Revision 2

Store at -20C

#12755

High Mobility Group (HMG) Proteins Antibody Sampler Kit

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Product Includes	Product #	Quantity	Mol. Wt	Isotype/Source
HMGA1 (D6A4) XP® Rabbit mAb	7777	40 µl	18 kDa	Rabbit IgG
HMGB1 (D3E5) Rabbit mAb	6893	40 µl	29 kDa	Rabbit IgG
HMGB2 (D1P9V) Rabbit mAb	14163	40 µl	28 kDa	Rabbit IgG
HMGN1 (D1I5O) Rabbit mAb	12734	40 µl	18 kDa	Rabbit IgG
HMGN2 (D9B9) XP® Rabbit mAb	9437	40 µl	17 kDa	Rabbit IgG
Anti-rabbit IgG, HRP-linked Antibody	7074	100 µl		Goat

Please visit cellsignal.com for individual component applications, species cross-reactivity, dilutions, protocols, and additional product information.

Description

The High Mobility Group (HMG) Proteins Antibody Sampler Kit provides an economical means of detecting total protein from the HMG family members including HMGA1, HMGB1, HMGB2, HMGN1 and HMGN2. The kit contains enough primary antibody to perform four western blots per primary antibody.

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

Background

High mobility group (HMG) proteins are a superfamily of abundant and ubiquitous nuclear proteins that bind DNA without sequence specificity and induce structural changes to the chromatin fiber to regulate access to the underlying DNA (1). HMGA1, formerly known as HMG-I/Y, belongs to a family of high mobility group proteins known as HMGA. HMGA proteins are considered architectural transcription factors; they do not have direct transcriptional activation capacity, but instead regulate gene expression by changing DNA conformation through binding to AT-rich regions in the DNA and/or direct interaction with other transcription factors (2). HMGA1 is highly expressed during embryogenesis and in embryonic stem cells, but not in fully differentiated adult tissues (3,4). High mobility group protein B1 (HMGB1) and high mobility group protein B2 (HMGB2) belong to a family of highly conserved proteins that contain HMG box domains (5). HMGB1 is a widely expressed and highly abundant protein (6). HMGB2 is widely expressed during embryonic development, but it is restricted to lymphoid organs and testis in adult animals (7). While expression varies, the biochemical properties of the different family members may be indistinguishable. HMGB proteins are recruited by and help facilitate the assembly of site-specific DNA binding proteins to their cognate binding sites in chromatin. For example, HMGB1 and HMGB2 facilitate the binding of Hox proteins, Oct proteins, p53, Rel proteins, and steroid hormone receptor proteins to their target gene promoters (5,6). In addition to their functions in the nucleus, HMGB proteins play a significant role in extracellular signaling associated with inflammation. HMGB1 is massively released into the extracellular environment during cell necrosis, but not apoptosis. Extracellular HMGB1 "alarms" the innate immune system by acting as a chemoattractant for inflammatory cells triggering activation of T cells and dendritic cells. In addition, activated monocytes, macrophages, and dendritic cells also secrete HMGB1 (6). HMGB2 is secreted by myeloid cells and promotes proliferation and migration of endothelial cells by binding to the receptor for advanced glycation end products (RAGE) (8). The HMGN family of proteins, which includes five members (HMGN1-5) (1) function in transcriptional regulation and are recruited to gene promoters by transcription factors, such as estrogen receptor α (ERα), serum responsive factor (SRF), and PITX2, where they can facilitate either gene activation or repression (9-11). The expression of HMGN1 (also known as HMG14) and HMGN2 (also known as HMG17) is tightly linked to cellular differentiation. HMGN1 and HMNG2 are ubiquitous and highly expressed in all embryonic tissues. During mouse embryogenesis, expression is down-regulated throughout the embryo, except in committed but continuously renewing cell types undergoing active differentiation, such as the basal layer of the epithelium and kidney cells undergoing mesenchyme to epithelium transition (12,13).

Background References

1. Hock, R. et al. (2007) *Trends Cell Biol* 17, 72-9.
2. Cleynen, I. and Van de Ven, W.J. (2008) *Int J Oncol* 32, 289-305.
3. Chiappetta, G. et al. (1996) *Oncogene* 13, 2439-46.
4. Ben-Porath, I. et al. (2008) *Nat Genet* 40, 499-507.

5. Thomas, J.O. and Travers, A.A. (2001) *Trends Biochem Sci* 26, 167-74.
6. Müller, S. et al. (2004) *J Intern Med* 255, 332-43.
7. Ronfani, L. et al. (2001) *Development* 128, 1265-73.
8. Pusterla, T. et al. (2009) *Autoimmunity* 42, 308-10.
9. Zhu, N. and Hansen, U. (2007) *Mol Cell Biol* 27, 8859-73.
10. Amen, M. et al. (2008) *Nucleic Acids Res* 36, 462-76.
11. Belova, G.I. et al. (2008) *J Biol Chem* 283, 8080-8.
12. Furusawa, T. et al. (2006) *Mol Cell Biol* 26, 592-604.
13. Lehtonen, S. and Lehtonen, E. (2001) *Differentiation* 67, 154-63.

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Limited Uses