

Anti-PfHsp90

Catalog# SPC-187 C/D

Size: 25/100µg

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This product is for *in vitro* research use only and is not intended for use in humans or animals

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Product	Rabbit anti-PfHsp90 antibody; polyclonal
Clone	N/A
Immunogen	Recombinant partial PfHsp90 C-terminal 193 amino acids
Host	Rabbit
Applications	WB, IF
Specificity	Detects an 86kDa protein, corresponding to <i>P. falciparum</i> Hsp90 on SDS PAGE immunoblot; in samples from <i>P. falciparum</i> origin.
Species cross-reactivity	Specific to <i>P. falciparum</i> and does not cross-react to Hsp90 from human, yeast and dictyostelium.
Format	PBS pH 7.4; 50% glycerol, 0.09% azide. Protein A affinity purified.
Concentration and working dilution	1mg/ml; 1:2000 dilution for western blot and a 1:50 dilution for IF.
Storage and stability	-20°C; 1 year+; shipped on cold packs or ambient

Scientific Background

HSP90 is an abundantly and ubiquitously expressed heat shock protein. It is understood to exist in two principal forms α and β , which share 85% sequence amino acid homology. The two isoforms of Hsp90 are expressed in the cytosolic compartment (1). Despite the similarities, HSP90 α exists predominantly as a homodimer while HSP90 β exists mainly as a monomer. (2) From a functional perspective, hsp90 participates in the folding, assembly, maturation, and stabilization of specific proteins as an integral component of a chaperone complex. (3-6) Furthermore, Hsp90 is highly conserved between species; having 60% and 78% amino acid similarity between mammalian and the corresponding yeast and *Drosophila* proteins, respectively.

Hsp90 is a highly conserved and essential stress protein that is expressed in all eukaryotic cells. Despite its label

of being a heat-shock protein, hsp90 is one of the most highly expressed proteins in unstressed cells (1-2% of cytosolic protein). It carries out a number of housekeeping functions - including controlling the activity, turnover, and trafficking of a variety of proteins. Most of the hsp90-regulated proteins that have been discovered to date are involved in cell signaling (7-8). The number of proteins now known to interact with Hsp90 is about 100. Target proteins include the kinases v-Src, Wee1, and c-Raf, transcriptional regulators such as p53 and steroid receptors, and the polymerases of the hepatitis B virus and telomerase. (5) When bound to ATP, Hsp90 interacts with co-chaperones Cdc37, p23, and an assortment of immunophilin-like proteins, forming a complex that stabilizes and protects target proteins from proteasomal degradation.

In most cases, hsp90-interacting proteins have been shown to co-precipitate with hsp90 when carrying out immune adsorption studies, and to exist in cytosolic heterocomplexes with it. In a number of cases, variations in hsp90 expression or hsp90 mutation has been shown to degrade signaling function via the protein or to impair a specific function of the protein (such as steroid binding, kinase activity) *in vivo*. Ansamycin antibiotics, such as geldanamycin and radicicol, inhibit hsp90 function (9).

Recently, Prof. Tatu's laboratory has shown the importance of Hsp90 in parasite growth. They have shown that inhibition of *P.falciparum* Hsp90 (PfHsp90), blocks the erythrocytic cycle by inhibiting stage transformation, leading to inhibition of parasite growth (10, 11).

Selected References

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2. Minami, Y. et al. (1991), *J.Biol Chem.* 266, 10099-10103.
3. Arlander SJH, et al. (2003) *J Biol Chem* 278, 52572-52577.
4. Pearl H, et al. (2001) *Adv Protein Chem* 59, 157-186.
5. Neckers L, et al. (2002) *Trends Mol Med* 8:555-561.
6. Pratt W, Toft D. (2003) *Exp Biol Med* 228:111-133.
7. Pratt W, Toft D. (1997) *Endocr Rev* 18,306-360.
8. Pratt WB. (1998) *Proc Soc Exptl Biol Med* 217, 420-434.
9. Whitesell L, et al. (1994) *Proc Natl Acad Sci USA* 91, 8324-8328.
10. Banumathy G., Singh V., Pavithra S.R., and Tatu U. (2003) *J Biol Chem.* 278(20):18336-45.
11. Pavithra S.R., Banumathy G., Joy O., Singh V., and Tatu U. (2004) *J Biol Chem.* 279(45):46692-9.

Certificate of Analysis

0.7 µg/mL of SPC-187 was sufficient for detection of PfHsp90 in 20µg of *P. falciparum* lysate by colorimetric immunoblot analysis using Goat anti-rabbit IgG:HRP as the secondary antibody.

Material Safety Data Sheet

Anti-PfHsp90 (Monoclonal Antibody) SMC-187

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The below information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. StressMarq shall not be held liable for any damage resulting from handling or from contact with the above product. See the Technical Specification, Packing Slip, Invoice, and Product Catalogue for additional terms and conditions of sale.

Hazardous Ingredients

The physical, chemical and toxicological properties of these components have not been fully investigated. It is recommended that all laboratory personnel follow standard laboratory safety procedures when handling this product. Safety procedures should include wearing OSHA approved safety glasses, gloves and protective clothing. Direct physical contact with this product should be avoided.

<u>Known Hazardous Components</u>	<u>CAS Number</u>	<u>Percent</u>
Sodium Azide	26628-22-8	0.09

Physical Data

This product consists of rabbit immunoglobulin in PBS containing 0.09% azide in 50% glycerol shipped on gel packs. The physical properties of this product have not been investigated thoroughly.

Fire and Explosion Hazard and Reactivity Data

NOT APPLICABLE

Toxicological Properties

May be harmful by inhalation, ingestion, or skin absorption. The toxicological properties of this product have not been investigated thoroughly. Exercise due caution.

Preventative Measures

Wear chemical safety goggles and compatible chemical-resistant gloves. Avoid inhalation, contact with eyes, skin or clothing.

Spill and Leak Procedures

Observe all federal, state and local environmental regulations.

- Wear protective equipment.
- Absorb on sand or vermiculite and place in closed containers for disposal.
- Dispose or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

First Aid Measures

- If swallowed, wash out mouth with water, provided person is conscious. Call a physician.
- In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. If a rash or other irritation develops, call a physician.
- If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.
- In case of eye contact, flush with copious amounts of water for at least 15 minutes while separating the eyelids with fingers. Call a physician.

Authorized: StressMarq Biosciences Inc.
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