

CONFIRM anti-S100 (4C4.9) Primary Antibody

REF 790-2914

05278104001

IVD  50

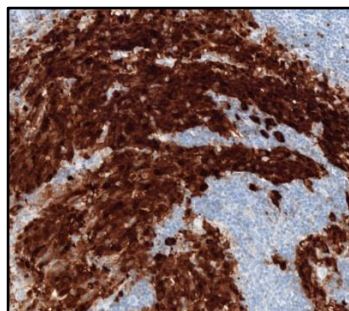


Figure 1. CONFIRM anti-S100 (4C4.9) Primary Antibody exhibiting a nuclear and cytoplasmic staining pattern in melanoma tissue.

INTENDED USE

This antibody is intended for *in vitro* diagnostic (IVD) use. Ventana Medical Systems' (Ventana) CONFIRM anti-S100 (4C4.9) Primary Antibody is a mouse monoclonal antibody (IgG2a) directed against S100 protein. The antibody is intended for use to qualitatively identify S100 protein by light microscopy in sections of formalin fixed, paraffin embedded tissue on a Ventana automated slide stainer.

The clinical interpretation of any staining, or the absence of staining, must be complemented by morphological studies and evaluation of proper controls. Evaluation must be

made by a qualified pathologist within the context of the patient's clinical history and other diagnostic tests. Prescription only.

SUMMARY AND EXPLANATION

S100 is expressed in a number of cell types derived from mesodermal, neuroectodermal and epithelial origin including glial and neural cells, Schwann cells, melanocytes, cells of cartilaginous and adipose tissue, myoepithelial cells, and also Langerhans cells.

S100 is a 20 kD acidic calcium binding protein of unknown function composed of two subunits that can be one of two types, alpha or beta. These subunits are expressed differently by a variety of individual human tissues.¹ S100 is a sensitive marker for melanoma. Antibodies against S100 stain amelanotic melanomas more strongly than pigmented tumors and detect melanomas that are often negative for other melanocytic markers, such as desmoplastic melanomas. The staining pattern is cytoplasmic and nuclear.

Although S100 is highly sensitive for melanomas, many non-melanocytic tumors also show S100 positivity. S100 typically is present in neural cells (glial cells and Schwann cells) and their corresponding tumors.¹ An advantage of the ubiquity of strongly immunoreactive S100 protein in peripheral nerves, which are present in almost any section of normal or diseased tissue, is that it provides a built in positive control for most immunostains for S100.²

PRINCIPLE OF THE PROCEDURE

CONFIRM anti-S100 (4C4.9) Primary Antibody is a mouse monoclonal antibody produced against purified bovine brain S100 protein. CONFIRM anti-S100 (4C4.9) Primary Antibody binds to the S100 protein in paraffin-embedded tissue sections and exhibits a nuclear and cytoplasmic staining pattern. This antibody can be visualized using OptiView DAB IHC Detection Kit (Cat. No. 760-700/06396500001), *ultra*View Universal DAB Detection Kit (Cat. No. 760-500/05269806001), or *ultra*View Universal Alkaline Phosphatase Red Detection Kit (Cat. No. 760-501/05269814001). Refer to the respective package inserts for further information.

REAGENT PROVIDED

CONFIRM anti-S100 (4C4.9) Primary Antibody contains sufficient reagent for 50 tests.

One 5 mL dispenser of CONFIRM anti-S100 (4C4.9) Primary Antibody contains approximately 50 µg of a mouse monoclonal antibody.

The antibody is diluted in a phosphate buffered saline containing carrier protein and 0.05% ProClin 300 as a preservative.

Total protein concentration of the reagent is approximately 3 mg/mL. Specific antibody concentration is approximately 10 µg/mL. There is no known non-specific antibody reactivity observed in this product.

CONFIRM anti-S100 (4C4.9) Primary Antibody is a mouse monoclonal antibody produced as purified cell culture supernatant.

Refer to the appropriate VENTANA detection kit package insert for detailed descriptions of: Principles of the Procedure, Materials and Reagents Needed but Not Provided, Specimen Collection and Preparation for Analysis, Quality Control Procedures, Interpretation of Results, General Limitations, and Troubleshooting.

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.

STORAGE

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

To ensure proper reagent delivery and the 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 IHC/ISH series of automated instruments. The recommended tissue fixative is 10% neutral buffered formalin.³ 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

1. For *in vitro* diagnostic (IVD) use.
2. For professional use only.
3. 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.
4. Materials of human or animal origin should be handled as biohazardous materials and disposed of with proper precautions.
5. Avoid contact of reagents with eyes and mucous membranes. If reagents come in contact with sensitive areas, wash with copious amounts of water.
6. Avoid microbial contamination of reagents as it may cause incorrect results.
7. Consult local and/or state authorities with regard to recommended method of disposal.
8. For supplementary safety information, refer to the product Safety Data Sheet and the Symbol and Hazard Guide located at www.ventana.com.

STAINING PROCEDURE

VENTANA primary antibodies have been developed for use on VENTANA BenchMark IHC/ISH instruments in combination with VENTANA detection kits and accessories. Refer to Table 1, Table 2, and Table 3 for recommended staining protocols.

This antibody has been optimized for specific incubation times but the user must validate results obtained with this reagent.

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

Table 1. Recommended Staining Protocol for CONFIRM anti-S100 (4C4.9) Primary Antibody with *ultra*View DAB IHC Detection Kit on a BenchMark GX instrument, BenchMark XT instrument, and BenchMark ULTRA instrument.

Procedure Type	Method
Deparaffinization	Selected
Cell Conditioning (Antigen Unmasking)	Cell Conditioning 1 BenchMark GX and XT Mild (30 min) BenchMark ULTRA instrument 36 min (Mild)
Antibody (Primary)	BenchMark GX and XT instrument 4 minutes, 37°C BenchMark ULTRA instrument 4 minutes, 36°C
<i>ultra</i> Block*	8 minutes
Counterstain	Hematoxylin II, 4 minutes
Post Counterstain	Bluing, 4 minutes

*Blocking Reagent (P/N 760-219)

Table 2. Recommended Staining Protocol for CONFIRM anti-S100 (4C4.9) Primary Antibody with *ultra*View Universal Alkaline Phosphatase Red Detection Kit on a BenchMark GX instrument, BenchMark XT instrument, and BenchMark ULTRA instrument.

Procedure Type	Method
Deparaffinization	Selected
Cell Conditioning (Antigen Unmasking)	Cell Conditioning 1 BenchMark GX and XT Mild (30 min) BenchMark ULTRA instrument 36 min (Mild)
Antibody (Primary)	BenchMark GX instrument 4 minutes, 37°C BenchMark XT instrument 8 minutes, 37°C BenchMark ULTRA instrument 8 minutes, 36°C
<i>ultra</i> Block*	8 minutes
Counterstain	Hematoxylin II, 4 minutes
Post Counterstain	Bluing, 4 minutes

*Blocking Reagent (P/N 760-219)

Table 3. Recommended Staining Protocol for CONFIRM anti-S100 (4C4.9) Primary Antibody with OptiView DAB IHC Detection Kit on a BenchMark GX instrument, BenchMark XT instrument, and BenchMark ULTRA instrument.

Procedure Type	Method
Deparaffinization	Selected
Cell Conditioning (Antigen Unmasking)	Cell Conditioning 1 BenchMark GX instrument 8 min BenchMark XT and ULTRA instrument 16 min
Pre-primary peroxidase inhibition	Selected
Antibody (Primary)	BenchMark GX and XT instrument 4 minutes, 37°C BenchMark ULTRA instrument 4 minutes, 36°C
Option 2*	8 minutes
Counterstain	Hematoxylin II, 4 minutes
Post Counterstain	Bluing, 4 minutes

*Blocking Reagent (P/N 760-219)

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".⁴

POSITIVE TISSUE CONTROL

The recommended positive control tissue is appendix. Schwann cells in peripheral nerve fibers, ganglionic satellite cells in the muscularis propria and submucosa should be strongly positive as should adipocytes and dendritic cells and macrophages in the lamina propria. Epithelial cells should be negative.

STAINING INTERPRETATION / EXPECTED RESULTS

The cellular staining pattern for CONFIRM anti-S100 (4C4.9) Primary Antibody is nuclear and cytoplasmic.

SPECIFIC LIMITATIONS

OptiView detection system is generally more sensitive than other detection systems. The user must validate the results obtained with this reagent and detection systems.

It has been observed that normal and neoplastic tissues that stain negatively for CONFIRM anti-S100 (4C4.9) Primary Antibody with *View* DAB Detection can stain positively with the detection systems listed in this Package Insert.

Positive staining of smooth muscle has been observed.

PERFORMANCE CHARACTERISTICS

Staining tests for specificity, sensitivity, and repeatability were conducted and the results are listed in Table 4 and Table 5 and in the Repeatability section.

Specificity

Table 4. Specificity of CONFIRM anti-S100 (4C4.9) Primary Antibody was determined by testing formalin-fixed, paraffin-embedded normal tissues.

Tissue	# positive / total cases	Tissue	# positive / total cases
Cerebrum	3/3	Thymus	0/3
Cerebellum	3/3	Bone marrow	0/3
Adrenal gland ^a	2/3	Lung	0/3
Ovary	0/3	Mesothelium of lung	0/3
Pancreas ^b	2/3	Heart	0/3

Tissue	# positive / total cases	Tissue	# positive / total cases
Lymph node	0/3	Esophagus	0/3
Parathyroid gland	0/3	Stomach	0/3
Hypophysis (pituitary)	0/3	Small intestine	0/3
Testis ^c	2/3	Colon	0/3
Thyroid	0/4	Liver	0/3
Breast ^d	5/5	Salivary gland	0/3
Spleen	0/3	Kidney	0/3
Tonsil	0/3	Prostate	0/3
Endometrium	0/3	Cervix	0/3
Skeletal muscle	0/3	Skin	46/47
Peripheral nerve	10/10	Bladder	0/3

^a Sustentacular cells, ^b islet cells, ^c Sertoli cells, ^d myoepithelial cells

Sensitivity

Table 5. Sensitivity of CONFIRM anti-S100 (4C4.9) Primary Antibody was determined by testing a variety of formalin-fixed, paraffin-embedded neoplastic tissues.

Pathology	# positive / total cases
Glioblastoma	2/2
Meningioma	2/4
Malignant ependymoma	2/2
Oligodendroglioma	1/1
Ovarian serous adenocarcinoma	1/1
Ovarian adenocarcinoma	0/1
Islet cell tumor	0/1
Pancreatic adenocarcinoma	0/1
Seminoma	0/1
Embryonal carcinoma	0/1
Thyroid medullary carcinoma	1/1
Thyroid papillary carcinoma	0/1
Invasive ductal carcinoma	0/8
Lung small cell undifferentiated carcinoma	0/1
Lung squamous cell carcinoma	0/2
Lung adenocarcinoma	0/1
Esophageal adenocarcinoma	0/1
Mucinous adenocarcinoma	0/1
Small intestine adenocarcinoma	0/1
Small intestine malignant interstitialoma	0/1
Colon adenocarcinoma	0/1

Pathology	# positive / total cases
Colon interstitialoma	0/1
Adenocarcinoma (rectum)	0/1
Rectum moderate malignant interstitialoma	0/1
Hepatocellular carcinoma	0/1
Hepatoblastoma	0/1
Renal clear cell carcinoma	0/1
Adenocarcinoma (Gleason score:3+3) (prostate)	0/1
Adenocarcinoma (Gleason score:3+4) (prostate)	0/1
Uterus leiomyoma	0/1
Uterus adenocarcinoma	0/1
Uterus clear cell carcinoma	0/1
Cervix squamous cell carcinoma	0/2
Embryonal rhabdomyosarcoma	0/1
Rectal malignant melanoma	1/1
Basal cell carcinoma	0/1
Skin squamous cell carcinoma	0/1
Neurofibroma	5/7
Neuroblastoma	0/1
Malignant mesothelioma	0/1
Urothelial carcinoma	0/1
Low grade malignant leiomyosarcoma	0/1
Spindle cell rhabdomyosarcoma	0/1
Moderate malignant leiomyosarcoma	0/1
Diffuse large B-cell lymphoma	0/3
Hodgkin's lymphoma	0/1
Anaplastic large cell lymphoma	0/1
Malignant melanoma	41/45
Breast hyperplasia	5/5
Breast fibroadenoma	3/3
Invasive lobular carcinoma	0/2
Padgett's disease (breast)	0/1
Liposarcoma	8/8
Oligoastrocytoma	1/1
Astrocytoma	2/2
Glioma sarcomatousum	1/1
T cell lymphoma	1/1
Malignant schwannoma	6/20

Pathology	# positive / total cases
Primitive neuroectodermal tumor	0/2
Neurilemmoma	11/12
Ganglioneuroma	2/2

Repeatability

Repeatability studies for CONFIRM anti-S100 (4C4.9) Primary Antibody were completed to demonstrate:

- Intra-run and Inter-run reproducibility on a BenchMark ULTRA instrument.
- Intra-platform reproducibility on a BenchMark GX, BenchMark XT, and BenchMark ULTRA instrument.
- Inter-platform reproducibility between the BenchMark GX, BenchMark XT, and BenchMark ULTRA instrument.

All studies met their acceptance criteria.

REFERENCES

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3. Carson F, Hladik C. Histotechnology: A Self Instructional Text, 3rd edition. Hong Kong: American Society for Clinical Pathology Press; 2009.
4. Roche PC, Hsi ED. Immunohistochemistry-Principles and Advances. Manual of Clinical Laboratory Immunology, 6th edition. In: NR Rose, ed. ASM Press; 2002.

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