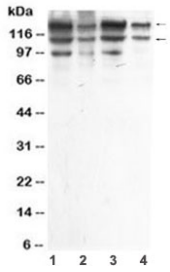
# ADAR1 Antibody / Adenosine deaminase acting on RNA (R32461)

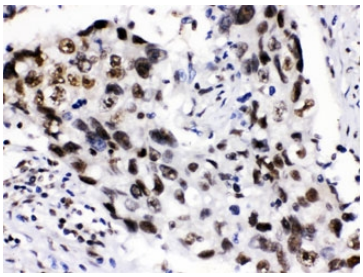
| Catalog No. | Formulation | Size |
|---|---|---|
| R32461 | 0.5mg/ml if reconstituted with 0.2ml sterile DI water | 100 ug |

**Bulk quote request**

| | |
|---|---|
| **Availability** | 1-3 business days |
| **Species Reactivity** | Human |
| **Format** | Antigen affinity purified |
| **Host** | Rabbit |
| **Clonality** | Polyclonal (rabbit origin) |
| **Isotype** | Rabbit IgG |
| **Purity** | Antigen affinity |
| **Buffer** | Lyophilized from 1X PBS with 2.5% BSA and 0.025% sodium azide |
| **UniProt** | P55265 |
| **Localization** | Nuclear |
| **Applications** | Western Blot : 0.5-1ug/ml<br>IHC (FFPE) : 1-2ug/ml |
| **Limitations** | This ADAR1 antibody is available for research use only. |




Western blot analysis of ADAR using anti-ADAR antibody. Lane 1: human HeLa whole cell lysate; Lane 2: human A549 whole cell lysate; Lane 3: human MCF-7 whole cell lysate; Lane 4: human HepG2 whole cell lysate. Adenosine deaminase acting on RNA has a predicted molecular weight of approximately 134 kDa. In these samples, ADAR is detected as two major bands migrating at approximately 150 kDa and 110 kDa, corresponding to known ADAR isoforms that differ in N-terminal length and regulatory domain composition. Differential expression of these isoforms across cell types results in variable band intensity and apparent molecular weight on SDS-PAGE.



IHC testing of FFPE human lung cancer tissue with ADAR1 antibody at 1ug/ml. HIER: steam in pH6 citrate buffer and allow to cool prior to staining.

## Description

ADAR1 antibody targets Adenosine deaminase acting on RNA 1, an RNA editing enzyme encoded by the ADAR gene that exists in multiple isoforms and plays a central role in post-transcriptional RNA modification. ADAR1 catalyzes the deamination of adenosine to inosine within double-stranded RNA regions, a process that can alter coding sequences, RNA structure, and regulatory elements. Through this editing activity, ADAR1 contributes to transcriptome diversity and fine-tuning of gene expression across a wide range of biological contexts.

ADAR1 is produced as two principal isoforms, commonly referred to as p110 and p150, which arise from alternative promoter usage and differential N-terminal sequences. The p110 isoform is predominantly localized to the nucleus and is constitutively expressed in many cell types, whereas the p150 isoform contains an extended N-terminal region and is mainly localized to the cytoplasm. Expression of the p150 isoform is inducible by interferon signaling, linking ADAR1 activity to innate immune responses and cellular defense mechanisms. A short functional summary is that ADAR1 acts as a key RNA editor that modulates both gene expression and immune signaling through isoform-specific localization and activity.

Structurally, ADAR1 contains multiple double-stranded RNA-binding domains that mediate selective interaction with structured RNA substrates, as well as a C-terminal deaminase domain responsible for catalytic activity. These domains enable ADAR1 to recognize diverse RNA targets, including coding transcripts, repetitive elements, and non-coding RNAs. Editing events mediated by ADAR1 can influence RNA stability, alternative splicing, microRNA processing, and translational efficiency, underscoring its broad regulatory impact.

From a biological and disease relevance perspective, ADAR1 plays an essential role in preventing aberrant activation of innate immune pathways by endogenous RNA. Loss or dysregulation of ADAR1 activity can lead to inappropriate immune stimulation and has been linked to autoimmune and inflammatory disorders. In addition, altered ADAR1 expression and RNA editing patterns have been observed in multiple cancer types, where they may contribute to tumor progression, immune evasion, or therapy resistance. These findings highlight ADAR1 as a critical regulator at the intersection of RNA biology and immune control.

An ADAR1 antibody is a valuable research tool for detecting adenosine deaminase acting on RNA 1 expression and distinguishing between its major isoforms in cellular and tissue-based systems. Detection of ADAR1 supports studies of RNA editing mechanisms, interferon-regulated signaling, innate immunity, and disease-associated alterations in RNA processing. This antibody targets ADAR1 for use in research applications focused on post-transcriptional gene regulation and immune-related RNA biology.

## Application Notes

Optimal dilution of the ADAR1 antibody should be determined by the researcher.

## Immunogen

Amino acids S128-Q346 from the human protein were used as the immunogen for the ADAR1 antibody.

## Storage

Prior to reconstitution, store at 4oC. After reconstitution, the ADAR1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.