats-containing mRNAs.
RN118PW	Anti-UPF3B pAb RENT3B	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	UPF3B, which is mainly localized in the nucleus, shuttles between the nucleus and the cytoplasm. UPF3B functions as a key NMD (nonsense-mediated mRNA decay) factor involved in mRNA nuclear export and NMD.

Regulation of stability and decay

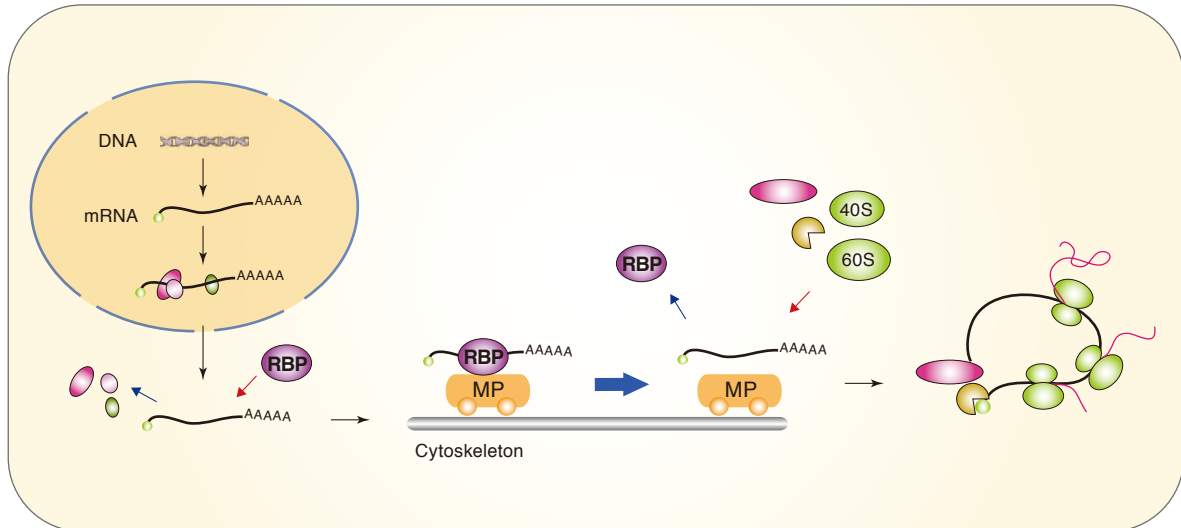
An AU-rich element (ARE) is a region with frequent adenine (A) and uridine (U) nucleotides mainly in the 3'-UTR of a mRNA. Binding of RBPs that have endonuclease activity to this region induces its degradation. Early response genes, which response to a wide range of external stimuli, including oncogenes and cytokines, have relatively short half-lives because of the frequent AREs in these RNAs. A certain type of RBP, including HuR, binds to ARE and regulates the stability of its target RNA by inhibiting the access of its endonuclease. Similar to AREs, many cis-elements have been found to be associated with stabilization and degradation of their mRNA and to control their mRNA quality by binding with variety of RBPs.



Code	Product Gene name	Clone Applications	Isotype Reactivity	Size	Function, localization, etc.
RIP-Certified Antibody					
RN037P	Anti-AUH pAb	Polyclonal WB, IP, RIP, CLIP*	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	200 µL	AUH regulates stability of mRNAs transcribed from early response genes such as IL-3, GM-CSF, c-fos and c-myc by binding to AU-rich elements in the mRNAs.
RN032P	Anti-CIRBP pAb CIRP	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu, Mo, Rat	200 µL	CIRBP is involved in the cold stress-induced suppression of cell proliferation. CIRBP also serves as a translational activator to promote the translation of mRNA under mild hypothermic conditions.
RN003M	Anti-EIF2C2 (AGO2) (Human) mAb	1B1-E2H5 WB, IP, RIP	Mouse IgG2aλ Hu	200 µg/200 µL	EIF2C2 (AGO2), a core component of RISC (RNA-induced silencing complex), plays a central role in RNAi pathway. AGO2 localizes to P-bodies and participates in mRNA decay.
RN005M	Anti-EIF2C2 (AGO2) mAb	2A8 WB, IP, RIP, IH*, IC*, CLIP*	Mouse IgG1κ Hu, Mo, Rat, Ham	200 µg/200 µL	EIF2C2 (AGO2), a core component of RISC (RNA-induced silencing complex), plays a central role in RNAi pathway. AGO2 localizes to P-bodies and participates in mRNA decay.
RN006M	Anti-EIF4E mAb	C107-3-5 WB, IP, RIP	Mouse IgG2aκ Hu, Mo, Rat, Ham	200 µg/200 µL	EIF4E, one of the translation-initiation factor, contributes to the regulation of efficient translation and mRNA decay.
RN001P	Anti-EIF4E pAb	Polyclonal WB, IP, RIP, IC, IF	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	200 µL	EIF4E, one of the translation-initiation factor, contributes to the regulation of efficient translation and mRNA decay.
RN007M	Anti-ELAVL1 (HuR) mAb	C67-1 WB, IP, RIP	Mouse IgG2aκ Hu, Mo, Rat, Ham	200 µg/200 µL	ELAVL1 (HuR), a ubiquitously expressed protein, stabilizes mRNAs by binding to AU-rich elements of their mRNAs.
RN004P	Anti-ELAVL1 (HuR) pAb	Polyclonal WB, IP, RIP, IC, IF	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	200 µL	ELAVL1 (HuR), a ubiquitously expressed protein, stabilizes mRNAs by binding to AU-rich elements of their mRNAs.
RN005P	Anti-ELAVL2 (HuB) (Human) pAb	Polyclonal WB, IP, RIP, IC, IF	Rabbit Ig (aff.) Hu	200 µL	ELAVL2 (HuB), one of Hu family proteins, is specifically expressed in neuronal cells. HuB mediates the regulation of stability and translational efficiency of mRNAs via binding to AU-rich elements of them.
RN006P	Anti-ELAVL3 (HuC) pAb	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu, Mo, Rat	200 µL	ELAVL3 (HuC), a member of Hu protein family, may be related to neuronal development. HuC mediates the regulation of stability and translational efficiency of mRNAs via binding to AU-rich elements of them.
RN001M	Anti-IGF2BP1 (IMP1) mAb ZBP1	6H6 WB, IP, RIP	Mouse IgG2aκ Hu, Mo	200 µg/200 µL	IGF2BP1 (IMP1) is involved in stabilization of c-myc mRNA via association with HNRNP, YBX1, DHX9 and SYNCRIP.
RN007P	Anti-IGF2BP1 (IMP1) pAb ZBP1	Polyclonal WB, IP, RIP, IC, IF, CLIP*	Rabbit Ig (aff.) Hu, Mo	200 µL	IGF2BP1 (IMP1) is involved in stabilization of c-myc mRNA via association with HNRNP, YBX1, DHX9 and SYNCRIP.
RN020P	Anti-ILF3 (Human) pAb NF90, MMP4	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu	200 µL	ILF3, a dsRNA-binding protein, stabilizes IL-2 mRNA by binding to the AU-rich element in the 3'-UTR of the mRNA. ILF3 also inhibits the interaction of GBA (acid beta-glucosidase) mRNA with polysome by binding to the coding sequence of the mRNA.
RN021P	Anti-KHDRBS1 pAb p62, SAM68	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu, Mo, Rat	200 µL	KHDRBS1, a DNA/RNA binding protein, affects inclusion of CD44 exon v5 via regulating alternative splicing. KHDRBS1 may be involved in stabilization and translational regulation of mRNA.
RN009M	Anti-PABPC1 mAb PABP1	10E10 WB, IP, RIP, IC	Mouse IgGκ Hu, Ham	200 µg/200 µL	PABPC1 functions as an mRNA stabilizer by binding to its poly(A) tail. PABPC1 is involved in deadenylation and degradation of its mRNA after translation termination. It has also been reported that PABPC1 plays an important role in NMD (nonsense-mediated mRNA decay).
RN022P	Anti-PABPC4 pAb PABP4, iPABP	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu, Mo, Rat	200 µL	PABPC4, which shares 79% of sequence homology with PABPC1, is related to stabilization and translation of mRNA via binding to poly(A) tail of mRNA.
RN024P	Anti-PCBP1 pAb HNRPE1	Polyclonal WB, IP, RIP, Other*	Rabbit Ig (aff.) Hu, Mo, Rat	200 µL	PCBP1 is one of the major PCBP isoforms shuttling between the nucleus and the cytoplasm. PCBP1 stabilizes target mRNAs such as α-globin and type I collagen by binding to poly(rC) and polypyrimidine in their mRNAs.

Code	Product Gene name	Clone Applications	Isotype Reactivity	Size	Function, localization, etc.
RIP-Certified Antibody					
RN025P	Anti-PCBP2 pAb HNRPE2	Polyclonal WB, IP, RIP, CLIP*	Rabbit Ig (aff.) Hu, Mo, Rat	200 µL	PCBP2 binds to poly(rC) in the same way as PCBP1 and HNRNPK, and has been reported to bind to poly(rU) as well. PCBP2 is localized in stress granules and P-bodies.
RN011P	Anti-PTBP1 (Human) pAb HNRNPI	Polyclonal WB, IP, RIP, IF*, CLIP*	Rabbit Ig (aff.) Hu	200 µL	PTBP1 regulates the stability of mRNAs such as insulin, VEGF and CD40LG by binding to UTRs in their mRNAs.
RN026P	Anti-PUM1 pAb	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu, Mo	200 µL	PUM1, one of the members of PUF family which control development, has a Pumilio homology domain as an RNA binding domain. PUM1 is related to translational repression and degradation of mRNA by binding to the 3'-UTR of the target mRNA.
RN027P	Anti-PUM2 pAb	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu, Mo, Rat	200 µL	PUM2 is one of the members of PUF family associated with developmental control. PUM2 is co-localized with PUM1 in various tissues and has same biological functions.
RN045P	Anti-SLBP pAb HBP	Polyclonal WB, IP, RIP, CLIP*	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	200 µL	SLBP participates in processing, transport, translation and decay of histone mRNA by binding to the stem-loop structure in the 3' end of histone pre-mRNA. SLBP is also involved in cell cycle regulation.
RN012P	Anti-STAU1 (Human) pAb	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu	200 µL	STAU1 is a key molecule in SMD (Staufen-mediated mRNA decay). STAU1 and its paralogue STAU2 recruit UPF1, an essential player of NMD (nonsense-mediated mRNA decay), to cis-elements in the 3'-UTR of target mRNA and regulate the mRNA decay.
RN013P	Anti-STAU2 (Human) pAb	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu	200 µL	STAU2, a paralogue of STAU1, participates in SMD (Staufen-mediated mRNA decay) by recruiting UPF1 to 3'-UTR of the target mRNA.
RN033P	Anti-TNRC6A (GW182) (Human) pAb	Polyclonal WB, IP, RIP, IC*, CLIP*	Rabbit Ig (aff.) Hu	200 µL	TNRC6A (GW182), a major component of P-body/GW-body, participates in gene silencing by small ncRNA such as miRNA. GW182 serves as a translational repressor of mRNA via binding to RISC (RNA-induced silencing complex) components.
RBP Antibody					
RN036PW	Anti-ACO1 (IRP1) pAb IREB1	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	ACO1 has been reported to stabilize transferrin receptor mRNA via binding to iron-responsive element (IRE) in the 3'-UTR of it. In case of low-iron condition, ACO1 also negatively regulates translation of ferritin mRNA by binding to the 5'-UTR of it.
RN110PW	Anti-CNOT7 (CAF1) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Ham	100 µL	CNOT7 (CAF1) is a catalytic component of the CCR4-NOT complex involved in deadenylation in mRNA decay.
RN002MW	Anti-CUGBP1 mAb CELF1	3B1 WB, IP, RIP*	Mouse IgG1κ Hu, Mo, Rat	100 µg/100 µL	CUGBP1 mediates the degradation of c-jun and TNFRSF1B mRNAs by binding to GU-rich elements in their mRNAs. CUGBP1 is also related to the pathogenesis of the trinucleotide expansion diseases, namely, myotonic dystrophy type 1 (DM1).
RN034PW	Anti-CUGBP1 pAb CELF1	Polyclonal WB	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	CUGBP1 mediates the degradation of c-jun and TNFRSF1B mRNAs by binding to GU-rich elements in their mRNAs. CUGBP1 is also related to the pathogenesis of the trinucleotide expansion diseases, namely, myotonic dystrophy type 1 (DM1).
RN035PW	Anti-CUGBP2 pAb CELF2	Polyclonal WB	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	CUGBP2 is highly expressed in most tissues including muscle. CUGBP2 is involved in stabilization of COX2 mRNA by binding to the 3'-UTR of it. CUGBP2 also induces apoptosis in tumor cells via binding to the 3'-UTR of Mcl-1 mRNA.
RN129PW	Anti-DDX6 (RCK/p54) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat (w), Ham	100 µL	DDX6, also known as RCK or p54, is a core component of P-body. DDX6 is involved in mRNA decay, translational regulation and miRNA-mediated gene silencing.
RN063PW	Anti-DHX9 pAb RHA, DDX9	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Ham	100 µL	DHX9 is an RNA helicase that shuttles between the nucleus and the cytoplasm. DHX9 is involved in stabilization of c-myc mRNA via association with IMP1, HNRNPU, YBX1 and SYNCRIP.
RN113PW	Anti-DHX36 (RHAU) pAb DDX36	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat (w)	100 µL	DHX36 (RHAU) is an RNA helicase belonging to the DEAH family and binds to G-quadruplex structures in DNA and RNA. DHX36 is involved in the regulation of mRNA decay, mRNA localization, miRNA-mediated translation and genome stability.
RN098PW	Anti-EDC4 pAb Ge-1, HEDLS	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo (w), Ham	100 µL	EDC4 is a P-body/GW-body component that plays a role in AMD (ARE-mediated mRNA decay) by promoting mRNA decapping.
RN029PW	Anti-EIF2C2 (AGO2) pAb	Polyclonal WB	Rabbit Ig (aff.) Hu, Mo, Rat	100 µL	EIF2C2 (AGO2), a core component of RISC (RNA-induced silencing complex), plays a central role in RNAi pathway. AGO2 localizes to P-bodies and participates in mRNA decay.
RN008MW	Anti-ELAVL1 (HuR) mAb	C54-6 WB, IP	Mouse IgG1κ Hu, Mo, Rat, Ham	100 µL	ELAVL1 (HuR), a ubiquitously expressed protein, stabilizes mRNAs by binding to AU-rich elements of their mRNAs.
RN111PW	Anti-ETF1 (eRF1) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	ETF1 (eRF1) is a component of the SURF (SMG1-UPF1-eRF1-eRF3) complex involved in NMD (nonsense-mediated mRNA decay).
RN100PW	Anti-EXOSC5 (RRP46) (Human) pAb CML28	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 µL	EXOSC5 (RRP46) is one of the core components of the exosome complex that degrades mRNA in the 3'-to-5' direction in both the nucleus and the cytoplasm.
RN048PW	Anti-G3BP1 pAb G3BP	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 µL	G3BP1, a DNA/RNA helicase, is involved in the formation of stress granules. G3BP1 promotes mRNA decay by binding to the 3'-UTR in c-myc mRNA. It also mediates stabilization of Tau mRNA.
RN119PW	Anti-GSPT2 (eRF3b) (Human) pAb GST2	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 µL	GSPT2 (eRF3b) is a component of the SURF (SMG1-UPF1-eRF1-eRF3) complex involved in NMD (nonsense-mediated mRNA decay).

Code	Product Gene name	Clone Applications	Isotype Reactivity	Size	Function, localization, etc.
RBP Antibody					
RN051PW	Anti-HDLBP (Vigilin) pAb	Polyclonal WB, IP, ChIP*	Rabbit Ig (aff.) Hu, Mo	100 µL	HDLBP (Vigilin) functions as a negative regulator of translation by competing with HuR for binding to the 3'-UTR of c-fms mRNA, results in its degradation.
RN125PW	Anti-HENMT1 pAb HEN1, C1orf59	Polyclonal WB	Rabbit Ig (aff.) Hu, Mo, Rat	100 µL	HENMT1, a small RNA 2'-O-methyltransferase, mediates piRNA stabilization by adding a 2'-O-methyl group to the 3'-end of mammalian piRNAs. HENMT1 is preferentially expressed in testis and is required for mouse spermatogenesis.
RN061PW	Anti-HNRNPA0 pAb	Polyclonal WB	Rabbit Ig (aff.) Hu	100 µL	HNRNPA0 regulates stability of TNF- α and MIP-2 mRNAs by binding to AU-rich elements in the mRNAs in response to LPS stimulation.
RN114PW	Anti-HNRNPA1 pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham (w)	100 µL	HNRNPA1 is a multifunctional DNA/RNA binding protein involved in transcription, mRNA splicing, stability, translation and miRNA biogenesis. HNRNPA1 stabilizes IL-2 and GM-CSF mRNAs by binding to the AU-rich elements in their 3'-UTR.
RN052PW	Anti-HNRNPC pAb	Polyclonal WB, IP, CLIP*	Rabbit Ig (aff.) Hu, Mo	100 µL	HNRNPC binds and stabilizes APP mRNA. HNRNPC also promotes translation of APP mRNA by competing with FMR1 for binding to the coding region in the mRNA.
RN060PW	Anti-HNRNPD (AUF1) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	HNRNPD (AUF1) regulates mRNA decay by binding to AU-rich element in the mRNA. AUF1 is also involved in translation-dependent mRNA degradation through the interaction with EIF4G1 and PABP.
RN065PW	Anti-KHSRP pAb FBP2, KSRP	Polyclonal WB, IP, CLIP*	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	KHSRP interacts with exosome and poly(A) ribonuclease by binding to AU-rich elements in the 3'-UTR of mRNA and mediates the regulation of mRNA decay.
RN089PW	Anti-MAGOH pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Ham	100 µL	MAGOH, a major component of EJC (exon junction complex), forms a heterodimer with Y14. The MAGOH-Y14 heterodimer plays a role in the regulation of splicing, transport, degradation and translation.
RN103PW	Anti-NCBP1 (CBP80) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo	100 µL	NCBP1 (CBP80) is a component of the nuclear cap-binding complex (CBC) that plays a role in transcription, splicing, export and degradation by binding to the 5'-cap structure of newly synthesized mRNA. CBC supports the pioneer round of translation and promotes NMD (nonsense-mediated mRNA decay).
RN127PW	Anti-NSUN2 (Human) pAb MISU, MRT5, SAKI, TRM4	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 µL	NSUN2, identified as tRNA m ⁵ C methyltransferase, catalyzes the conversion of cytidine to m ⁵ C in tRNAs, mRNAs and miRNAs. Modifications by NSUN2 may affect stabilization, translation and miRNA biogenesis.
RN023PW	Anti-PABPN1 pAb PABP2	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo	100 µL	PABPN1, localized to nucleus, strongly binds to poly(A) tail of pre-mRNA after transcription. PABPN1 may be involved in the polyadenylation-dependent degradation of lncRNA.
RN104PW	Anti-PAN2 (USP52) (Human) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 µL	PAN2 (USP52) is a 3'-5' exonuclease identified as a catalytic subunit of the PABP-dependent poly(A) nuclease complex. PAN2 and a regulatory subunit PAN3 form a heterodimer involved in the first phase of poly(A) shortening in mRNA decay.
RN105PW	Anti-PARN pAb DAN	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Ham	100 µL	PARN is a 3'-exoribonuclease that binds to the 5'-cap structure of mRNA and shortens its poly(A) tail in the 3'-to-5' direction. PARN participates in translation termination, NMD (nonsense-mediated mRNA decay), and AMD (ARE-mediated mRNA decay).
RN120PW	Anti-RBM8A (Y14) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	RBM8A (Y14) functions as a core component of EJC (exon junction complex) that plays an important role in pre-mRNA splicing, mRNA export, NMD (nonsense-mediated mRNA decay) and mRNA translation.
RN056PW	Anti-SERBP1 pAb CGI-55, PAIRBP1	Polyclonal WB	Rabbit Ig (aff.) Hu, Mo	100 µL	SERBP1 regulates stability of type-1 plasminogen activator inhibitor mRNA by binding to the 3'-UTR of it in rat HTC cells.
RN074PW	Anti-SSB (La) pAb LARP3	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 µL	SSB (La) associates with pol III transcripts to stabilize and protect them from degradation by exonuclease.
RN046PW	Anti-SYNCRIP (HNRNPQ) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	SYNCRIP (HNRNPQ) is involved in stabilization of c-myc mRNA via association with IMP1, HNRNPU, YBX1 and DHX9.
RN107PW	Anti-TARDBP (TDP-43) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Ham	100 µL	TARDBP (TDP-43) is a nuclear DNA/RNA binding protein involved in mRNA splicing, nuclear export, stability, miRNA biogenesis and transcriptional repression. TDP-43 is found to be localized in the cytoplasm in neurodegenerative diseases such as ALS.
RN108PW	Anti-UPF1 pAb	Polyclonal WB, IP, CLIP*	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	UPF1, a master regulator of NMD (nonsense-mediated mRNA decay), promotes NMD and inhibits translation initiation through its phosphorylation and interaction with other NMD factors. UPF1 is also involved in SMD (Staufen-mediated mRNA decay) and replication-dependent histone mRNA decay.
RN118PW	Anti-UPF3B pAb RENT3B	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	UPF3B functions as a key NMD (nonsense-mediated mRNA decay) factor that interacts with its homologues UPF1 and UPF2, and promotes NMD by enhancing ATP-dependent helicase activity of UPF1 together with UPF2.
RN109PW	Anti-XRN1 (Human) pAb SEP1	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 µL	XRN1 is a P-body/GW-body component that degrades mRNAs in the 5'-to-3' direction after decapping during mRNA decay.
RN123PW	Anti-YTHDF2 pAb CAHL, HGRG8, NY-REN-2	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat (w), Ham	100 µL	YTHDF2, known as an m ⁶ A reader protein, mediates the degradation of m ⁶ A-containing mRNAs in the cytoplasm. Binding of YTHDF2 to m ⁶ A-containing mRNAs leads to the localization of the mRNAs to the P-body and their subsequent degradation.
RN031PW	Anti-ZFP36 (Human) pAb TTP	Polyclonal WB	Rabbit Ig (aff.) Hu	100 µL	ZFP36 (TTP) has a zinc finger structure and binds to an ARE (AU-rich element) of mRNA. TTP recruits the deadenylase complex and induces deadenylation of poly(A) tail by binding to AREs in the target mRNA.

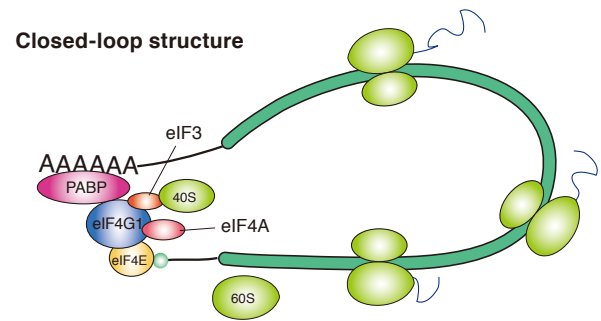


Following the RNA export from the nucleus to the cytoplasm, mRNAs are transported along cytoskeleton to peripheral end with the aid of motor protein (MP) and RBPs that regulate localization of mRNAs. RBPs protect mRNAs from degradation by binding to their target mRNAs during the localization. In this manner, the mRNA localization in cytoplasm is regulated to enable the efficient translation, which occurs at the “right place” on the “right time”. Recent studies have shown that RBPs play an important role in regulation of mRNA translation with spacio-temporal manner.

Code	Product Gene name	Clone Applications	Isotype Reactivity	Size	Function, localization, etc.
RIP-Certified Antibody					
RN001M	Anti-IGF2BP1 (IMP1) mAb	6H6	Mouse IgG2aκ	200 µg/200 µL	IGF2BP1 (IMP1) represses translation initiation of β-actin mRNA via binding to it in the nucleus and translocates to the cytoplasm. When localized to destination in the cytoplasm, IMP1 bound to the mRNA is released from it by phosphorylation to initiate translation.
	ZBP1	WB, IP, RIP	Hu, Mo		
RN007P	Anti-IGF2BP1 (IMP1) pAb	Polyclonal	Rabbit Ig (aff.)	200 µL	IGF2BP1 (IMP1) represses translation initiation of β-actin mRNA via binding to it in the nucleus and translocates to the cytoplasm. When localized to destination in the cytoplasm, IMP1 bound to the mRNA is released from it by phosphorylation to initiate translation.
	ZBP1	WB, IP, RIP, IC, IF, CLIP*	Hu, Mo		
RN008P	Anti-IGF2BP2 (IMP2) pAb	Polyclonal	Rabbit Ig (aff.)	200 µL	IGF2BP2 (IMP2) binds to the UTR of IGF2 leader 3 mRNA, which is related to development and proliferation, and regulates its translation.
	ZBP1	WB, IP, RIP, IC, IF, CLIP*	Hu, Mo, Rat		
RN009P	Anti-IGF2BP3 (IMP3) pAb	Polyclonal	Rabbit Ig (aff.)	200 µL	IGF2BP3 (IMP3) binds to the 5'-UTR of IGF2 leader 3 mRNA, which is related to development and proliferation, and regulates its translation.
	ZBP1	WB, IP, RIP, CLIP*	Hu, Mo		
RN012P	Anti-STAU1 (Human) pAb	Polyclonal	Rabbit Ig (aff.)	200 µL	STAU1 forms an RNA granule in neuronal cells. STAU1 regulates export and localization of mRNA via binding to dsRNAs and microtubules. STAU1 also participates in SMD (Staufen-mediated mRNA decay) and assembly of 40S and 60S ribosomal subunits.
	ZBP1	WB, IP, RIP	Hu		
RN013P	Anti-STAU2 (Human) pAb	Polyclonal	Rabbit Ig (aff.)	200 µL	STAU2, a paralogue of STAU1, shuttles between the nucleus and the cytoplasm. STAU2 participates in SMD (Staufen-mediated mRNA decay) together with STAU1.
	ZBP1	WB, IP, RIP	Hu		
RBP Antibody					
RN113PW	Anti-DHX36 (RHAU) pAb	Polyclonal	Rabbit Ig (aff.)	100 µL	DHX36 (RHAU) is an RNA helicase belonging to the DEAH family and binds to G-quadruplex structures in DNA and RNA. DHX36 plays a role in the localization of pre-miR-134 in the dendrites of hippocampal neurons by directly binding to their terminal loops.
	DDX36	WB, IP	Hu, Mo, Rat (w)		
RN077PW	Anti-SMN1 pAb	Polyclonal	Rabbit Ig (aff.)	100 µL	SMN1 regulates localization of mRNA through the interaction with HuD in mouse neuronal cell.
	ZBP1	WB, IP, IC, IF	Hu		

Regulation of translation

Initiation of efficient and optimal translation of mRNA depends on the formation of a closed-loop structure. Basically, it is formed by eIF4E, a cap-binding protein, and a poly(A) binding protein (PABP) through a scaffold protein, eIF4G1, as a linker. Many proteins, such as Hu proteins, a family of RBPs, are suggested to be involved in stabilization of this closed-loop structure.



Code	Product Gene name	Clone Applications	Isotype Reactivity	Size	Function, localization, etc.
RIP-Certified Antibody					
RN032P	Anti-CIRBP pAb CIRP	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu, Mo, Rat	200 µL	CIRBP is involved in the cold stress-induced suppression of cell proliferation. CIRBP also serves as a translational activator to promote the translation of mRNA under mild hypothermic conditions.
RN038P	Anti-CPEB1 (Human) pAb	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu	200 µL	CPEB1 binds to cytoplasmic polyadenylation elements of mRNAs and inhibits translation together with Maskin-like protein. When phosphorylated by Aurora kinase, CPEB1 facilitates mRNA translation by interacting with CPSF.
RN028P	Anti-EIF2C1 (AGO1) pAb	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu, Mo	200 µL	EIF2C1 (AGO1) plays a central role in RNAi pathway. AGO1 forms RISC (RNA-induced silencing complex) that mediates gene silencing by RNA interference.
RN003M	Anti-EIF2C2 (AGO2) (Human) mAb	1B1-E2H5 WB, IP, RIP	Mouse IgG2aλ Hu	200 µg/200 µL	EIF2C2 (AGO2), a core component of RISC (RNA-induced silencing complex), plays a central role in RNAi pathway. AGO2 localizes to P-bodies and participates in mRNA decay.
RN005M	Anti-EIF2C2 (AGO2) mAb	2A8 WB, IP, RIP, IH*, IC*, CLIP*	Mouse IgG1κ Hu, Mo, Rat, Ham	200 µg/200 µL	EIF2C2 (AGO2), a core component of RISC (RNA-induced silencing complex), plays a central role in RNAi pathway. AGO2 localizes to P-bodies and participates in mRNA decay.
RN006M	Anti-EIF4E mAb	C107-3-5 WB, IP, RIP	Mouse IgG2aκ Hu, Mo, Rat, Ham	200 µg/200 µL	EIF4E, one of the translation-initiation factors, binds to the m ⁷ G cap structure. Binding to inhibitory protein 4EBP inhibits its binding to EIF4G1 and cap-dependent translation.
RN001P	Anti-EIF4E pAb	Polyclonal WB, IP, RIP, IC, IF	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	200 µL	EIF4E, one of the translation-initiation factors, binds to the m ⁷ G cap structure. Binding to inhibitory protein 4EBP inhibits its binding to EIF4G1 and cap-dependent translation.
RN002P	Anti-EIF4G1 (Human) pAb	Polyclonal WB, IP, RIP, IC, IF	Rabbit Ig (aff.) Hu	200 µL	EIF4G1 functions as a scaffold protein necessary for cap-dependent translation initiation.
RN003P	Anti-EIF4G2 pAb	Polyclonal WB, IP, RIP, CLIP*	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	200 µL	EIF4G2, homologous to the C-terminal region of EIF4G1, functions as a translational inhibitor via forming an inactive complex with EIF4A and EIF3.
RN007M	Anti-ELAVL1 (HuR) mAb	C67-1 WB, IP, RIP	Mouse IgG2aκ Hu, Mo, Rat, Ham	200 µg/200 µL	ELAVL1 (HuR), a ubiquitously expressed protein, stabilizes mRNAs by binding to AU-rich elements of their mRNAs.
RN004P	Anti-ELAVL1 (HuR) pAb	Polyclonal WB, IP, RIP, IC, IF	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	200 µL	ELAVL1 (HuR), a ubiquitously expressed protein, stabilizes mRNAs by binding to AU-rich elements of their mRNAs.
RN005P	Anti-ELAVL2 (HuB) (Human) pAb	Polyclonal WB, IP, RIP, IC, IF	Rabbit Ig (aff.) Hu	200 µL	ELAVL2 (HuB), one of Hu family proteins, is specifically expressed in neuronal cells. HuB mediates the regulation of stability and translational efficiency of mRNAs via binding to AU-rich elements of them.
RN006P	Anti-ELAVL3 (HuC) pAb	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu, Mo, Rat	200 µL	ELAVL3 (HuC), a member of Hu protein family, may be related to neuronal development. HuC mediates the regulation of stability and translational efficiency of mRNAs via binding to AU-rich elements of them.
RN016P	Anti-FMR1 pAb FMRP	Polyclonal WB, IP, RIP, CLIP*	Rabbit Ig (aff.) Hu, Mo, Rat	200 µL	FMR1, one of the components of mRNP bound to polysome, serves as a translational repressor. FMR1 is a competitor of HNRNPC and negatively regulates translation of APP mRNA via recruiting it to P-bodies.
RN017P	Anti-FXR1 pAb	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu, Mo, Rat	200 µL	FXR1, known as a paralogue of FMR1, shuttles between the nucleus and the cytoplasm. FXR1 is also related to binding to 60S subunits of polysome and AGO proteins.
RN018P	Anti-FXR2 pAb	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu, Mo, Rat	200 µL	FXR2, functionally-related to FMR1 and FXR1, shares high sequence homology with FXR1. These family proteins include the similar ability to bind to RNA and polysome and shuttle between the nucleus and the cytoplasm.
RN019P	Anti-HNRNPK pAb HNRPK	Polyclonal WB, IP, RIP, IC*, CLIP*	Rabbit Ig (aff.) Hu, Mo, Rat	200 µL	HNRNPK, one of the components of hnRNP complex, shuttles between the nucleus and the cytoplasm. HNRNPK is a multifunctional protein that plays a role in the regulation of mRNA splicing, transport and translation.
RN001M	Anti-IGF2BP1 (IMP1) mAb ZBP1	6H6 WB, IP, RIP	Mouse IgG2aκ Hu, Mo	200 µg/200 µL	IGF2BP1 (IMP1) represses translation initiation of β-actin mRNA by binding to it in the nucleus and translocates to the cytoplasm. When localized to destination in the cytoplasm, IMP1 bound to the mRNA is released from it by phosphorylation to initiate translation.

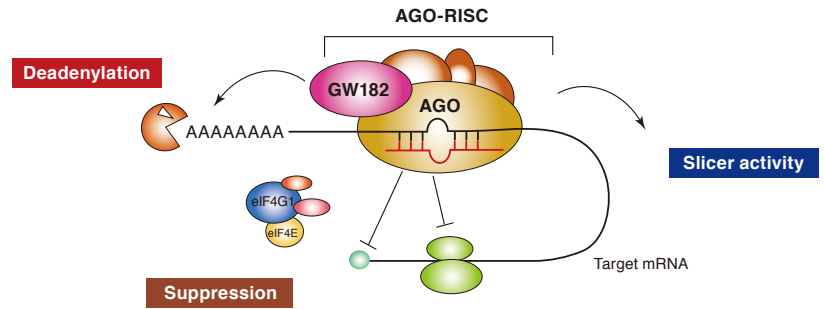
Code	Product Gene name	Clone Applications	Isotype Reactivity	Size	Function, localization, etc.
RIP-Certified Antibody					
RN007P	Anti-IGF2BP1 (IMP1) pAb ZBP1	Polyclonal WB, IP, RIP, IC, IF, CLIP*	Rabbit Ig (aff.) Hu, Mo	200 µL	IGF2BP1 (IMP1) represses translation initiation of β-actin mRNA by binding to it in the nucleus and translocates to the cytoplasm. When localized to destination in the cytoplasm, IMP1 bound to the mRNA is released from it by phosphorylation to initiate translation.
RN008P	Anti-IGF2BP2 (IMP2) pAb	Polyclonal WB, IP, RIP, IC, IF, CLIP*	Rabbit Ig (aff.) Hu, Mo, Rat	200 µL	IGF2BP2 (IMP2) binds to the UTR of IGF2 leader 3 mRNA, which is related to development and proliferation, and regulates its translation.
RN009P	Anti-IGF2BP3 (IMP3) pAb	Polyclonal WB, IP, RIP, CLIP*	Rabbit Ig (aff.) Hu, Mo	200 µL	IGF2BP3 (IMP3) binds to the 5'-UTR of IGF2 leader 3 mRNA, which is related to development and proliferation, and regulates its translation.
RN020P	Anti-ILF3 (Human) pAb NF90, MMP4	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu	200 µL	ILF3, a dsRNA-binding protein, stabilizes IL-2 mRNA by binding to the AU-rich element in the 3'-UTR of it. ILF3 also inhibits the interaction of GBA (acid beta-glucosidase) mRNA with polysome by binding to the coding sequence of the mRNA.
RN021P	Anti-KHDRBS1 pAb p62, SAM68	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu, Mo, Rat	200 µL	KHDRBS1, a DNA/RNA binding protein, is involved in the export of HIV RNA. KHDRBS1 also contributes to stabilization and translational regulation of mRNA.
RN010P	Anti-MS1 (Musashi1) pAb	Polyclonal WB, IP, IH, RIP	Rabbit Ig (aff.) Hu, Mo, Rat	200 µL	MS1 (Musashi1) regulates the development of neural stem cell via translational repression by binding to the 3'-UTR of Numb mRNA.
RN009M	Anti-PABPC1 mAb PABP1	10E10 WB, IP, RIP, IC	Mouse IgGκ Hu, Ham	200 µg/200 µL	PABPC1 contributes to efficient translation of mRNA by forming a closed-loop structure through EIF4F complex, composed of EIF4E, EIF4A and EIF4G.
RN022P	Anti-PABPC4 pAb PABP4, iPABP	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu, Mo, Rat	200 µL	PABPC4, which shares 79% of sequence homology with PABPC1, is related to stabilization and translational regulation of mRNA by binding to poly(A) tail of mRNA.
RN024P	Anti-PCBP1 pAb HNRPE1	Polyclonal WB, IP, RIP, Other*	Rabbit Ig (aff.) Hu, Mo, Rat	200 µL	PCBP1 is one of the major PCBP isoforms shuttling between the nucleus and the cytoplasm. PCBP1 serves as a translational coactivator by binding to a stem-loop structure of IRES (internal ribosome entry site) in poliovirus RNA.
RN025P	Anti-PCBP2 pAb HNRPE2	Polyclonal WB, IP, RIP, CLIP*	Rabbit Ig (aff.) Hu, Mo, Rat	200 µL	PCBP2 binds to poly(rC) in the same way as PCBP1 and HNRNPk, and has been reported to the binding to poly(rU) as well. PCBP2 also serves as a translational coactivator by binding to a stem-loop structure of IRES (internal ribosome entry site) in poliovirus RNA.
RN011P	Anti-PTBP1 (Human) pAb HNRNPI	Polyclonal WB, IP, RIP, IF*, CLIP*	Rabbit Ig (aff.) Hu	200 µL	PTBP1 mediates IRES (internal ribosome entry site) -dependent translation by binding to mRNA such as IGFR1, VEGF and APAF1. PTBP1 inhibits translational repression by binding to IRES in the mRNAs under the cellular stress conditions such as viral infection and apoptosis.
RN026P	Anti-PUM1 pAb	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu, Mo	200 µL	PUM1, one of the members of PUF family which control development, has a Pumilio homology domain as an RNA binding domain. PUM1 is involved in translational repression and degradation of mRNA by binding to the 3'-UTR of the target mRNA.
RN027P	Anti-PUM2 pAb	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu, Mo, Rat	200 µL	PUM2 is one of the members of PUF family associated with developmental control. PUM2 is co-localized with PUM1 in various tissues and has same biological functions.
RN004M	Anti-Ribosomal P0/P1/P2 mAb RPLP0, RPLP1, RPLP2	9D5 WB, IP, RIP, Inhibition test**	Mouse IgG2ακ Hu, Mo, Rat, Ham	200 µg/200 µL	Ribosomal proteins P0 (34 kD), P1 (12 kD), P2 (12 kD) exist as a pentameric complex, P0 (P1-P2) 2 on the large subunits of eukaryotic ribosomes. This complex plays a crucial role in recruitment of translation factors to the ribosome.
RN045P	Anti-SLBP pAb HBP	Polyclonal WB, IP, RIP, CLIP*	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	200 µL	SLBP participates in processing, transport, translation and decay of histone mRNA by binding to the stem-loop structure in the 3' end of histone pre-mRNA. SLBP is also involved in cell cycle regulation.
RN014P	Anti-TIA1 pAb	Polyclonal WB, IP, RIP, IC, IF, CLIP*	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	200 µL	TIA1 shuttles between the nucleus and the cytoplasm. TIA1 is involved in induction of apoptosis and translational regulation of TNF-α and COX-2 mRNAs.
RN033P	Anti-TNRC6A (GW182) (Human) pAb	Polyclonal WB, IP, RIP, IC*, CLIP*	Rabbit Ig (aff.) Hu	200 µL	TNRC6A (GW182), a major component of P-body/GW-body, participates in gene silencing by small ncRNA such as miRNA. GW182 serves as a translational repressor of mRNA via binding to RISC (RNA-induced silencing complex) components.
RN015P	Anti-YBX1 pAb YB-1	Polyclonal WB, IP, RIP, ChIP*	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	200 µL	YBX1, a member of cold shock protein family, is one of the main components of cytoplasmic mRNP particles. YBX1 is involved in the regulation of gene expression at transcriptional/translational level by binding to both DNA and RNA.
RBP Antibody					
RN036PW	Anti-ACO1 (IRP1) pAb IREB1	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	ACO1 has been reported to stabilize transferrin receptor mRNA via binding to iron-responsive element (IRE) in the 3'-UTR of it. In case of low-iron condition, ACO1 also negatively regulates translation of ferritin mRNA by binding to the 5'-UTR of it.
RN055PW	Anti-AIMP1 (SCYE1) pAb EMAPII	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 µL	AIMP1 is a cytokine involved in angiogenesis, inflammation and wound healing. The precursor protein functions as a component of aminoacyl tRNA synthetase complex.
RN039PW	Anti-CPEB2 pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Rat	100 µL	CPEB2 participates in the regulation of polyadenylation and translation of mRNA by binding to cytoplasmic polyadenylation elements in the target mRNA. CPEB2 binds to HIF1α mRNA under hypoxic conditions.

Code	Product Gene name	Clone Applications	Isotype Reactivity	Size	Function, localization, etc.
RBP Antibody					
RN040PW	Anti-CPEB4 (Human) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 µL	Together with CPEB1, CPEB4 plays a role in the regulation of mitotic cell-cycle progression, polyadenylation and translation of mRNA.
RN129PW	Anti-DDX6 (RCK/p54) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat (w), Ham	100 µL	DDX6, also known as RCK or p54, is a core component of P-body. DDX6 is involved in mRNA decay, translational regulation and miRNA-mediated gene silencing.
RN063PW	Anti-DHX9 pAb RHA	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Ham	100 µL	DHX9 is an RNA helicase that shuttles between the nucleus and the cytoplasm. DHX9 is involved in translational regulation of type I collagen mRNA by binding to the stem-loop structure in the 5'-UTR of it.
RN028PW	Anti-EIF2C1 (AGO1) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo	100 µL	EIF2C1 (AGO1) plays a central role in RNAi pathway. AGO1 forms RISC (RNA-induced silencing complex) that mediates gene silencing by RNA interference.
RN029PW	Anti-EIF2C2 (AGO2) pAb	Polyclonal WB	Rabbit Ig (aff.) Hu, Mo, Rat	100 µL	EIF2C2 (AGO2), a core component of RISC (RNA-induced silencing complex), plays a central role in RNAi pathway. AGO2 localizes to P-bodies and participates in mRNA decay.
RN099PW	Anti-EIF4A1 pAb DDX2A	Polyclonal WB	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	EIF4A1 is an RNA helicase involved in mRNA translation. EIF4A1 is a core component of the translation initiation complex, termed as EIF4F, which promotes cap-dependent translation by binding to the 5'-cap structure of an mRNA and recruiting ribosomes to the mRNA.
RN008MW	Anti-ELAVL1 (HuR) mAb	C54-6 WB, IP	Mouse IgG1κ Hu, Mo, Rat, Ham	100 µL	ELAVL1 (HuR), a ubiquitously expressed protein, stabilizes mRNAs by binding to AU-rich elements of their mRNAs.
RN111PW	Anti-ETF1 (eRF1) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	The eRF1-eRF3 heterodimer mediates translation termination and ribosome release by directly binding to the stop codon in the ribosomal A-site.
RN048PW	Anti-G3BP1 pAb G3BP	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 µL	G3BP1, a DNA/RNA helicase, is related to the formation of stress granules. G3BP1 also serves as a translational repressor by binding to β-F1 ATPase mRNA.
RN049PW	Anti-G3BP2 pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	G3BP2 was identified as a component of mRNP containing poly(A) RNA and bound to polysome in rat hippocampus. G3BP2 may be involved in translational regulation.
RN050PW	Anti-GRSF1 pAb	Polyclonal WB, IP, IC*, IF*	Rabbit Ig (aff.) Hu	100 µL	GRSF1 localizes to mitochondrial RNA granules and mediates the processing and translation of mitochondrial RNAs.
RN119PW	Anti-GSPT2 (eRF3b) (Human) pAb GST2	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 µL	The eRF1-eRF3 heterodimer mediates translation termination and ribosome release by directly binding to the stop codon in the ribosomal A-site.
RN051PW	Anti-HDLBP (Vigilin) pAb	Polyclonal WB, IP, CHIP*	Rabbit Ig (aff.) Hu, Mo	100 µL	HDLBP (Vigilin) functions as a negative regulator of translation by competing with HuR for binding to the 3'-UTR of c-fms mRNA, results in its degradation.
RN114PW	Anti-HNRNPA1 pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham (w)	100 µL	HNRNPA1 is a multifunctional DNA/RNA binding protein involved in transcription, mRNA splicing, stability, translation and miRNA biogenesis. HNRNPA1 participates in cap-independent translation by binding to IRES (internal ribosome entry site) in mRNA and viral RNA.
RN052PW	Anti-HNRNPC pAb hnRNP C1/C2	Polyclonal WB, IP, CLIP*	Rabbit Ig (aff.) Hu, Mo	100 µL	HNRNPC positively regulates translation by binding to IRES (internal ribosome entry site) of c-myc, c-sis and Unr mRNAs. HNRNPC also promotes translation of APP mRNA by competing with FMR1 for binding to the coding region of the mRNA.
RN060PW	Anti-HNRNPD (AUF1) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	HNRNPD (AUF1) is involved in mRNA decay through the interaction with EIF4G1 and PABP in a translation-dependent manner.
RN089PW	Anti-MAGOH pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Ham	100 µL	MAGOH, a major component of EJC (exon junction complex), forms a heterodimer with Y14. The MAGOH-Y14 heterodimer plays a role in the regulation of splicing, transport, degradation and translation.
RN127PW	Anti-NSUN2 (Human) pAb MISU, MRT5, SAKI, TRM4	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 µL	NSUN2, identified as tRNA m ^c methyltransferase, catalyzes the conversion of cytidine to m ^c C in tRNAs, mRNAs and miRNAs. Modifications by NSUN2 affect mRNA stability, translational control and miRNA biogenesis.
RN053PW	Anti-PAIP1 pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Rat	100 µL	PAIP1, a positive regulator of translation, is involved in stabilization of PABP-EIF4G interaction and formation of a closed-loop structure of mRNA by binding to eIF3.
RN120PW	Anti-RBM8A (Y14) pAb TAR, ZNRP, ZNRNP1	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	RBM8A (Y14) functions as a core component of EJC (exon junction complex) that plays an important role in pre-mRNA splicing, mRNA export, NMD (nonsense-mediated mRNA decay) and mRNA translation.
RN070PW	Anti-RPS10 pAb S10	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 µL	RPS10, one of the component of the 40S ribosomal subunit, is related to rRNA processing and translational regulation. RPS10 is also involved in cap-independent translation via binding to IRES (internal ribosome entry site) in HCV RNA.
RN071PW	Anti-RPS19 pAb DBA, S19	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	RPS19, one of the components of the 40S ribosomal subunit, is related to cleavage of site E in the 3' end maturation of rRNA and assembly of 40S ribosome subunits. RPS19 and RPS10 genes are responsible for Diamond-Blackfan anemia (DBA).

Code	Product Gene name	Clone Applications	Isotype Reactivity	Size	Function, localization, etc.
RBP Antibody					
RN072PW	Anti-RPS6 pAb S6	Polyclonal WB	Rabbit Ig (aff.) Hu, Mo	100 µL	RPS6 is related to rRNA processing and translational repression. RPS6 is a mTOR downstream molecule and negatively regulates translation by binding to oligopyrimidine tracts in the 5'-UTR (5'-TOP) of mRNAs. RPS6 is also involved in cap-independent translation along with RPS10.
RN073PW	Anti-RPS9 pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	RPS9, one of the components of the 40S ribosomal subunit, is involved in 18S rRNA biogenesis and activation of p53 pathway.
RN080PW	Anti-SRSF3 (SRp20) pAb	Polyclonal WB, IP, IC, IF	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	SRSF3 (SRp20) is involved in IRES (internal ribosome entry site)-dependent translation of polioviral RNAs through the interaction with PCBP2.
RN082PW	Anti-SRSF5 (SRP40) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	SRSF5 is involved in splicing, transport, stabilization and translation of HIV-1 RNA. SRSF5 also promotes translation of HIV-1 Gag from unspliced viral RNA.
RN079PW	Anti-SRSF7 (9G8) pAb	Polyclonal WB, IP, CLIP*	Rabbit Ig (aff.) Hu, Mo, Ham	100 µL	SRSF7 (9G8) promotes translation of unspliced RNA containing a constitutive transport element of Mason Pfizer Monkey virus (MPMV).
RN074PW	Anti-SSB (La) pAb LARP3	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 µL	SSB (La) promotes translation via binding to IRES (internal ribosome entry site) in the 5'-UTR of Nrf2 mRNA under oxidative stress conditions.
RN059PW	Anti-TIAL1 pAb TIAR	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Rat, Ham	100 µL	TIAL1 is a core component of stress granules. TIAL1 negatively regulates translation by competing with AUF1 for binding to the 3'-UTR of MYC mRNA.

RNAi pathway (miRNA/siRNA/piRNA)

RNA interference (RNAi) is a mechanism that controls the gene expressions in a sequence specific manner. Small ncRNAs, including miRNAs, siRNAs as well as piRNAs, function as the guide molecules that incorporated into RNA-induced silencing complex (RISC). They control the translation and degradation of their target mRNAs that have the complementary sequences with their guide strands. RNAi has recently been shown to play an important role in a variety of biological phenomena including the dynamics of early development, morphogenesis, cell growth and tumorigenesis. Small ncRNA does not function directly by itself. It functions only when it is incorporated into Argonaute (AGO) protein, a key component of RISC. It functions as a guide to recognize the target mRNA. The translational inhibition and degradation of the target mRNA are due to the activities of the RISC components including AGO and GW182. Recently, post-transcriptional regulation through these small ncRNAs is attracting the attention of researchers.



Code	Product Gene name	Clone Applications	Isotype Reactivity	Size	Function, localization, etc.
RIP-Certified Antibody					
RN028P	Anti-EIF2C1 (AGO1) pAb	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu, Mo	200 µL	EIF2C1 (AGO1) plays a central role in RNAi pathway. AGO1 forms RISC (RNA-induced silencing complex) that mediates gene silencing by RNA interference.
RN003M	Anti-EIF2C2 (AGO2) (Human) mAb	1B1-E2H5 WB, IP, RIP	Mouse IgG2aλ Hu	200 µg/200 µL	EIF2C2 (AGO2), a core component of RISC (RNA-induced silencing complex), plays a central role in RNAi pathway. AGO2 localizes to P-bodies and participates in mRNA decay.
RN005M	Anti-EIF2C2 (AGO2) mAb	2A8 WB, IP, RIP, IH*, IC*, CLIP*	Mouse IgG1κ Hu, Mo, Rat, Ham	200 µg/200 µL	EIF2C2 (AGO2), a core component of RISC (RNA-induced silencing complex), plays a central role in RNAi pathway. AGO2 localizes to P-bodies and participates in mRNA decay.
RN020P	Anti-ILF3 (Human) pAb NF90, MMP4	Polyclonal WB, IP, RIP	Rabbit Ig (aff.) Hu	200 µL	ILF3 functions as a negative regulator of processing of let-7a by Drosha via binding to pri-let-7a.
RN009M	Anti-PABPC1 mAb PABP1	10E10 WB, IP, RIP, IC	Mouse IgGκ Hu, Ham	200 µg/200 µL	PABPC1 is involved in the regulation of mRNA processing, nuclear export, stabilization and translation. PABPC1 also promotes miRNA-mediated translational repression and/or decay of its target mRNA by binding to GW182.
RN033P	Anti-TNRC6A (GW182) (Human) pAb GW1	Polyclonal WB, IP, RIP, IC*, CLIP*	Rabbit Ig (aff.) Hu	200 µL	TNRC6A (GW182), a major component of P-body/GW-body, participates in gene silencing by small ncRNA such as miRNA. GW182 serves as a translational repressor of mRNA via binding to RISC (RNA-induced silencing complex) components.
RBP Antibody					
RN110PW	Anti-CNOT7 (CAF1) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Ham	100 µL	CNOT7 (CAF1) is a catalytic component of the CCR4-NOT complex involved in miRNA/siRNA mediated deadenylation.
RN002MW	Anti-CUGBP1 mAb CELF1	3B1 WB, IP, RIP*	Mouse IgG1κ Hu, Mo, Rat	100 µg/100 µL	CUGBP1 contributes to the regulation of steady-state levels of miRNA by binding to the 3' region of miRNA followed by association with PARN deadenylase.
RN034PW	Anti-CUGBP1 pAb CELF1	Polyclonal WB	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	CUGBP1 contributes to the regulation of steady-state levels of miRNA by binding to the 3' region of miRNA followed by association with PARN deadenylase.
RN129PW	Anti-DDX6 (RCK/p54) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat (w), Ham	100 µL	DDX6, also known as RCK or p54, is a core component of P-body. DDX6 is involved in mRNA decay, translational regulation and miRNA-mediated gene silencing.
RN062PW	Anti-DGCR8 pAb pasha	Polyclonal IP	Rabbit Ig (aff.) Hu, Mo, Rat	100 µL	DGCR8 serves as a key component of the microprocessor complex in miRNA biogenesis. DGCR8 is involved in miRNA processing by Drosha by binding to pri-miRNA.
RN113PW	Anti-DHX36 (RHAU) pAb DDX36	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat (w)	100 µL	DHX36 (RHAU) is an RNA helicase belonging to the DEAH family and binds to G-quadruplex structures in DNA and RNA. DHX36 is involved in the regulation of mRNA decay, mRNA localization, miRNA-mediated translation and genome stability.
RN063PW	Anti-DHX9 pAb RHA, DDX9	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Ham	100 µL	DHX9 is an RNA helicase that shuttles between the nucleus and the cytoplasm. DHX9 is a RISC (RNA-induced silencing complex) component involved in siRNA/miRNA loading onto RISC.
RN030PW	Anti-DICER1 (Human) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 µL	DICER1, an endonuclease of the RNase III family, cleaves dsRNAs or pre-miRNA to yield siRNA or miRNA duplex. DICER1 also plays a role in loading small RNA duplex onto RISC (RNA-induced silencing complex).

Code	Product Gene name	Clone Applications	Isotype Reactivity	Size	Function, localization, etc.
RBP Antibody					
RN028PW	Anti-EIF2C1 (AGO1) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo	100 µL	EIF2C1 (AGO1) plays a central role in RNAi pathway. AGO1 forms RISC (RNA-induced silencing complex) that mediates gene silencing by RNA interference.
RN029PW	Anti-EIF2C2 (AGO2) pAb	Polyclonal WB	Rabbit Ig (aff.) Hu, Mo, Rat	100 µL	EIF2C2 (AGO2), a core component of RISC (RNA-induced silencing complex), plays a central role in RNAi pathway. AGO2 localizes to P-bodies and participates in mRNA decay.
RN125PW	Anti-HENMT1 pAb HEN1, C1orf59	Polyclonal WB	Rabbit Ig (aff.) Hu, Mo, Rat	100 µL	HENMT1, a small RNA 2'-O-methyltransferase, mediates piRNA stabilization by adding a 2'-O-methyl group to the 3'-end of mammalian piRNAs. HENMT1 is preferentially expressed in testis and is required for mouse spermatogenesis.
RN114PW	Anti-HNRNPA1 pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham (w)	100 µL	HNRNPA1 is a multifunctional DNA/RNA binding protein involved in transcription, mRNA splicing, stability, translation, and miRNA biogenesis. HNRNPA1 participates in processing by Drosha by binding to pri-miR-18 and pri-let-7a.
RN065PW	Anti-KHSRP pAb KSRP, FBP2	Polyclonal WB, IP, CLIP*	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	KHSRP promotes processing of pri-let-7a-1 by Drosha via competing with HNRNPA1 for binding to the pri-miRNA.
RN115PW	Anti-LIN28B (Human) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 µL	LIN28B functions as a negative regulator of processing by Drosha by binding to pri-let-7 in miRNA biogenesis. LIN28B overexpression is reported in various cancers such as colon, liver and breast cancer in which LIN28A, a LIN28B homologue, is not expressed.
RN127PW	Anti-NSUN2 (Human) pAb MISU, MRT5, SAKI, TRM4	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 µL	NSUN2, identified as tRNA m ⁵ C methyltransferase, catalyzes the conversion of cytidine to m ⁵ C in tRNAs, mRNAs and miRNAs. It is reported that modifications by NSUN2 may affect stabilization, translation and miRNA biogenesis.
RN105PW	Anti-PARN pAb DAN	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Ham	100 µL	PARN is a 3'-exoribonuclease that binds to the 5'-cap structure of mRNA and shortens its poly(A) tail in the 3'-to-5' direction. PARN participates in translation termination, NMD (nonsense-mediated mRNA decay) and AMD (AU-rich element-mediated mRNA decay).
RN010MW	Anti-PIWIL1 (MIWI) mAb	2D9 IH, IF*	Mouse IgG1λ Mo, Rat*, Rab*, Marmoset*	100 µg/100 µL	PIWIL1 (MIWI) is a germ line-specific Argonaute family protein that exhibits endonuclease activity called the Slicer function. PIWIL1 is a core component of the piRISC (piRNA-induced silencing complex) involved in transposon silencing.
RN074PW	Anti-SSB (La) pAb LARP3	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 µL	SSB (La) plays an essential role in the regulation of miRNA biogenesis and miRNA-mediated mRNA decay. SSB binds to AGO2 and promotes RISC (RNA-induced silencing complex)-induced mRNA cleavage. It also enhances RNAi efficiency via releasing the cleaved mRNA from RISC.
RN057PW	Anti-TARBP1 pAb TRP185	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 µL	TARBP1, one of the RISC (RNA-induced silencing complex) components, binds to DICER. TARBP1 may play an important role in RNAi activity.
RN058PW	Anti-TARBP2 pAb TRBP	Polyclonal WB	Rabbit Ig (aff.) Hu, Rat	100 µL	TARBP2, one of the RISC (RNA-induced silencing complex) components, serves as a binding partner of DICER. TARBP2 is required for pre-miRNA processing and RISC loading.
RN107PW	Anti-TARDBP (TDP-43) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Ham	100 µL	TARDBP (TDP-43) is a nuclear DNA/RNA binding protein involved in mRNA splicing, nuclear export, stability, miRNA biogenesis and transcriptional repression. TDP-43 promotes miRNA processing in both the nucleus and the cytoplasm as a component of the Drosha and Dicer complexes.

<Transcription>

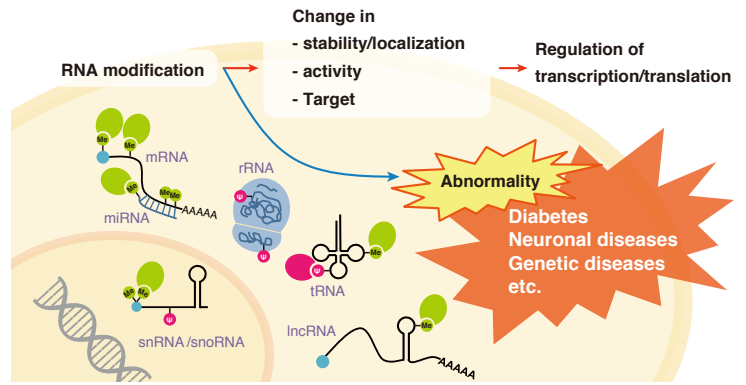
Code	Product Gene name	Clone Applications	Isotype Reactivity	Size	Function, localization, etc.
RIP-Certified Antibody					
RN015P	Anti-YBX1 pAb YB-1	Polyclonal WB, IP, RIP, ChIP*	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	200 µL	YBX1, a member of cold shock protein family, is one of the main components of cytoplasmic mRNP particles. YBX1 is involved in the regulation of gene expression at transcriptional/translational level by binding to both DNA and RNA.
RBP Antibody					
RN117PW	Anti-CCAR2 (DBC1) pAb KIAA1967	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	CCAR2 (DBC1) is a nuclear protein that functions as a negative regulator of chromatin remodeling and a transcriptional regulator by directly binding to SIRT1, HDAC3, SUV39H1 and transcription factors.
RN090PW	Anti-DDX21 pAb	Polyclonal WB, IP, IC, IF	Rabbit Ig (aff.) Hu	100 µL	DDX21, a DEAD box nucleolar protein exhibiting RNA helicase activity, is related to rRNA processing and transcriptional control.
RN113PW	Anti-DHX36 (RHAU) pAb DDX36	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat (w)	100 µL	DHX36 (RHAU) is a DEAH family RNA helicase that binds to G-quadruplex structures in DNA and RNA. DHX36 is involved in the regulation of mRNA decay, localization, miRNA-mediated translation and genome stability.
RN063PW	Anti-DHX9 pAb RHA, DDX9	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Ham	100 µL	DHX9 is an RNA helicase that shuttles between the nucleus and the cytoplasm. DHX9 is involved in the regulation of mRNA stabilization and transcription.
RN101PW	Anti-FBL (Fibrillarin) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	Fibrillarin plays a role in pre-rRNA processing via association with U3, U8 and C/D box U13 snRNAs. Fibrillarin is located in the dense fibrillar component of the nucleolus and is also found in the Cajal body involved in transcription and RNA editing.
RN051PW	Anti-HDLBP (Vigilin) pAb	Polyclonal WB, IP, ChIP*	Rabbit Ig (aff.) Hu, Mo	100 µL	HDLBP (Vigilin) plays a role in the formation of heterochromatin, chromosome separation and transcriptional control.
RN114PW	Anti-HNRNPA1 pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham (w)	100 µL	HNRNPA1 is a multifunctional DNA/RNA binding protein involved in transcription, mRNA splicing, stability, translation and miRNA biogenesis. HNRNPA1 participates in transcriptional control by binding to promoter regions in the genome, 7SK snRNA and transcription factors.
RN013MW	Anti-Nono (P54NRB) mAb	C5 WB, IP, IC, IH	Mouse IgG2aκ Mo, Rat, Ham	100 µg/100 µL	NONO (P54NRB) is one of core paraspeckle proteins that participates in the structural maintenance of paraspeckles by binding to PSF and NEAT1 ncRNA. P54NRB and PSF also play a role in the repression of STAT6-mediated transcription of Ig epsilon gene by recruiting HDAC1.
RN092PW	Anti-NONO (P54NRB) pAb	Polyclonal WB, IP, IC, IF	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	NONO (P54NRB) is one of core paraspeckle proteins that participates in the structural maintenance of paraspeckles by binding to PSF and NEAT1 ncRNA. P54NRB and PSF also play a role in the repression of STAT6-mediated transcription of Ig epsilon gene by recruiting HDAC1.
RN010MW	Anti-PIWIL1 (MIWI) mAb	2D9 IH, IF*	Mouse IgG1λ Mo, Rat*, Rab*, Marmoset*	100 µg/100 µL	PIWIL1 (MIWI) is a germ line-specific Argonaute family protein that exhibits endonuclease activity called the Slicer function. PIWIL1 is a core component of the piRISC (piRNA-induced silencing complex) involved in transposon silencing.
RN075PW	Anti-PPARGC1B pAb PGC1B	Polyclonal IP	Rabbit Ig (aff.) Hu	100 µL	PPARGC1B, a member of PGC-1 family, is involved in mitochondrial biogenesis. PPARGC1B regulates the expression of cytochrome c, ATP synthase β and ALAS-1 genes via interacting with transcription factors NRF1 and ERR.
RN067PW	Anti-PPP1R10 pAb PNUTS, CAT53	Polyclonal WB, IP, IC, IF	Rabbit Ig (aff.) Hu, Mo, Ham	100 µL	PPP1R10, containing 7 RGG motifs in the C-terminus, selectively binds to the poly(A) and poly(G) sequences of mRNA. PPP1R10 plays a role in transcriptional repression by binding to LCP1 co-localized in nuclear speckles.
RN015MW	Anti-PSPC1 (PSP1) mAb	1L4 WB, IP, IC, IH	Mouse IgG1κ Hu, Mo, Rat	100 µg/100 µL	PSPC1 (PSP1), one of core paraspeckle proteins, is required for the structural maintenance of paraspeckles. PSP1 belongs to the DBHS family that is involved in RNA processing, splicing and transcription.
RN014MW	Anti-SFPQ (PSF) mAb	C23 WB, IP, IC, IH	Mouse IgG2aκ Hu, Mo, Rat, Ham	100 µg/100 µL	SFPQ (PSF) is one of core paraspeckle proteins that participates in the structural maintenance of paraspeckles by binding to P54NRB and NEAT1 ncRNA. PSF and P54NRB also play a role in the repression of STAT6-mediated transcription of Ig epsilon gene by recruiting HDAC1.
RN106PW	Anti-SFPQ (PSF) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 µL	SFPQ (PSF) is one of core paraspeckle proteins that participates in the structural maintenance of paraspeckles by binding to P54NRB and NEAT1 ncRNA. PSF and P54NRB also play a role in the repression of STAT6-mediated transcription of Ig epsilon gene by recruiting HDAC1.
RN107PW	Anti-TARDBP (TDP-43) pAb	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Ham	100 µL	TARDBP (TDP-43) is a nuclear DNA/RNA binding protein involved in the regulation of mRNA splicing, nuclear export, stability, miRNA biogenesis and transcription. TDP-43 functions as a transcriptional repressor of HIV-1 TAR DNA and mouse Sp-10 gene by binding to their promoter regions.

<Mitochondrial biogenesis>

Code	Product Gene name	Clone Applications	Isotype Reactivity	Size	Function, localization, etc.
RBP Antibody					
RN050PW	Anti-GRSF1 pAb	Polyclonal WB, IP, IC*, IF*	Rabbit Ig (aff.) Hu	100 µL	GRSF1 localizes to mitochondrial RNA granules and plays a role in the regulation of processing and translation of mitochondrial RNAs.
RN075PW	Anti-PPARGC1B pAb PGC1B	Polyclonal IP	Rabbit Ig (aff.) Hu	100 µL	PPARGC1B, a member of the PGC-1 family, is involved in mitochondrial biogenesis. PPARGC1B regulates the expression of cytochrome c, ATP synthase b and ALAS-1 genes via interaction with transcription factors NRF1 and ERR.
RN076PW	Anti-PPRC1 pAb PRC	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 µL	PPRC1, belonging to the PGC-1 family, exhibits similar functions as PGC1β and may be related to mitochondrial biogenesis.

RNA modification

Some nucleobases and backbone sugar in RNA nucleosides are naturally modified *in vivo* and the modifications epigenetically contribute to the regulation of gene expression. Typical examples include repression of transcription by DNA methylation and regulation of translation by tRNA modification. It is reported that the modification state changes in RNA nucleosides are closely related to embryonic development, circadian rhythm and various disorders such as cancer.



Code	Product Gene name	Clone Applications	Isotype Reactivity	Size	Function, localization, etc.
RIP-Certified Antibody					
RN011M	Anti-2,2,7-trimethylguanosine (m ₃ G/TMG) mAb	C1-36 IP, RIP, IC, IF	Mouse IgG2bκ m ₃ G	200 μg/200 μL	2,2,7-trimethylguanosine (m ₃ G/TMG) is a modified nucleoside at the 5'-cap site of U snRNAs except for U6 snRNA. m ₃ G-capped U snRNAs form U snRNP particles and play a role in the regulation of pre-mRNA splicing.

RBP Antibody					
RN126PW	Anti-AHCY (SAHH) pAb AdoHcyase	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat, Ham	100 μL	AHCY (SAHH) is the only enzyme that catalyzes the reversible hydrolysis of S-adenosylhomocysteine to adenosine and homocysteine. SAHH is involved in the regulation of intracellular methylation processes.
RN122PW	Anti-ALKBH5 pAb ABH5, OFOX1	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo	100 μL	ALKBH5 is a mammalian m ^A demethylase, which is localized in nuclear speckles and catalyzes the direct removal of the m ^A modification on nuclear RNA. The demethylation activity of ALKBH5 affects RNA processing and RNA export.
RN121PW	Anti-FTO (Human) pAb ALKBH9, KIAA1752	Polyclonal WB, IP, CLIP*	Rabbit Ig (aff.) Hu	100 μL	FTO gene, a risk factor for obesity, encodes N ⁶ -methyladenosine (m ^A) demethylase. The FTO protein, which is localized to nuclear speckles, catalyzes the demethylation of m ^A by converting m ^A to N ⁶ -hydroxymethyladenosine (hm ^A) and N ⁶ -formyladenosine (f ^A).
RN125PW	Anti-HENMT1 pAb HEN1, C1orf59	Polyclonal WB	Rabbit Ig (aff.) Hu, Mo, Rat	100 μL	HENMT1, a small RNA 2'-O-methyltransferase, mediates piRNA stabilization by adding a 2'-O-methyl group to the 3'-end of mammalian piRNAs. HENMT1 is preferentially expressed in testis and is required for mouse spermatogenesis.
RN052PW	Anti-HNRNPC pAb hnRNP C1/C2	Polyclonal WB, IP, CLIP*	Rabbit Ig (aff.) Hu, Mo	100 μL	HNRNPC is a hnRNP family protein that plays a role in the regulation of processing, nuclear export, stabilization and translation. The m ^A modification affects the accessibility of HNRNPC to the target RNA containing m ^A .
RN127PW	Anti-NSUN2 (Human) pAb MISU, MRT5, SAKI, TRM4	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 μL	NSUN2, identified as tRNA m ^C methyltransferase, catalyzes the conversion of cytidine to m ^C in tRNAs, mRNAs, and miRNAs. It is reported that modifications by NSUN2 may affect stabilization, translation and miRNA biogenesis.
RN124PW	Anti-RNMT (Human) pAb KIAA0398, RG7MT1	Polyclonal WB, IP	Rabbit Ig (aff.) Hu	100 μL	RNMT is the enzyme that catalyzes the methylation of the guanosine cap at the N-7 position to produce the 7-methylguanosine cap. RNMT consists of a methyltransferase domain and an N-terminal non-catalytic domain that is required for RNMT recruitment to transcription initiation sites.
RN128PW	Anti-TRMT6 (Human) pAb KIAA1153, TRM6	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Ham (w)	100 μL	tRNA m ^A 58 methyltransferase (m ^A 58 MTase) catalyzes the conversion of A to m ^A at position 58 in initiator methionyl-tRNA. Human m ^A 58 MTase consists of a heterotetramer formed by TRMT6 and TRMT61, an RNA-binding component, and a catalytic component.
RN130PW	Anti-TRMT61A (Human) pAb C14orf172, TRM61	Polyclonal WB	Rabbit Ig (aff.) Hu	100 μL	tRNA m ^A 58 methyltransferase (m ^A 58 MTase) catalyzes the conversion of A to m ^A at position 58 in initiator methionyl-tRNA. Human m ^A 58 MTase consists of a heterotetramer formed by TRMT6 and TRMT61, an RNA-binding component, and a catalytic component.
RN123PW	Anti-YTHDF2 pAb CAHL, HGRG8, NY-REN-2	Polyclonal WB, IP	Rabbit Ig (aff.) Hu, Mo, Rat (w), Ham	100 μL	YTHDF2, known as an m ^A reader protein, mediates the degradation of m ^A -containing mRNAs in the cytoplasm. Under heat shock stress, YTHDF2 translocates to the nucleus and protects stress-induced transcripts from demethylation by binding to m ^A in the mRNAs.

<Antibodies against modified nucleic acids>

Code	Product	Clone	Isotype	Applications	Reactivity	Size
D345-3	Anti-1-methyladenosine (m ¹ A) mAb	AMA-2	Mouse IgG2bκ	IP, IC, IH, ELISA*, Other*	m ¹ A	100 μg/100 μL
PM077	Anti-5-hydroxymethylcytosine (5hmC) pAb	Polyclonal	Rabbit Ig (aff.)	WB, IP, IH	5hmC	100 μL
D346-3	Anti-5-methylcytosine (m ⁵ C) mAb	FMC-9	Mouse IgG2aλ	WB, IP, IC, IH, ELISA*, Other*	m ⁵ C, 5mC	100 μg/100 μL
MI-11-3	Anti-Bromodeoxyuridine mAb	2B1	Mouse IgG1	IP, FCM, IC*, IH	BrdU, BrU, IdU, IU, CldU	100 μg/100 μL
MI-11-5	Anti-Bromodeoxyuridine mAb-PE	2B1	Mouse IgG1	FCM	BrdU, BrU, IdU, IU, CldU	1 mL (50 tests)
D347-3	Anti-Pseudouridine mAb	APU-6	Mouse IgG1κ	IC, IH, ELISA*, Other*	ψ	100 μg/100 μL

Related products

<Rack, Beads>

Code	Product	Size
3190	Magnetic Rack	1.5 mL x 8 tubes
MJS002V2	Protein G-Magnetic Beads	10 mL (1% slurry)

<Antibodies>

Code	Product	Clone	Isotype	Applications	Reactivity	Size
D216-3	Anti-hnRNP-A2/B1 mAb	C20308	Mouse IgM	WB, IC	Hu, Mo	100 µg/100 µL
D356-3	Anti-Jmjd1c (Mouse) mAb	13B	Mouse IgG1κ	WB, IH	Mo	100 µg/100 µL
PM055	Anti-Lin28 pAb	Polyclonal	Rabbit Ig (aff.)	WB, IP, IC	Hu, Mo	100 µL
M229-3	Anti-MECP2 mAb	2-8	Rat IgG2ακ	WB, ChIP, IH	Hu, Mo	100 µg/100 µL
M207-3	Anti-MitoPLD (Pld6) mAb	26C46-6	Mouse IgG2bκ	WB, IP, IH	Mo	100 µg/100 µL
D270-3	Anti-Musashi (Msi1) mAb	14H1	Rat IgG2ακ	WB, IH	Hu, Mo, Rat	100 µg/100 µL
D270-6	Anti-Musashi (Msi1) mAb-Biotin	14H1	Rat IgG2ακ	IH	Mo	100 µL
M019-3	Anti-Nucleolin mAb	4E2	Mouse IgG1	WB, IP*, FCM, IC, IH, Other*	Hu, Mky*, Dog*	100 µg/100 µL
PD043	Anti-Phospho-SF3B1 (Sap155) (Ser129) pAb	Polyclonal	Rabbit Ig (aff.)	WB	Hu, Mo	100 µL
PM043	Anti-PIWIL2 (MILI) (Mouse) pAb	Polyclonal	Rabbit Ig (aff.)	IP, IH	Mo	100 µL
PM044	Anti-PIWIL2 (MILI) (Mouse) pAb	Polyclonal	Rabbit Ig (aff.)	WB, IP, RIP*	Mo	100 µL
M041-3	Anti-PML (Human) mAb	1B9	Mouse IgG1	WB, IP*, FCM, IC, IF	Hu	100 µg/100 µL
PM001	Anti-PML (Human) pAb	Polyclonal	Rabbit Ig (aff.)	FCM, IC, IF	Hu	100 µL
K0196-3	Anti-PML (Mouse) mAb	36-1-104	Mouse IgG2b	WB, IC, IF	Mo	100 µg/100 µL
D171-3	Anti-Prp3 mAb	4E3	Rat IgG2α	WB, IP, IC, IH*, IF*, RIP*	Hu, Mo, Rat, Ham	100 µg/100 µL
PD009	Anti-rck (p54) pAb	Polyclonal	Rabbit Ig (aff.)	WB, IC*, IH	Hu, Mo, Rat, Mky*	100 µL
D138-3	Anti-Sap155 mAb	1A5	Mouse IgG2b	WB	Hu, Mo, Ham	100 µg/100 µL
D221-3	Anti-Sap155 mAb	16	Mouse IgG2b	WB, IP, IC	Hu, Mo	100 µg/100 µL

<Isotype controls>

Code	Product	Clone	Isotype	Size
M075-3	Mouse IgG1 (isotype control)	2E12	Mouse IgG1κ	100 µg/100 µL
M076-3	Mouse IgG2a (isotype control)	6H3	Mouse IgG2ακ	100 µg/100 µL
M077-3	Mouse IgG2b (isotype control)	3D12	Mouse IgG2bκ	100 µg/100 µL
M078-3	Mouse IgG3 (isotype control)	6A3	Mouse IgG3	100 µg/100 µL
M079-3	Mouse IgM (isotype control)	7E10	Mouse IgM	100 µg/100 µL
M080-3	Rat IgG1 (isotype control)	1H5	Rat IgG1κ	100 µg/100 µL
M081-3	Rat IgG2a (isotype control)	2H3	Rat IgG2ακ	100 µg/100 µL
M082-3	Rat IgG2c (isotype control)	6E12	Rat IgG2c	100 µg/100 µL
M090-3	Rat IgG2b (isotype control)	3G8	Rat IgG2bκ	100 µg/100 µL
PM035	Normal Rabbit IgG	Polyclonal	Rabbit IgG	500 µg/100 µL

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