

### PRODUCT FOCUS -- Tools for the Diagnosis of Kidney Cancer

**Kidney Cancer Awareness Month, March 2025** - Kidney cancer (Renal Cell Carcinoma; RCC) is one of the 10 most common cancers in both men and women in the United States, accounting for about 4% to 5% of all cancers. About 81,000 new cases of kidney cancer were diagnosed in 2024 and appx. 14,300 people died from this disease. (*American Cancer Society*)

**Immunohistochemistry (IHC)** is a critical diagnostic tool for renal cell carcinoma, helping pathologists differentiate between subtypes based on specific protein expression. **Clear Cell RCC:** Typically positive for Carbonic Anhydrase IX (CAIX), Vimentin, and PAX8, while negative for CK7. **Papillary RCC:** Often expresses CK7, AMACR (alpha-methylacyl-CoA racemase), and PAX8. **Chromophobe RCC:** Positive for CK7 and CD117 and negative for Vimentin. **Oncocytoma** (benign mimic of RCC): Expresses CD117 and CK7 (focal staining) but lacks CAIX. (*UCLA Health - Jonsson Comprehensive Cancer Center; Kim et al., Cancers (Basel). 2020 Mar 5;12(3):602*)

Zeta Corporation offers recombinant RABMono™ (Rabbit Monoclonal) and MonoMAB™ (Mouse Monoclonal) recombinant IVD antibodies researched and developed for the anatomic pathology market for Immunohistochemistry. Zeta is incorporating highly sensitive technology to develop many of these primary antibodies that are target-validated and characterized for IHC on FFPE tissue sections. Zeta provides 400+ IVD antibodies for cancer screening and diagnosis.

### Renal Markers

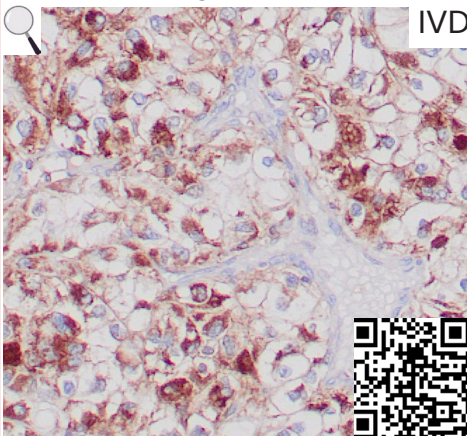
#### CAIX (clone ZR367)

Recombinant. Recognizes a glycoprotein of ~200kDa, 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. ZR367 may help investigate carcinomas of proximal nephrogenic differentiation, especially those showing tubular differentiation. [\(more\)](#)

**Species:** Rabbit Monoclonal

**Cat#:** [Z2740](#)

**IHC:** Normal human renal tissue stained with ZR367. Note the membranous staining of tubular cells.



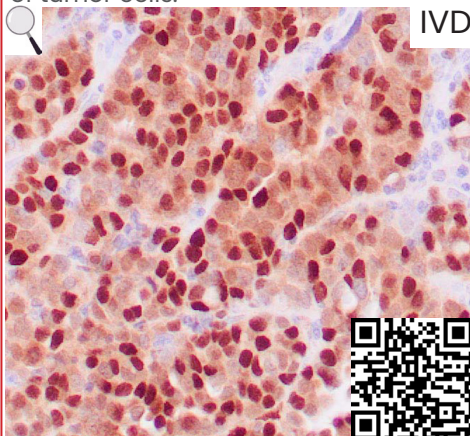
#### PAX-8 (clone ZM28)

Recombinant. Mutations in the PAX-8 gene have been associated with thyroid dysgenesis, thyroid follicular carcinomas, and atypical thyroid adenomas. PAX-8 is expressed in the thyroid (and associated carcinomas), non-ciliated mucosal cells of the fallopian tubes, and simple ovarian inclusion cysts, but not normal ovarian surface epithelial cells. PAX-8 expression is reported in renal tubules as well as renal cell carcinoma, nephroblastoma, and seminoma. [\(more\)](#)

**Species:** Mouse Monoclonal

**Cat#:** [Z2357](#)

**IHC:** Human thyroid carcinoma stained with ZM28. Note nuclear stain of tumor cells.



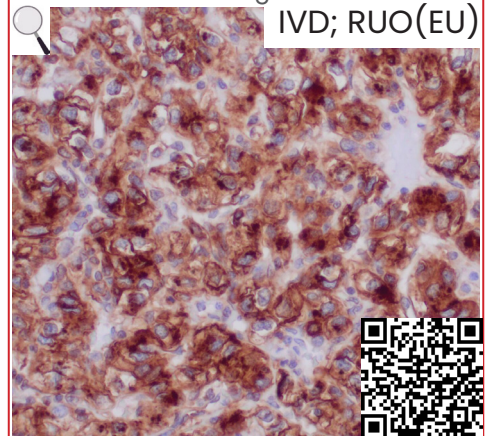
#### CD70 (clone ZR469)

Recombinant. CD70 is a cytokine that belongs to the tumor necrosis factor (TNF) ligand family and ligand for TNFRSF27/CD27. CD70 binds a 30 kDa protein that is a surface antigen on activated, but not on resting, T- and B-lymphocytes. CD70 induces the proliferation of co-stimulated T cells, enhances the generation of cytolytic T cells, and contributes to T cell activation. CD70 is also overexpressed on multiple types of solid tumors including renal cell carcinoma (RCC) and is a promising target for therapy. [\(more\)](#)

**Species:** Rabbit Monoclonal

**Cat#:** [Z2829](#)

**IHC:** Human clear cell renal cell carcinoma stained with ZR469. Note strong membranous staining of tumor cells.



## Special Renal Cell Carcinoma Markers

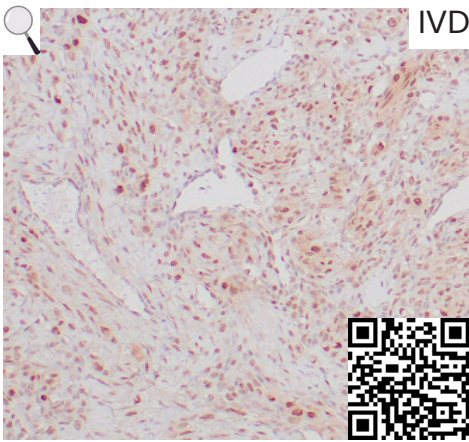
### TFE3 (clone ZR365)

Recombinant. Transcription factor E3 (TFE3) belongs to the basic helix-loop-helix zipper transcription factor family and is expressed in various human cells 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. [\(more\)](#)

**Species:** Rabbit Monoclonal

**Cat#:** **Z2605**

**IHC:** Ovarian sclerosing stromal tumor stained with ZR365. Note the nuclear staining of tumor cells.



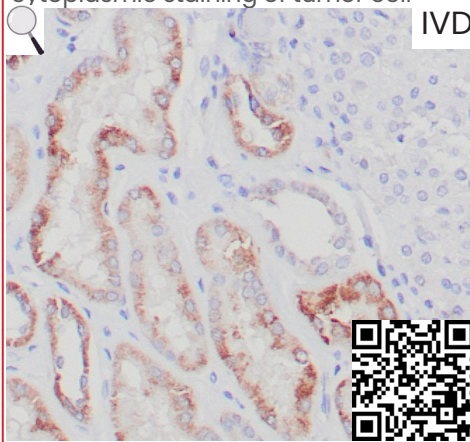
### SDHB (clone ZR339)

Recombinant. Succinate dehydrogenase B (SDHB) is a vital component of the citric acid cycle and the electron transport chain, 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. [\(more\)](#)

**Species:** Rabbit Monoclonal

**Cat#:** **Z2645**

**IHC:** Succinate dehydrogenase deficient RCC stained with ZR339. Note the cytoplasmic staining of tumor cells.



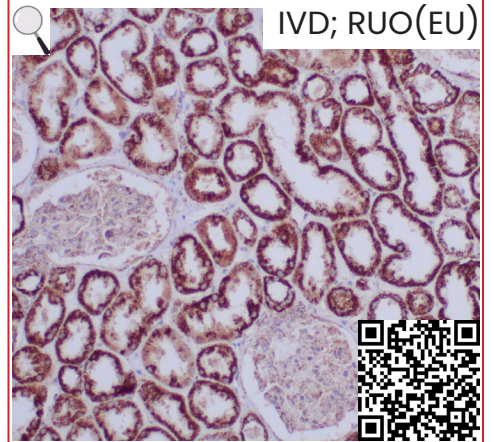
### Fumarate Hydratase (clone ZR458)

Recombinant. Fumarate Hydratase catalyzes the reversible hydration of fumarate to malate (Krebs cycle). By IHC, normal tissues with rich mitochondria, such as the kidney and liver, are strongly positive for Fumarate Hydratase (FH). Germline mutations in the Fumarate Hydratase gene cause Hereditary Leiomyomatosis and Renal Cell Cancer (HL-RCC). This genetic syndrome predisposes individuals to develop benign smooth muscle tumors (leiomyomas) and an aggressive form of kidney cancer (renal cell carcinoma). [\(more\)](#)

**Species:** Rabbit Monoclonal

**Cat#:** **Z2819**

**IHC:** Human kidney stained with ZR458. Note the cytoplasmic staining of renal tubules.



Related Antibodies	Clone	Species	Cat. #
AMACR	13H4	Rabbit	<b>Z2001</b>
C3d	ZM369	Mouse	<b>Z2660</b>
C4d	ZM78	Mouse	<b>Z2388</b>
CD10	55C6	Mouse	<b>Z2809</b>
CD117	ZR424	Rabbit	<b>Z2780</b>
CD117	ZM321	Mouse	<b>Z2628</b>
CMV	ZR456	Rabbit	<b>Z2818</b>
Cytokeratin 7	OV-TL-12/30	Mouse	<b>Z2067</b>
Cytokeratin 7	ZR428	Rabbit	<b>Z2784</b>
EP-CAM	ZM131	Mouse	<b>Z2441</b>
EP-CAM	Ber-EP4	Mouse	<b>Z2314</b>
EP-CAM / ESA	ZR307	Rabbit	<b>Z2557</b>

Related Antibodies	Clone	Species	Cat. #
EP-CAM / ESA	MOC-31	Mouse	<b>Z2162</b>
Galectin-3	ZM182	Mouse	<b>Z2487</b>
Galectin-3	ZR430	Rabbit	<b>Z2786</b>
Inhibin- $\alpha$	R1	Mouse	<b>Z2115</b>
Inhibin- $\alpha$	ZM113	Mouse	<b>Z2413</b>
Ki-67	MIB-1	Mouse	<b>Z2305</b>
Ki-67	ZM67	Mouse	<b>Z2377</b>
Ki-67	ZR433	Rabbit	<b>Z2789</b>
PAX-2	ZR224	Rabbit	<b>Z2741</b>
PTEN	ZR235	Rabbit	<b>Z2711</b>
RCC	66.4.C2	Mouse	<b>Z2256</b>
Vimentin	ZR381	Rabbit	<b>Z2672</b>

