

# Heat Shock Protein 70

Concentrated Monoclonal Antibody  
901-407-091317

**BIOCARE**  
M E D I C A L

**Catalog Number:** CM 407 A

**Description:** 0.1 ml, concentrated

**Dilution:** 1:200

**Diluent:** Renoir Red

## Intended Use:

For In Vitro Diagnostic Use

Heat Shock Protein 70 [W27] is a mouse monoclonal antibody that is intended for laboratory use in the qualitative identification of heat shock protein 70 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:

Heat shock proteins (HSPs) are an important part of the cell's machinery for protein folding and help to protect cells from stress. HSPs are expressed in response to a wide variety of physiological and environmental insults including anticancer chemotherapy, thus allowing some cells to survive near lethal conditions. HSPs are expressed in tumor cell proliferation, differentiation, invasion and metastasis. In addition to improving overall protein integrity, HSP70 directly inhibits apoptosis, and has been shown to be involved in a protective role against thermal stress and cytotoxic drugs. HSP70 has been reported as a prognostic marker in breast, prostate, lung and liver cancer patients.

## 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 secondary antibody is added to bind to the primary antibody. An enzyme label is then added to bind to the secondary antibody; this detection of the bound antibody is evidenced by a colorimetric reaction.

**Source:** Mouse monoclonal

**Species Reactivity:** Human

**Clone:** W27

**Isotype:** IgG2a

**Epitope/Antigen:** HSP70 from HeLa cells

**Cellular Localization:** Nuclear and cytoplasmic

**Positive Control:** Breast carcinoma

**Total Protein Concentration:** ~10 mg/ml. Call for lot specific IgG concentration.

## 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. Do not use after expiration date printed on vial. If reagents are stored under conditions other than those specified in the package insert, they must be verified by the user. Diluted reagents should be used promptly; any remaining reagent should be stored at 2°C to 8°C.

## Protocol Recommendations:

**Peroxide Block:** Block for 5 minutes with Biocare's Peroxidized 1.

**Pretreatment:** Perform heat retrieval using Biocare's Diva Decloaker. Refer to the Diva Decloaker product data sheet for specific instructions.

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

## Protocol Recommendations Cont'd:

**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 Biocare's Warp Red.

## Counterstain:

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

## Technical Note:

This antibody has been standardized with Biocare's MACH 4 detection system. Use TBS buffer for washing steps.

## 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. The clinical interpretation of any positive or negative staining should be evaluated within the context of clinical presentation, morphology and other histopathological criteria by a qualified pathologist. The clinical interpretation of any positive or negative staining should be complemented by morphological studies using proper positive and negative internal and external controls as well as other diagnostic tests.

## Quality Control:

Refer to CLSI Quality Standards for Design and Implementation of Immunohistochemistry Assays: Approved Guideline-Second edition (I/LA28-i\2) CLSI Wayne, Pi\ 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 CrR 1910.1200, OSHA Hazard communication and EC Directive 91/155/EC. Sodium azide (Na<sub>3</sub>N) 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) (7)
2. Specimens, before and after fixation, and all materials exposed 10 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. (8)
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 reagents after the expiration date printed on the vial.
6. The SDS is available upon request and is located at <http://biocare.net>.

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## 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. Garrido C, *et al.* Heat shock proteins 27 and 70: anti-apoptotic proteins with tumorigenic properties. *Cell Cycle*. 2006 Nov;5(22):2592-601.
2. Thanner F, *et al.* Heat-shock protein 70 as a prognostic marker in node-negative breast cancer. *Anticancer Res*. 2003 Mar-Apr;23(2A):1057-62.
3. Torronteguy, C, *et al.* Inducible heat shock protein 70 expression as a potential predictive marker of metastasis in breast tumors. *Cell Stress Chaperones*. 2006; 11(1):34-43.
4. Banerjea A, *et al.* Immunogenic hsp-70 is overexpressed in colorectal cancers with high-degree microsatellite instability. *Dis Colon Rectum*. 2005 Dec;48(12):2322-8.
5. Huang Q, *et al.* Expression of heat shock protein 70 and 27 in nonsmall cell lung cancer and its clinical significance. *J Huanzhong Univ Sci Technolog Med Sci*. 2005;25(6):693-5.
6. El-Meghawry El-Kenawy A, El-Kott AF, Hasan. Heat shock protein expression independently predicts survival outcome in schistosomiasis-associated urinary bladder cancer. *Int J Biol Markers*. 2008 Oct-Dec;23(4):214-8.
7. 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."
8. 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.