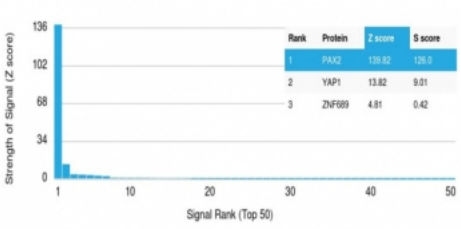
PAX2 Antibody / Paired box protein 2 [clone PAX2/2994] (V4113)

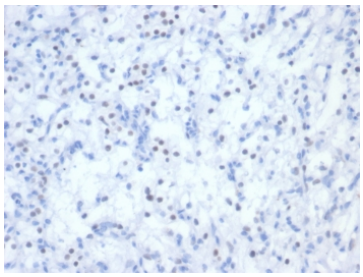
Catalog No.	Formulation	Size
V4113-100UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	100 ug
V4113-20UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	20 ug
V4113SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Mouse
Clonality	Monoclonal (mouse origin)
Isotype	Mouse IgG
Clone Name	PAX2/2994
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.



Analysis of a HuProt(TM) microarray containing more than 19,000 full-length human proteins using PAX2 antibody (clone PAX2/2994). Z- and S- Score: The Z-score represents the strength of a signal that a monoclonal antibody (in combination with a fluorescently-tagged anti-IgG secondary antibody) produces when binding to a particular protein on the HuProt(TM) array. Z-scores are described in units of standard deviations (SD's) above the mean value of all signals generated on that array. If targets on HuProt(TM) are arranged in descending order of the Z-score, the S-score is the difference (also in units of SD's) between the Z-score. S-score therefore represents the relative target specificity of a mAb to its intended target. A mAb is considered to specific to its intended target, if the mAb has an S-score of at least 2.5. For example, if a mAb binds to protein X with a Z-score of 43 and to protein Y with a Z-score of 14, then the S-score for the binding of that mAb to protein X is equal to 29.



IHC staining of FFPE human renal cell carcinoma tissue with PAX2 antibody (clone PAX2/2994). HIER: boil tissue sections in pH 9 10mM Tris with 1mM EDTA for 20 min and allow to cool before testing.

Description

PAX2 antibody, also known as Paired box protein Pax-2 antibody, recognizes a nuclear transcription factor commonly referred to as Paired box protein 2 and Paired box gene 2. Paired box protein Pax-2 is encoded by the PAX2 gene located on chromosome 10q24 and is a member of the paired box family of developmental transcription factors. The protein localizes predominantly to the nucleus, where it regulates gene expression programs essential for embryonic development and organogenesis. PAX2 is highly expressed during kidney, urogenital tract, optic nerve, ear, and central nervous system development, with limited expression in most adult tissues.

Paired box protein Pax-2 functions as a DNA-binding transcriptional regulator that controls genes involved in cell proliferation, differentiation, and survival. It plays a central role in nephric duct formation and renal morphogenesis and is required for proper development of the Mullerian system and optic structures. PAX2 antibody is widely used to investigate renal development and is a well-established marker in the evaluation of renal and Mullerian-derived tumors. In adult tissues, PAX2 expression may be reactivated during tissue repair or in oncogenic contexts.

Structurally, Paired box protein Pax-2 contains a conserved paired DNA-binding domain and a partial homeodomain that mediate sequence-specific transcriptional control. Through interaction with co-activators and co-repressors, it modulates chromatin accessibility and downstream gene transcription. PAX2 participates in signaling networks that include Wnt and growth factor pathways, integrating developmental signals with transcriptional regulation. Alternative splicing generates isoforms that may contribute to tissue-specific regulatory functions.

Aberrant PAX2 expression has been linked to tumorigenesis. Elevated nuclear PAX2 expression is frequently observed in renal cell carcinoma, Wilms tumor, ovarian carcinoma, and certain endometrial carcinomas. Its nuclear staining pattern in tumor epithelial cells makes it a valuable biomarker for identifying neoplasms of renal origin and distinguishing them from morphologically similar malignancies. Germline mutations in PAX2 are also associated with congenital anomalies of the kidney and urinary tract, underscoring its developmental importance.

PAX2 antibody supports studies of embryogenesis, renal pathology, and cancer biology. Monoclonal clone PAX2/2994 recognizes Paired box protein Pax-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 200-400) 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.