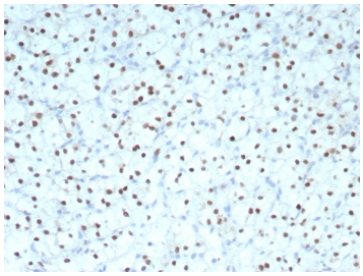
PAX2 Antibody [clone PAX2/8671R] (V4114)

Catalog No.	Formulation	Size
V4114-100UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	100 ug
V4114-20UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	20 ug
V4114SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

Recombinant RABBIT MONOCLONAL

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG, kappa
Clone Name	PAX2/8671R
Purity	Protein A/G affinity
UniProt	Q02962
Localization	Nucleus
Applications	Immunohistochemistry (FFPE) : 1-2ug/ml for 30 minutes at RT
Limitations	This PAX2 antibody is available for research use only.



Immunohistochemistry analysis of PAX2 antibody in human renal cell carcinoma. FFPE human renal cell carcinoma tissue was stained with PAX2 antibody (clone PAX2/8671R) at 2 ug/ml. HRP-DAB brown chromogenic signal is observed predominantly in the nuclei of tumor epithelial cells, consistent with the expected nuclear localization of Paired box protein 2. Tumor cells show strong nuclear brown staining, while surrounding stromal elements display minimal to no signal. Heat-induced epitope retrieval was performed by boiling tissue sections in 10 mM Tris with 1 mM EDTA, pH 9, for 20 minutes followed by cooling prior to antibody incubation.

Description

PAX2 antibody, also known as Paired box protein 2 antibody, recognizes a nuclear transcription factor commonly referred to as Paired box gene 2 and PAX-2. Paired box protein 2 is encoded by the PAX2 gene located on chromosome 10q24

and belongs to the paired box family of developmental transcription factors. The protein localizes predominantly to the nucleus, where it functions as a DNA-binding regulator of gene expression during embryogenesis and tissue differentiation. PAX2 is highly expressed during kidney, urogenital tract, eye, ear, and central nervous system development, with more restricted expression in select adult tissues.

Paired box protein 2 plays a critical role in organogenesis by regulating genes involved in cell proliferation, survival, and lineage specification. It is essential for nephric duct formation, kidney morphogenesis, and optic nerve development. PAX2 antibody is widely used in research and diagnostic pathology to study renal development and to identify tumors of renal and Mullerian origin. In adult tissues, PAX2 expression is typically low or absent, but it can be reactivated in regenerative settings and in certain cancers.

Structurally, Paired box protein 2 contains a conserved paired DNA-binding domain and a partial homeodomain that mediate sequence-specific transcriptional regulation. It functions through interaction with co-regulators and chromatin remodeling complexes to activate or repress target genes. PAX2 participates in signaling pathways that include Wnt, Notch, and growth factor-mediated cascades, integrating developmental cues with transcriptional control. Isoform variation resulting from alternative splicing contributes to tissue-specific regulatory functions.

Aberrant PAX2 expression has been implicated in oncogenesis. Elevated PAX2 levels are frequently observed in renal cell carcinoma, Wilms tumor, ovarian carcinoma, and certain endometrial carcinomas. Its nuclear localization in tumor cells makes it a valuable biomarker for distinguishing primary renal neoplasms from other malignancies. In addition, PAX2 dysregulation has been associated with congenital anomalies of the kidney and urinary tract due to its developmental regulatory role.

PAX2 antibody supports investigation of embryonic development, renal pathology, and tumor biology. Clone PAX2/8671R recognizes Paired box protein 2 and is suitable for detecting PAX2 expression in relevant research applications.

Application Notes

Optimal dilution of the PAX2 antibody should be determined by the researcher.

Immunogen

A recombinant partial protein (within amino acids 223-354) from the human protein was used as the immunogen for the PAX2 antibody.

Storage

Aliquot the PAX2 antibody and store frozen at -20oC or colder. Avoid repeated freeze-thaw cycles.