



PRODUCT FOCUS -- Tools used in the diagnosis of renal cancer

PAX-2 and PAX-8, as kidney markers, have significantly advanced our understanding of renal development, function, and pathology. Their roles in embryonic development, coupled with their diagnostic and therapeutic implications, make them indispensable in both clinical and research settings.

Introduction

PAX-2 and PAX-8 are members of the paired box (PAX) gene family, known for their pivotal roles in embryonic development. In the context of the kidneys, these transcription factors are crucial during organogenesis. PAX-2 is expressed in the early stages of kidney development, contributing to the formation of the ureteric bud and initiating the intricate process of nephrogenesis. PAX-8, on the other hand, is essential for the differentiation of renal cells, including podocytes and proximal tubular cells.

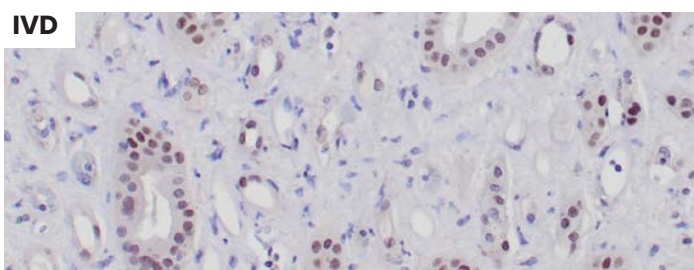
Diagnostic Importance of PAX-2 and PAX-8

The expression of PAX-2 and PAX-8 continues beyond embryonic development, making them valuable markers in diagnosing kidney-related disorders. Aberrant expression or mutations in these genes have been associated with various renal conditions, such as renal cell carcinoma and certain types of kidney malformations. Detection of PAX-2 and PAX-8 in renal tissues can aid in the accurate classification of renal tumors and assist clinicians in determining the most appropriate treatment strategies.

Clinical Applications

In the clinical realm, the assessment of PAX-2 and PAX-8 expression has become a routine part of diagnosing kidney diseases via immunohistochemistry. The detection and identification of these markers help clinician distinguish between subtypes of renal tumors and contribute to personalized treatment plans for patients.

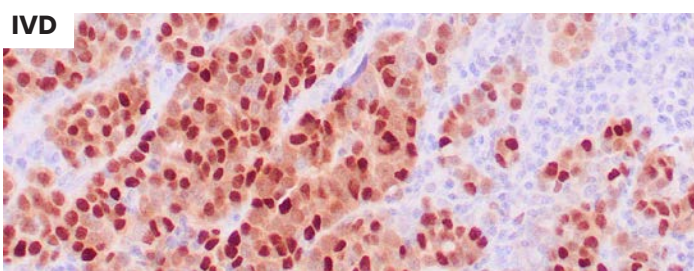
PAX-2 (rabbit monoclonal; clone ZR224) Cat#: [Z2741](#)



Note nuclear staining of tubular cells.

Formalin-fixed, paraffin-embedded human normal kidney stained with anti-PAX-2 antibody using peroxidase-conjugate and DAB chromogen.

PAX-8 (mouse monoclonal; clone ZM28) Cat#: [Z2357](#)



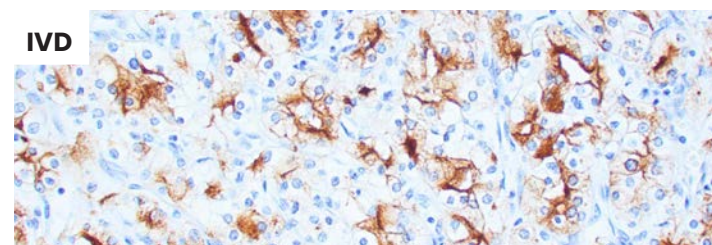
Note nuclear stain of tumor cells.

Human thyroid carcinoma stained with anti-PAX-8 antibody using peroxidase-conjugate and DAB chromogen.

Related antibodies

RCC (mouse monoclonal; clone 66.4.C2) Cat#: [Z2256](#)

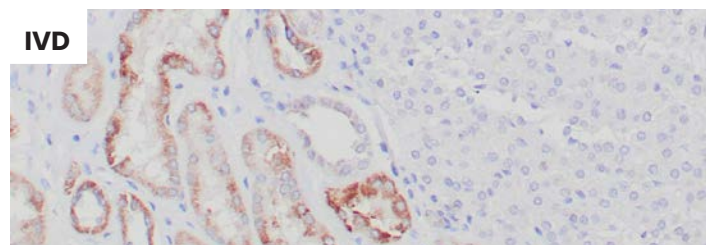
66.4.C2 may be a useful reagent in the investigations of carcinomas of proximal nephrogenic differentiation especially those showing tubular differentiation. In normal kidney, gp200 is localized along the brush border of the pars convoluta and pars recta segments of the proximal tubule, as well as focally along the luminal surface of Bowman's capsule adjoining the outgoing proximal tubule. [\(more\)](#)



Clear cell renal cell carcinoma stained with 66.4.C2

SDHB (rabbit monoclonal; clone ZR339) Cat#: [Z2645](#)

Succinate dehydrogenase B (SDHB) is a respiratory complex that catalyzes the oxidation of succinate in the mitochondrial membrane. Many cancers are generally positive for SDHB, including renal cell carcinomas and gastrointestinal stromal tumors. A subset of RCC and GIST tumors associated with SDH mutations, Carney-Stratakis Syndrome or Carney Triad exhibit a loss of SDHB expression.

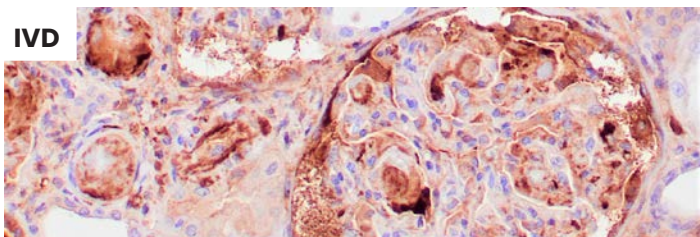


Human SDHB deficient renal cell carcinoma stained with ZR339

Related antibodies, continued

C3d (mouse monoclonal; clone ZM369) Cat#: [Z2660](#)

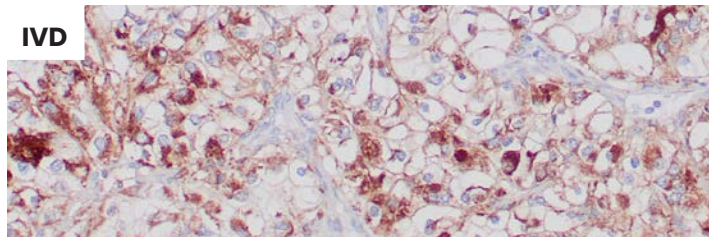
C3d plays an important role in modulation of the adaptive immune response through the interaction with CR2. CR2 is important in the switched-isotype, high-affinity and memory humoral immune responses to T-dependent foreign antigens, as well as in the development of the natural antibody repertoire. This pH- and ionic strength-dependent association of C3d with CR2 represents a link between innate and adaptive immunity.



Human transplanted kidney stained with ZM369

CA IX (rabbit monoclonal; clone ZR367) Cat#: [Z2740](#)

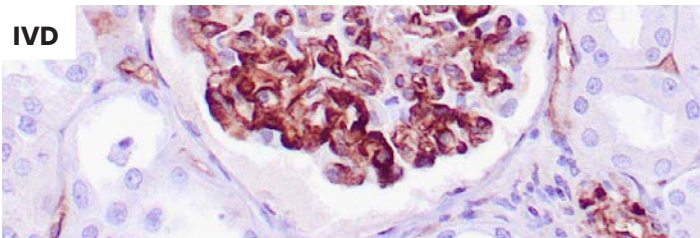
Recognizes a glycoprotein of ~200kDa, identified as carbonic anhydrase IX (CAIX/gp200). In the normal kidney, gp200 is localized along the brush border of the pars convoluta and pars recta segments of the proximal tubule and focally along the luminal surface of Bowman's capsule adjoining the outgoing proximal tubule. This MAb may help investigate carcinomas of proximal nephrogenic differentiation, especially those showing tubular differentiation.



Normal human renal tissue stained with ZR367

C4d (mouse monoclonal; clone ZM78) Cat#: [Z2388](#)

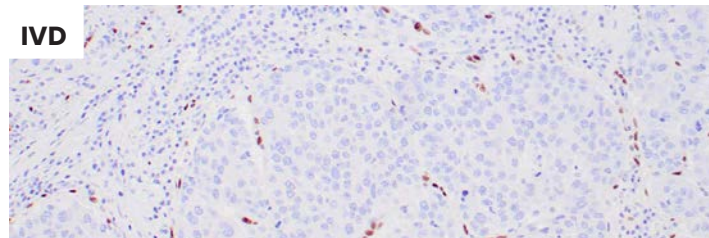
C4d is an established marker of antibody-mediated acute renal allograft rejection and its proclivity for endothelium, this component can be detected in peritubular capillaries in both chronic renal allograft rejection as well as hyperacute rejection, acute vascular rejection, acute cellular rejection, and borderline rejection. It has been shown to be a significant predictor of transplant kidney graft survival and is an aid in treating acute rejection.



Human rejected kidney stained with ZM78

Erythropoietin (mouse; clone ZM135) Cat#: [Z2445](#)

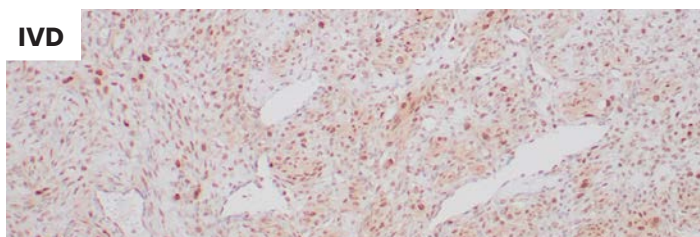
Recognizes and is *monospecific* for 37kDa, Erythropoietin (EPO). Erythropoietin is a secreted, glycosylated cytokine hormone composed of four alpha helical bundles. It is the primary factor responsible for regulating erythropoiesis during steady-state conditions and in response to blood loss and hemorrhage in the adult organism. Erythropoietin is synthesized by the kidney and stimulates the proliferation and maturation of... [\(more\)](#)



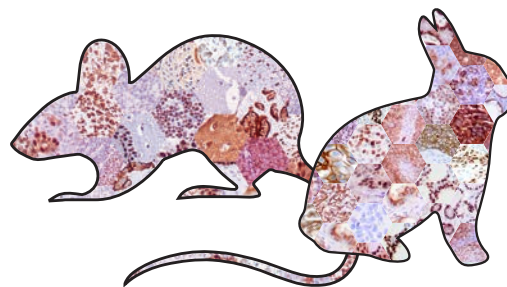
Human kidney stained with ZM135

TFE3 (rabbit monoclonal; clone ZR365) Cat#: [Z2605](#)

Transcription factor E3 belongs to the basic helix-loop-helix zipper transcription factor family. The TFE3 gene is expressed in various cells of the human body, and participates in the regulation of various genes. The rearrangement of this gene is associated with a variety of tumors, and it is highly expressed in acinar soft tissue sarcoma with TFE3 fusion gene, Xp11.2 translocation/TFE3 gene fusion-related renal cell carcinoma, and in perivascular epithelioid cell tumors.



Ovarian sclerosing stromal tumor stained with ZR365



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