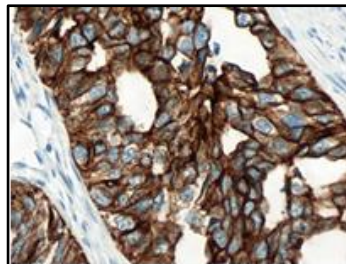


## CONFIRM anti-Cytokeratin 7 (SP52) Rabbit Monoclonal Primary Antibody

**REF** 790-4462  
05986818001

**IVD**  $\Sigma$  50



**Figure 1. Lung Carcinoma stained with CONFIRM anti-Cytokeratin 7 (SP52) Rabbit Monoclonal Primary Antibody and the ultraView Universal DAB Detection Kit**

The antibody is intended for qualitative staining in sections of formalin fixed, paraffin embedded tissue.

This product should be interpreted by a qualified pathologist in conjunction with histological examination, relevant clinical information and proper controls.

This antibody is intended for *in vitro* diagnostic (IVD) use.

### SUMMARY AND EXPLANATION

Cytokeratin 7 (CK7) antibody is a type II keratin that serves as a structural protein in ductal, glandular, and transitional epithelium of several tissue types. Although it is not generally associated with epithelium of gastrointestinal lineage, as much as 40% of colorectal adenocarcinomas have focal (5-50% of cells) staining positively, and 10% are extensively (>50%) positive.<sup>1</sup> Used in conjunction with CK20, metastasis from the mucinous epithelium and urothelium of gastrointestinal and prostatic lineage as well as some transitional cell carcinomas, and Merkel cell tumors can be differentiated from primary neoplasms of tissue normally expressing CK7.<sup>2-8</sup> It should be noted, however, that glandular and ductal epithelium of the prostate do express normal Cytokeratin 7 staining patterns. Common phenotypic profiles that are associated with primary tumor indication are:

Phenotypic Profile	Primary tumor indication
CK7+ / CK20 -	favors lung primary*
CK7+ / CK20+	strongly favors transitional cells (urothelial) carcinoma*
CK7- / CK20+	favors colorectal carcinoma*
CK7- / CK20-	No primary indication*

\*see references 2-8

### PRINCIPLE OF THE PROCEDURE

CONFIRM anti-Cytokeratin 7 (SP52) antibody was raised against the carboxyl terminal region of the CK7 human protein spanning amino acids 451-469. CONFIRM anti-Cytokeratin 7 (SP52) antibody binds to CK7 protein in paraffin-embedded tissue sections and exhibits a cytoplasmic staining pattern. This antibody can be visualized using ultraView Universal DAB Detection Kit (Cat. No. 760-500; Order No. 05269806001). Refer to the ultraView Universal DAB Detection Kit package inserts for further information.

### REAGENT PROVIDED

CONFIRM anti-Cytokeratin 7 (SP52) antibody contains sufficient reagent for staining 50 tests.

One 5 mL dispenser of CONFIRM anti-Cytokeratin 7 (SP52) antibody contains approximately 2.68 µg of a rabbit monoclonal antibody.

The antibody is diluted in 0.05 M Tris HCl with 1% carrier protein and 0.10% ProClin 300, a preservative.

Total protein concentration of the reagent is approximately 10 mg/mL. Specific antibody concentration is approximately 0.536 µg/mL. There is no known non-specific antibody reactivity observed in this product.

CONFIRM anti-Cytokeratin 7 (SP52) antibody is a recombinant rabbit monoclonal antibody produced as purified cell culture supernatant.

Refer to the appropriate VENTANA detection kit package insert for detailed descriptions of: (1) Principles and Procedures, (2) Materials and Reagents Needed but Not Provided, (3) Specimen Collection and Preparation for Analysis, (4) Quality Control Procedures, (5) Troubleshooting, (6) Interpretation of Results, and (7) General Limitations.

### MATERIALS REQUIRED BUT NOT PROVIDED

Staining reagents such as VENTANA detection kits and ancillary components, including negative and positive tissue control slides, are not provided.

Not all products listed in the package insert may be available in all geographies. Consult your local support representative for more products information.

### STORAGE

Upon receipt and when not in use, store at 2–8°C. Do not freeze.

To ensure proper reagent delivery and stability of the antibody, replace the dispenser cap after every use and immediately place the dispenser in the refrigerator in an upright position.

Every antibody dispenser is expiration dated. When properly stored, the reagent is stable to the date indicated on the label. Do not use reagent beyond the expiration date.

### SPECIMEN PREPARATION

Routinely processed, formalin fixed, paraffin embedded tissues are suitable for use with this primary antibody when used with VENTANA detection kits and VENTANA BenchMark XT and BenchMark ULTRA instruments. The recommended tissue fixative is 10% neutral buffered formalin.<sup>9</sup> Slides should be stained immediately, as antigenicity of cut tissue sections may diminish over time.

It is recommended that positive and negative controls be run simultaneously with unknown specimens.

### WARNINGS AND PRECAUTIONS

- For *in vitro* diagnostic (IVD) use.
- For professional use only.
- ProClin 300 solution is used as a preservative in this reagent. It is classified as an irritant and may cause sensitization through skin contact. Take reasonable precautions when handling. Avoid contact of reagents with eyes, skin, and mucous membranes. Use protective clothing and gloves.
- Materials of human or animal origin should be handled as biohazardous materials and disposed of with proper precautions.
- This product contains 1% or less bovine serum which is used in the manufacture of the antibody.
- Avoid contact of reagents with eyes and mucous membranes. If reagents come in contact with sensitive areas, wash with copious amounts of water.
- Avoid microbial contamination of reagents as it may cause incorrect results.
- Consult local and/or state authorities with regard to recommended method of disposal.
- For supplementary safety information, refer to the product Safety Data Sheet and the Symbol and Hazard Guide located at [www.ventana.com](http://www.ventana.com).

## STAINING PROCEDURE

CONFIRM anti-Cytokeratin 7 (SP52) antibody has been developed for use on VENTANA BenchMark XT and BenchMark ULTRA instruments in combination with VENTANA detection kits and accessories. Refer to Table 1 for recommended staining protocols.

The parameters for the automated procedures can be displayed, printed and edited according to the procedure in the instrument's Operator's Manual. Refer to the appropriate VENTANA detection kit package insert for more details regarding immunohistochemistry staining procedures.

**Table 1.** Recommended Staining Protocols for CONFIRM anti-Cytokeratin 7 (SP52) antibody with *ultraView* Universal DAB Detection Kit on a BenchMark XT/BenchMark ULTRA instrument.

Procedure Type	Method
Deparaffinization	Selected
Cell Conditioning (Antigen Unmasking)	Cell Conditioning 1, Standard
Enzyme (Protease)	None required
Antibody (Primary)	BenchMark XT instrument 16 minutes, 37°C BenchMark ULTRA instrument 20 minutes, 36°C
Counterstain	Hematoxylin II, 4 minutes
Post Counterstain	Bluing Reagent, 4 minutes

Due to variation in tissue fixation and processing, as well as general lab instrument and environmental conditions, it may be necessary to increase or decrease the primary antibody incubation, cell conditioning or protease pretreatment based on individual specimens, detection used, and reader preference. For further information on fixation variables, refer to "Immunohistochemistry Principles and Advances."<sup>10</sup>

## POSITIVE TISSUE CONTROL

Examples of positive control tissues for this antibody are the glandular and ductal epithelium of lung, salivary gland, and breast tissue.

## STAINING INTERPRETATION / EXPECTED RESULTS

The cellular staining patterns for CONFIRM anti-Cytokeratin 7 (SP52) antibody is cytoplasmic.

## SPECIFIC LIMITATIONS

This antibody has been optimized on VENTANA BenchMark XT and BenchMark ULTRA instruments in combination with *ultraView* Universal DAB Detection Kit (REF 760-500) at a 16 minute or 20 minute primary antibody incubation time, respectively. However, the user must validate individual laboratory results obtained with this reagent.

## PERFORMANCE CHARACTERISTICS

Staining tests for specificity, sensitivity, and repeatability were conducted and the results are listed in Table 2 and Table 3 and in the Repeatability section.

### Specificity

**Table 2.** Specificity of CONFIRM anti-Cytokeratin 7 (SP52) antibody was determined by testing formalin-fixed, paraffin-embedded normal tissues.

Tissue	# positive / total cases	Tissue	# positive / total cases
Cerebrum	0/4	Stomach	1/4
Cerebellum	0/4	Small intestine	0/3
Adrenal gland	0/3	Colon	1/4
Ovary	0/8	Rectum	0/1
Pancreas	4/4	Liver	4/4

Tissue	# positive / total cases	Tissue	# positive / total cases
Parathyroid gland	3/3	Salivary gland	4/4
Hypophysis	2/3	Kidney	4/4
Testis	0/4	Bladder	1/1
Thyroid	4/4	Prostate	4/4
Breast	8/8	Endometrium <sup>a</sup>	9/11
Lymph Node	0/1	Cervix	2/9
Spleen	0/3	Fallopian tube <sup>a</sup>	4/4
Tonsil	3/3	Vulva	1/7
Thymus	1/3	Skeletal muscle	0/3
Bone marrow	0/3	Skin	0/4
Heart	0/3	Nerve (sparse)	0/3
Esophagus	0/3	Mesothelium of lung	3/3
Lung <sup>a</sup>	21/24		

a. Tissue category includes some normal (non-neoplastic) diseased and/or inflamed cases.

### Sensitivity

**Table 3.** Sensitivity of CONFIRM anti-Cytokeratin 7 (SP52) antibody was determined by testing a variety of formalin-fixed, paraffin-embedded neoplastic tissues.

Pathology	# positive / total cases
Astrocytoma	0/3
Meningioma	0/3
Malignant ependymoma	0/1
Malignant oligodendroglioma	0/1
Ovarian serous adenocarcinoma	6/6
Ovarian mucinous papillary adenocarcinoma	1/1
Ovarian mature teratoma	1/2
Fallopian tube adenocarcinoma	3/3
Endometrial hyperplasia	3/3
Endometrial adenocarcinoma	6/6
Endometrial clear cell carcinoma	1/1
Cervical intraepithelial neoplasia	2/2
Cervical squamous cell carcinoma	5/7
Vulva condyloma acuminatum	0/1
Vulva squamous cell carcinoma	0/2
Pancreatic islet cell carcinoma	0/1
Pancreatic adenocarcinoma	1/1
Seminoma	0/3
Embryonal carcinoma	0/1

Pathology	# positive / total cases
Thyroid medullary carcinoma	1/1
Thyroid papillary carcinoma	1/1
Breast adenocarcinoma	3/3
Breast lobular carcinoma	1/1
Breast invasive ductal carcinoma	5/5
Fibroadenoma	1/1
Breast hyperplasia	1/1
Lung small cell undifferentiated carcinoma	4/12
Lung large cell carcinoma	5/5
Lung inflammatory pseudotumor	5/5
Lung squamous cell carcinoma	4/10
Lung adenocarcinoma	17/17
Esophageal adenocarcinoma	1/1
Esophageal squamous cell carcinoma	2/4
Stomach adenocarcinoma	4/4
Small intestine adenocarcinoma	0/2
GIST	0/3
Colon adenocarcinoma	1/4
Rectal adenocarcinoma	1/4
Hepatocellular carcinoma	2/5
Hepatoblastoma	0/1
Renal clear cell carcinoma	0/2
Prostatic adenocarcinoma	1/3
Prostatic transitional cell carcinoma	1/1
Leiomyoma	0/3
Embryonal rhabdomyosarcoma	0/1
Melanoma	0/2
Basal cell carcinoma	1/1
Skin squamous cell carcinoma	0/2
Neurofibroma	0/1
(Retroperitoneal) Neuroblastoma	0/1
Epithelial malignant mesothelioma	1/1
Lymphoma	0/8
Chondrosarcoma	0/2
Bladder transitional cell carcinoma	3/3
Leiomyosarcoma	0/5
Spindle cell rhabdomyosarcoma	0/1

Pathology	# positive / total cases
Pleomorphic adenoma	1/1
Thyroid adenocarcinoma	2/2
Nasopharyngeal carcinoma	1/1
Metastatic colon carcinoma	1/1
Metastatic breast carcinoma	1/1
Metastatic lung carcinoma	7/10
Metastatic gastric carcinoma	1/1

### Repeatability

Repeatability studies for CONFIRM anti-Cytokeratin 7 (SP52) antibody were completed to demonstrate:

- Inter-lot reproducibility of the antibody.
- Intra-run and Inter-run reproducibility on a BenchMark XT instrument.
- Intra-platform reproducibility on the BenchMark XT instrument and the BenchMark ULTRA instrument.
- Inter-platform reproducibility between the BenchMark XT instrument and BenchMark ULTRA instrument.

All studies met their acceptance criteria.

### REFERENCES

1. Wick MR, et al. Immunohistology of the Gastrointestinal Tract, Pancreas, Bile Ducts, Gallbladder, and Liver. Diagnostic Immunohistochemistry, 2nd Edition. Philadelphia, PA. Elsevier Inc; 2006:464-465.
2. Rubin BP, et al. Use of Cytokeratins 7 and 20 in determining the origin of metastatic carcinoma of unknown primary, with special emphasis on lung cancer. Euro J of Cancer Prevent. 2001;10:77-82.
3. Wang HL, et al. Immunohistochemical Distinction Between Primary Adenocarcinoma of the Bladder and Secondary Colorectal Adenocarcinoma. Am J Surg Path. 2001;25 (11):1380-1387.
4. Inamura, K. et al. Pulmonary adenocarcinomas with enteric differentiation. Histologic and immunohistochemical characteristics compared with metastatic colorectal cancers and usual pulmonary adenocarcinomas. Am. J. Surg. Pathol. 2005;29:660-665.
5. Rekhil, B. et al. Clinicopathological features and the value of differential Cytokeratin 7 and 20 expression in resolving diagnostic dilemmas of ovarian involvement by colorectal adenocarcinoma and vice-versa. Diagn. Pathol. 2008;3:39-45.
6. Rossi, G. et al. Primary lung cancer presenting with gastrointestinal tract involvement: Clinicopathologic and immunohistochemical features in a series of 18 consecutive cases. J. Thorac. Oncol. 2007;2:115-120.
7. Sack M.J, et al. Cytokeratins 20 and 7 in the differential diagnosis of metastatic carcinoma in cytologic specimens. Diagn. Cytopathol. 1997;16:132-136.
8. Tsao SC, et al. Use of caveolin-1, thyroid transcription factor-1, and cytokeratins 7 and 20 in discriminating between primary and secondary pulmonary adenocarcinoma from breast or colonic origin. Kaohsiung J. Med. Sci. 2007;23:325-331.
9. Carson F, Hladik C. Histotechnology: A Self Instructional Text, 3rd edition. Hong Kong: American Society for Clinical Pathology Press; 2009.
10. Roche PC, Hsi ED. Immunohistochemistry-Principles and Advances. Manual of Clinical Laboratory Immunology, 6th edition. In: NR Rose, ed. ASM Press; 2002.

### INTELLECTUAL PROPERTY

CONFIRM, BENCHMARK, *ultra*VIEW, VENTANA, and the VENTANA logo are trademarks of Roche.

All other trademarks are the property of their respective owners.

© 2016 Ventana Medical Systems, Inc.

**CONTACT INFORMATION**

Ventana Medical Systems, Inc.  
1910 E. Innovation Park Drive  
Tucson, Arizona 85755  
USA

+1 520 887 2155

+1 800 227 2155 (USA)



[www.ventana.com](http://www.ventana.com)



Roche Diagnostics GmbH  
Sandhofer Strasse 116  
D-68305 Mannheim  
Germany