

# Anti-Heme-Oxygenase1 (hsp32) StressMarq

Catalog# SMC-131 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

Product	Mouse anti-heme-oxygenase-1 antibody; monoclonal
Clone	1F12-A6
Immunogen	Human heme-oxygenase (HO-1) synthetic peptide, amino acids 1-30.
Host and Subclass	Mouse, IgG <sub>1</sub> Kappa
Cited Applications	WB, IHC, IP, ICC, ELISA
Specificity	Detect an ~32kDa protein, corresponding to the molecular mass of HO-1 on SDS Page Immunoblots. Does not cross-react with HO-2.
Species cross-reactivity	Human, Mouse, Bovine
Format	Protein G Purified. In PBS pH 7.4, 0.09% azide, 50% glycerol.
Concentration and working dilution	1.0mg/mL; 1:500-1000 for WB
Storage and stability	-20°C; 1 year+; shipped on cold packs or ambient

## Scientific Background

Heme-oxygenase is a ubiquitous enzyme that catalyzes the initial and rate-limiting steps in heme catabolism yielding equimolar amounts of biliverdin, iron and carbon monoxide. Biliverdin is subsequently converted to bilirubin and the free iron is sequestered to ferritin (1). These products have important physiological effects as carbon monoxide is a potent vasodilator; biliverdin and bilirubin are potent antioxidants; and the free iron increases oxidative stress and regulates the expression of many mRNAs (2).

There are three isoforms of heme-oxygenase, HO-1, HO-2 and HO-3; however HO-1 and HO-2 are the major isoforms as they both have been identified in mammals (3). HO-1, also known as heat shock protein 32, is an inducible isoform activated by most oxidative stress inducers, cytokines, inflammatory agents and heat shock. HO-2 is a constitutive isoform which is expressed under homeostatic conditions. HO-1 is also considered to be a cytoprotective factor in that free heme is highly reactive and cytotoxic, and secondly, carbon monoxide is a mediator inhibiting the inflammatory process and bilirubin is a scavenger for reactive oxygen, both of which are the end products of heme catalyzed reaction (4). It has also been shown that HO-1 deficiency may cause reduced stress defense, a pro-inflammatory tendency (5), susceptibility to atherosclerotic lesion formation (6), endothelial cell injury, and growth retardation (7). Up-regulation of HO-1 is therefore said to be one of the major defense mechanisms of oxidative stress (4).

## Selected References

1. Froh M. *et al.* (2007) *World J. Gastroenterol* 13(25): 3478-86.
2. Elbirt K.K. and Bonkovsky H.L. (1999) *Proc Assoc Am Physicians* 111(5): 348-47.
3. Maines M.D., Trakshel G.M., and Kutty R.K. (1986) *J Biol Chem* 261: 411-419.
4. Brydun A., *et al.* (2007) *Hypertens Res* 30(4): 341-8.
5. Poss K.D. and Tonegawa S. (1997). *Proc Natl Acad Sci U S A*. 94: 10925-10930.
6. Yet S.F., *et al.* (2003) *FASEB J*. 17: 1759-1761.
7. Yachie A., *et al.* (1999) *J Clin Invest*. 103: 129-135.

## Certificate of Analysis

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1 µg/mL of SMC-131 was sufficient for detection of HO-1 in 10µg of mixed human cell line lysate by colorimetric immunoblot analysis using Goat anti-mouse IgG:HRP as the secondary antibody.

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# Material Safety Data Sheet

## Anti-HO-1 (Hsp32) (Monoclonal Antibody) SMC-131

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

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.

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### 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

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### Physical Data

This product consists of mouse 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.

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### Fire and Explosion Hazard and Reactivity Data

NOT APPLICABLE

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### 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.

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### Preventative Measures

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

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### 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.

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### 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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