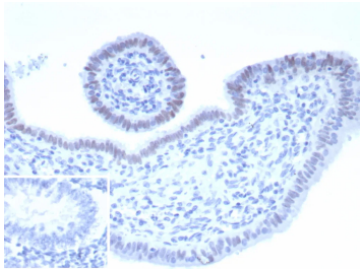
Paired box protein 2 Antibody / PAX2 [clone rPAX2/8506] (V5963)

Catalog No.	Formulation	Size
V5963-100UG	0.2 mg/ml in 1X PBS with 0.05% BSA, 0.05% sodium azide	100 ug
V5963-20UG	0.2 mg/ml in 1X PBS with 0.05% BSA, 0.05% sodium azide	20 ug
V5963SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

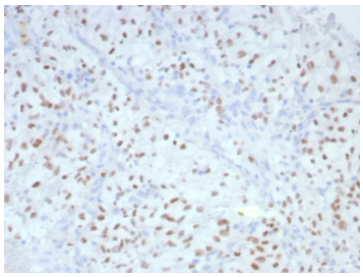
Recombinant MOUSE MONOCLONAL

Bulk quote request

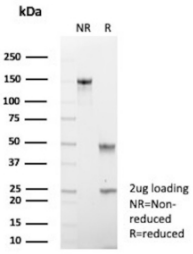
Species Reactivity	Human
Format	Purified
Host	Mouse
Clonality	Recombinant Mouse Monoclonal
Isotype	Mouse IgG1, kappa
Clone Name	rPAX2/8506
UniProt	Q02962
Localization	Nucleus
Applications	Immunohistochemistry (FFPE) : 1-2ug/ml
Limitations	This Paired box protein 2/PAX2 antibody is available for research use only.



Immunohistochemistry analysis of Paired box protein 2 / PAX2 antibody in human endometrium. FFPE human endometrium tissue was stained with Paired box protein 2 / PAX2 antibody (clone rPAX2/8506). HRP-DAB brown chromogenic signal is observed predominantly in the nuclei of glandular epithelial cells lining the endometrial glands, consistent with the expected nuclear localization of PAX2. Stromal cells show minimal to no specific staining. Nuclei are counterstained blue. The inset image shows PBS used instead of primary antibody, demonstrating absence of specific HRP-DAB brown staining and confirming staining specificity. Heat-induced epitope retrieval was performed in 10 mM Tris with 1 mM EDTA, pH 9.0, for 45 minutes at 95oC followed by cooling at room temperature for 20 minutes prior to antibody incubation.



Immunohistochemistry analysis of Paired box protein 2 / PAX2 antibody in human renal cell carcinoma. FFPE human renal cell carcinoma tissue was stained with Paired box protein 2 / PAX2 antibody (clone rPAX2/8506). HRP-DAB brown chromogenic signal is observed predominantly in the nuclei of tumor epithelial cells, consistent with the expected nuclear localization of PAX2. Tumor cells show strong nuclear brown staining with minimal cytoplasmic background, while surrounding stromal components display little to no specific signal. Nuclei are counterstained blue. Heat-induced epitope retrieval was performed in 10 mM Tris with 1 mM EDTA, pH 9.0, for 45 minutes at 95oC followed by cooling at room temperature for 20 minutes prior to antibody incubation.



SDS-PAGE Analysis of Purified Paired box protein 2/PAX2 antibody (rPAX2/8506). Confirmation of Purity and Integrity of Antibody.

Description

Paired box protein 2 antibody, also known as PAX2 antibody, recognizes a nuclear transcription factor commonly referred to as Paired box protein Pax-2 and Paired box gene 2. Paired box protein 2 is encoded by the PAX2 gene located on chromosome 10q24 and belongs to the paired box family of developmental regulators. The protein localizes predominantly to the nucleus, where it functions as a DNA-binding transcription factor controlling gene expression during embryogenesis and tissue differentiation. PAX2 is highly expressed during kidney, urogenital tract, eye, ear, and central nervous system development, with limited expression in most normal adult tissues.

Paired box protein 2 plays a central role in nephric duct formation, renal morphogenesis, and optic nerve development by regulating genes involved in cell proliferation, survival, and lineage specification. Through its transcriptional activity, it coordinates developmental signaling pathways including Wnt and growth factor-mediated cascades. Paired box protein 2 antibody is widely used in developmental biology and tumor research to study renal differentiation and to identify neoplasms of renal or Mullerian origin. In adult tissues, PAX2 expression can be reactivated during tissue repair or oncogenic transformation.

Structurally, Paired box protein 2 contains a conserved paired DNA-binding domain and a partial homeodomain that enable sequence-specific transcriptional regulation. It interacts with co-regulators and chromatin-modifying complexes to activate or repress target genes. Alternative splicing generates multiple isoforms that may contribute to tissue-specific regulatory functions and developmental stage-dependent expression patterns.

Dysregulated PAX2 expression is associated with tumorigenesis. Elevated nuclear PAX2 levels are frequently detected in renal cell carcinoma, Wilms tumor, ovarian carcinoma, and certain endometrial carcinomas. Its characteristic nuclear staining pattern in tumor epithelial cells makes it a valuable diagnostic biomarker in pathology. Germline mutations in PAX2 are linked to congenital anomalies of the kidney and urinary tract, highlighting its importance in organ development.

Paired box protein 2 antibody supports research in embryonic development, renal pathology, and cancer biology. Recombinant monoclonal clone rPAX2/8506 recognizes PAX2 and is suitable for detecting Paired box protein 2 expression in relevant research applications.

Application Notes

Optimal dilution of the Paired box protein 2/PAX2 antibody should be determined by the researcher.

Immunogen

A recombinant fragment (around amino acids 223-354) of human PAX2 protein (exact sequence is proprietary) was used as the immunogen for the Paired box protein 2/PAX2 antibody.

Storage

Paired box protein 2/PAX2 antibody with sodium azide - store at 2 to 8oC; antibody without sodium azide - store at -20 to -80oC.