

TTF-1

Concentrated and Prediluted Monoclonal Antibody
901-087-052423

BIOCARE
M E D I C A L

Available Product Formats				
Format	Catalog Number	Description	Dilution	Diluent
Concentrate	CM 087 A, B, C	0.1, 0.5, 1.0 mL	1:100	Renoir Red
Predilute	PM 087 AA, H	6.0, 25 mL	Ready-to-use	N/A
intelliPATH FLX	IP 087 G10	10 mL	Ready-to-use	N/A
VALENT	VLTM 087 G20	20 mL	Ready-to-use	N/A
UltraLine – For BenchMark	VP 087 G	6.0 mL	Ready-to-use	N/A
Q Series– For Leica BOND-III	ALI 087 G7	7.0 mL	Ready-to-use	N/A

Intended Use:

For In Vitro Diagnostic Use

TTF-1 [8G7G3/1] is a mouse monoclonal antibody that is intended for laboratory use in the qualitative identification of TTF-1 protein by immunohistochemistry (IHC) in formalin-fixed paraffin-embedded (FFPE) human tissues. The clinical interpretation of any staining or its absence should be complemented by morphological studies using proper controls and should be evaluated within the context of the patient's clinical history and other diagnostic tests by a qualified pathologist.

Summary and Explanation:

Thyroid transcription factor-1 (TTF-1) contains a homeodomain necessary and sufficient for its DNA-binding activity, and is most closely related to the NKX2 family of homeodomain transcription factors (1,2). TTF-1 is expressed by epithelial cells of thyroid, lung, and in discrete regions of the developing brain (3-6). Studies have shown the specificity of TTF-1 as a marker for pulmonary and thyroid adenocarcinomas, with no reactivity to breast, stomach, ovarian, pancreaticobiliary, kidney, or colorectal adenocarcinomas (7-9). TTF-1 can be very useful in determining tumor origin when used in a panel with CK7, CK20, CDX2, CEA, MUC2, MUC5A4, SMAD4, ER, and GCDFP-15 antibodies (9).

Principle of Procedure:

Antigen detection in tissues and cells is a multi-step immunohistochemical process. The initial step binds the primary antibody to its specific epitope. After labeling the antigen with a primary antibody, a one-, two- or three-step detection procedure can be employed. The one-step procedure will feature an enzyme-labeled polymer that binds to the primary antibody. A two-step procedure will feature a secondary antibody added to bind to the primary antibody. An enzyme-labeled polymer is then added to bind to the secondary antibody. The three-step detection procedure will feature a secondary antibody added to bind to the primary antibody followed by a linker antibody step for maximum binding. An enzyme-labeled polymer is then added to bind to the linker antibody. These detections of the bound antibodies are evidenced by a colorimetric reaction.

Source: Mouse monoclonal

Species Reactivity: Human; others not tested

Clone: 8G7G3/1

Isotype: IgG1

Protein Concentration: Call for lot specific Ig concentration.

Epitope/Antigen: TTF-1 (Thyroid transcription factor-1)

Cellular Localization: Nuclear

Positive Tissue Control: Lung adenocarcinoma or thyroid

Known Applications:

Immunohistochemistry (formalin-fixed paraffin-embedded tissues)

Supplied As: Buffer with protein carrier and preservative

Storage and Stability:

Store at 2°C to 8°C. The product is stable to the expiration date printed on the label, when stored under these conditions. Do not use after expiration date. Diluted reagents should be used promptly; any remaining reagent should be stored at 2°C to 8°C.

Protocol Recommendations (VALENT® Automated Slide Staining Platform):

VLTM087 is intended for use with the VALENT. Refer to the User Manual for specific instructions for use. Protocol parameters in the Protocol Manager should be programmed as follows:

Deparaffinization: Deparaffinize for 8 minutes with Val DePar.

Protocol Recommendations (VALENT Automated Slide Staining Platform) Cont'd:

Pretreatment: Perform heat retrieval at 98°C for 60 minutes using Val AR-Hi pH, 5X (use at 1X).

Peroxidase Block: Block for 5 minutes with Val Peroxidase Block.

Protein Block (Optional): Incubate for 10-20 minutes with Val Background Block.

Primary Antibody: Incubate for 30 minutes.

Secondary: Incubate for 10 minutes with Val Mouse Secondary.

Linker: Incubate for 10 minutes with Val Universal Linker.

Polymer: Incubate for 10 minutes with Val Universal Polymer.

Chromogen: Incubate for 5 minutes with Val DAB.

Counterstain: Counterstain for 5 minutes with Val Hematoxylin.

Protocol Recommendations (intelliPATH FLX® and manual use):

Peroxide Block: Block for 5 minutes with Peroxidized 1.

Pretreatment: Perform heat retrieval using Diva Decloaker. Refer to the Diva Decloaker data sheet for specific instructions.

Protein Block (Optional): Incubate for 5-10 minutes at RT with Background Punisher.

Primary Antibody: Incubate for 30 minutes at RT.

Probe: Incubate for 10 minutes at RT with a secondary probe.

Polymer: Incubate for 10-20 minutes at RT with a tertiary polymer.

Chromogen: Incubate for 5 minutes at RT with Biocare's DAB - OR - Incubate for 5-7 minutes at RT with Warp Red.

Counterstain:

Counterstain with hematoxylin. Rinse with deionized water. Apply Tacha's Bluing Solution for 1 minute. Rinse with deionized water.

intelliPATH FLX Automated Slide Stainer:

IP087 is intended for use with the intelliPATH FLX. Refer to the User Manual for specific instructions for use. When using the intelliPATH FLX, peroxide block with intelliPATH FLX Peroxidase Blocking Reagent (IPB5000) may be performed following pretreatment.

Technical Notes:

1. Literature reports suggest that high pH antigen retrieval solutions should not be used when staining TTF-1. Therefore, antigen retrieval with Diva (pH 6.2) is strongly recommended.

2. This antibody, for intelliPATH FLX and manual use, has been standardized with MACH 4 detection system. Use TBS for washing steps.

TTF-1

Concentrated and Prediluted Monoclonal Antibody
901-087-052423

BIOCARE
M E D I C A L

Protocol Recommendations (Ventana BenchMark XT / ULTRA):

VP087 is intended for use with the BenchMark XT / ULTRA. Refer to the User Manual for specific instructions for use. Recommended protocol parameters are as follows:

- Using **ultraView on XT / ULTRA:**

Template/Detection: ultraView DAB

Pretreatment Protocol: ULTRA CC1 Standard

Primary Antibody: 60 minutes, 37°C

- Using **OptiView on ULTRA:**

Template/Detection: OptiView DAB IHC

Pretreatment Protocol: CC1 64 minutes

Peroxidase: Pre Primary Peroxidase Inhibitor

Primary Antibody: 32 minutes, 36°C

Note if performing Sequential Double Stain:

Protocol Recommendations (Ventana BenchMark ULTRA) for using TTF-1 (VP087) and Napsin A (AVI434) as sequential double stain:

Template: U IHC DS oDAB-uRed Template

Pretreatment Protocol: ULTRA CC1 64 min at 100°C

Primary Antibody (VP087): Incubate for 32 minutes at 36°C

DS Primary Antibody (AVI434): Incubate for 32 minutes at 37°C

Detection: OptiView DAB and ultraView AP Red Detections.

Protocol Recommendations (O Series – For Leica BOND-III):

ALI087 is intended for use with the Leica BOND-III. Refer to the User Manual for specific instructions for use. Recommended protocol parameters are as follows:

Protocol Name: IHC Protocol F

Detection: Bond Polymer Refine

HIER: 20 min with ER2

Peroxide Block: 5 min

Marker (Primary Antibody): 15 min

Post Primary: 8 min

Polymer: 8 min

Mixed DAB Refine: 10 min

Hematoxylin: 5 min

Limitations:

The optimum antibody dilution and protocols for a specific application can vary. These include, but are not limited to fixation, heat-retrieval method, incubation times, tissue section thickness and detection kit used. Due to the superior sensitivity of these unique reagents, the recommended incubation times and titers listed are not applicable to other detection systems, as results may vary. The data sheet recommendations and protocols are based on exclusive use of Biocare products. Ultimately, it is the responsibility of the investigator to determine optimal conditions.

Quality Control:

Refer to CLSI Quality Standards for Design and Implementation of Immunohistochemistry Assays; Approved Guideline-Second edition (I/LA28-A2). CLSI Wayne, PA, USA (www.clsi.org). 2011

Precautions:

1. This antibody contains less than 0.1% sodium azide. Concentrations less than 0.1% are not reportable hazardous materials according to U.S. 29 CFR 1910.1200, OSHA Hazard communication and EC Directive 91/155/EC. Sodium azide (Na₃N) used as a preservative is toxic if ingested. Sodium azide may react with lead and copper plumbing to form highly explosive metal azides. Upon disposal, flush with large volumes of water to prevent azide build-up in plumbing. (Center for Disease Control, 1976, National Institute of Occupational Safety and Health, 1976) (10)

Precautions Cont'd:

2. Specimens, before and after fixation, and all materials exposed to them should be handled as if capable of transmitting infection and disposed of with proper precautions. Never pipette reagents by mouth and avoid contacting the skin and mucous membranes with reagents and specimens. If reagents or specimens come in contact with sensitive areas, wash with copious amounts of water. (11)
3. Microbial contamination of reagents may result in an increase in nonspecific staining.
4. Incubation times or temperatures other than those specified may give erroneous results. The user must validate any such change.
5. Do not use reagent after the expiration date printed on the vial.
6. The SDS is available upon request and is located at <http://biocare.net>.

Troubleshooting:

Follow the antibody specific protocol recommendations according to data sheet provided. If atypical results occur, contact Biocare's Technical Support at 1-800-542-2002.

References:

1. Di Loreto C, *et al.* TTF-1 protein expression in pleural malignant mesotheliomas and adenocarcinomas of the lung. *Cancer Lett.* 1998 Feb 13;124(1):73-8.
2. Di Loreto C, *et al.* Immunocytochemical expression of tissue specific transcription factor-1 in lung carcinoma. *J Clin Pathol.* 1997 Jan;50(1):30-2.
3. Lazzaro D, *et al.* The transcription factor TTF-1 is expressed at the onset of thyroid and lung morphogenesis and in restricted regions of the foetal brain. *Development.* 1991 Dec;113(4):1093-104.
4. Stahlman MT, Gray ME, Whitsett JA. Expression of thyroid transcription factor-1 (TTF-1) in fetal and neonatal human lung. *J Histochem Cytochem.* 1996 Jul;44(7):673-8.
5. Bejarano PA, *et al.* Surfactant proteins and thyroid transcription factor-1 in pulmonary and breast carcinomas. *Mod Pathol.* 1996 Apr;9(4):445-52.
6. Fabbro D, *et al.* TTF-1 gene expression in human lung tumours. *Eur J Cancer.* 1996 Mar;32A(3):512-7.
7. Holzinger A, *et al.* Monoclonal antibody to thyroid transcription factor-1: production, characterization, and usefulness in tumor diagnosis. *Hybridoma.* 1996 Feb;15(1):49-53.
8. Moldvay J, *et al.* The role of TTF-1 in differentiating primary and metastatic lung adenocarcinomas. *Pathol Oncol Res.* 2004;10(2):85-8.
9. Park SY, *et al.* Panels of immunohistochemical markers help determine primary sites of metastatic adenocarcinoma. *Arch Pathol Lab Med.* 2007 Oct;131(10):1561-7.
10. Center for Disease Control Manual. Guide: Safety Management, NO. CDC-22, Atlanta, GA. April 30, 1976 "Decontamination of Laboratory Sink Drains to Remove Azide Salts."
11. Clinical and Laboratory Standards Institute (CLSI). Protection of Laboratory Workers from Occupationally Acquired Infections; Approved Guideline-Fourth Edition CLSI document M29-A4 Wayne, PA 2014.

Ultraline antibodies are developed solely by Biocare Medical LLC and do not imply approval or endorsement of Biocare antibodies by Ventana Medical Systems, Inc or Roche. Biocare, Ventana and Roche are not affiliated, associated or related in any way. Ventana®, BenchMark®, ultraView and OptiView are trademarks of Roche.

Q Series antibodies are developed solely by Biocare Medical LLC and do not imply approval or endorsement of Biocare antibodies by Leica Biosystems. Biocare and Leica Biosystems are not affiliated, associated or related in any way. Leica, Leica Biosystems, BOND-MAX and BOND-III are trademarks of Leica Biosystems.