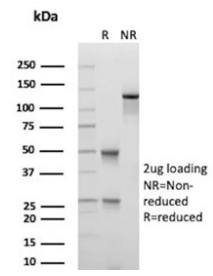
DNA-RNA Hybrid Antibody [clone S9.6] (V5831)

Catalog No.	Formulation	Size
V5831-100UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	100 ug
V5831-20UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	20 ug
V5831SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Mouse
Clonality	Monoclonal (mouse origin)
Isotype	Mouse IgG2a, kappa
Clone Name	S9.6
Purity	Protein G affinity
Localization	Nucleus
Applications	Chromatin Immunoprecipitation : per published data Flow Cytometry : per published data Immunocytochemistry : per published data Immunofluorescence : per published data
Limitations	This DNA-RNA Hybrid antibody is available for research use only.



SDS-PAGE analysis of purified, BSA-free DNA-RNA Hybrid antibody (clone S9.6) as confirmation of integrity and purity.

Description

We have not tested this antibody in-house in Immunofluorescence, CHIP, Immunocytochemistry, Immunoprecipitation or

Flow Cytometry. All application recommendations come from publications using this clone.

DNA-RNA Hybrid antibody detects nucleic acid hybrids that form naturally when an RNA transcript anneals to its DNA template, displacing the complementary DNA strand. These structures, often referred to as R loops, occur most frequently at sites of intense transcription and are increasingly recognized as regulators of gene expression, chromatin organization, replication timing, and DNA repair. Because abnormal accumulation of DNA-RNA hybrids is linked to genome instability and disease, this antibody is widely used to study transcription stress, replication conflicts, and the cellular pathways that maintain genomic integrity.

Clone S9.6 is the established monoclonal antibody for recognizing RNA-DNA hybrids in cellular samples and purified nucleic acids. Since its introduction, this clone has become a cornerstone of immunoprecipitation-based approaches such as DRIP (DNA-RNA Immunoprecipitation) and DRIP-seq, which have enabled genome-wide mapping of hybrid-enriched regions. These methods revealed that hybrids are enriched at promoters, gene bodies, and transcriptional terminators, particularly under conditions that perturb elongation, splicing, or RNA export. The widespread adoption of clone S9.6 has shaped current understanding of how transcription and RNA processing intersect with DNA metabolism.

Because non-specific signals can arise, proper controls are essential. The most widely accepted control is enzymatic treatment with RNase H, which specifically degrades the RNA strand of RNA-DNA hybrids. Loss of signal following RNase H digestion confirms that observed staining or enrichment reflects genuine hybrid structures. This control is incorporated into both genome-wide and imaging assays, ensuring that results obtained with the antibody are biologically meaningful.

Studies of clone S9.6 have also highlighted key considerations in its use. The antibody has measurable binding affinity for double-stranded RNA, which can confound results if abundant ribosomal RNA or structured transcripts are present. Researchers address this limitation by including RNase H digestion, reducing RNA background, and validating results with complementary approaches. These refinements have reinforced the antibodyÃ¢Â€Â™s utility and helped establish best practices for hybrid detection in diverse contexts.

Structural and biochemical work has shown that clone S9.6 preferentially binds A-form hybrid helices, explaining its high specificity for RNA-DNA duplexes and its lower but detectable affinity for double-stranded RNA. These insights have guided optimization of experimental protocols and clarified why certain genomic regions yield stronger signals. Advances in parallel tools, such as catalytically inactive RNase H1 probes, now complement clone S9.6 in visualizing hybrids, but the antibody remains the gold standard for enrichment-based mapping and quantitative assays.

Applications of the DNA-RNA Hybrid antibody span multiple disciplines. In genome stability research, it has been used to explore how hybrids accumulate at fragile sites, cause replication stress, and trigger DNA damage responses. In oncology, it has helped reveal how dysregulated transcription, defective RNA processing, or impaired hybrid resolution contribute to tumorigenesis. In basic biology, it has provided insights into how hybrids influence transcription termination, epigenetic modifications, and recombination. Through consistent use, clone S9.6 has proven indispensable in linking nucleic acid structures to fundamental processes in cell biology.

NSJ Bioreagents supplies this DNA-RNA Hybrid antibody to support investigations into transcription regulation, genome integrity, and R loop biology. Alternate names include RNA-DNA hybrid antibody, R loop antibody, hybrid duplex antibody, and DNA-RNA duplex antibody. Clone S9.6 has been consistently employed in peer-reviewed publications that map hybrid formation, refine detection protocols, and establish the functional importance of these structures across eukaryotic systems.

Clone S9.6 bound the DNA-RNA heteropolymer and poly(I)-poly(dC) equally, but 100-fold higher levels of poly(A)-poly(dT) were required to achieve a similar degree of binding. Single-stranded DNA, double-stranded DNA and RNA, and ribosomal RNA were not bound by clone S9.6 (Boguslawski, S.J., et al. (1986). J. Immunol Methods. 89(1):123-130).

Application Notes

Optimal dilution of the DNA-RNA Hybrid antibody should be determined by the researcher.

Immunogen

A DNA-RNA heteropolymer duplex prepared by transcription of phi X174 single-stranded DNA with DNA-dependent RNA polymerase was used as the immunogen for the DNA-RNA Hybrid antibody.

Storage

Aliquot the DNA-RNA Hybrid antibody and store frozen at -20oC or colder. Avoid repeated freeze-thaw cycles.