SANTA CRUZ BIOTECHNOLOGY, INC.

HMG-3 (S-14): sc-82885

BACKGROUND

The HMGB family, whose members include HMG-1, HMG-2, HMG-3 and HMG-4, is a highly conserved group of chromatin-associated proteins. Evidence suggests that the binding of HMG proteins to DNA induces alterations in the DNA architecture including DNA bending and unwinding of the helix. HMG proteins synergize with Oct-2, members of the NFκB family, ATF-2 and c-Jun to activate transcription. Other studies indicate that phosphorylation of HMG proteins is required to stimulate the transcriptional activity of HMG target proteins. HMG proteins bind single-stranded DNA, but are able to induce conformational changes in double-stranded DNA. HMG-3, also known as HMGB3 (high mobility group protein B3), is a 200 amino acid protein that localizes to the nucleus and is expressed in hematopoietic stem cells. As a member of a family of chromatin-binding proteins, HMG-3 facilitates transcription factor binding by altering DNA structure. HMG-3 may play a role in regulating proliferation and differentiation of certain cell lines. Like all other HMGB family proteins, HMG-3 contains two HMG box DNA-binding domains which can bind DNA either in a sequence-specific manner or without sequence specificity.

REFERENCES

1. Gordon, J.S., et al. 1980. Evidence for a quantitative tissue-specific distribution of high mobility group chromosomal proteins. Biochemistry 19: 4395-4402.
2. Pedersen, T.J., et al. 1991. High mobility group chromosomal proteins bind to AT-rich tracts flanking plant genes. Plant Mol. Biol. 16: 95-104.
3. Putnam, C.D., et al. 1994. The RNA polymerase I transactivator upstream binding factor requires its dimerization domain and high-mobility-group (HMG) box 1 to bend, wrap, and positively supercoil enhancer DNA. Mol. Cell. Biol. 14: 6476-6488.
4. Nemeth, M.J., et al. 2003. HMGB3: an HMG-box family member expressed in primitive hematopoietic cells that inhibits myeloid and B-cell differentiation. Blood 102: 1298-1306.
5. Strichman-Almashanu, L.Z., et al. 2003. Retroposed copies of the HMG genes: a window to genome dynamics. Genome Res. 13: 800-812.
6. Nemeth, M.J., et al. 2005. HMGB3 deficiency deregulates proliferation and differentiation of common lymphoid and myeloid progenitors. Blood 105: 627-634.
7. Hayes, D.C., et al. 2006. Multigene real-time PCR detection of circulating tumor cells in peripheral blood of lung cancer patients. Anticancer Res. 26: 1567-1575.
8. Terada, K., et al. 2006. Nucleosome regulator XHMGB3 is required for cell proliferation of the eye and brain as a downstream target of *Xenopus* rax/Rx1. Dev. Biol. 291: 398-412.

CHROMOSOMAL LOCATION

Genetic locus: HMGB3 (human) mapping to Xq28; Hmgb3 (mouse) mapping to X A7.2.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

SOURCE

HMG-3 (S-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of HMG-3 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-82885 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

Available as TransCruz reagent for Gel Supershift and ChIP applications, sc-82885 X, 200 µg/0.1 ml.

APPLICATIONS

HMG-3 (S-14) is recommended for detection of HMG-3 and LOC441795 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with other HMG family members.

HMG-3 (S-14) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of HMG-3: 23 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.