

p-MEF-2 (Thr 312): sc-101732

BACKGROUND

Myogenic helix-loop-helix (HLH) transcription factors of the myogenin/MyoD class have been studied in detail over the past few years. Muscle gene induction by these proteins depends upon sequence-specific DNA binding at the E box DNA element present in many muscle enhancers and promoters. MEF-2 is a muscle-specific DNA binding protein that recognizes an A+T-rich sequence [CTA (A/T)₄ TAG] localized in the control regions of numerous muscle-specific genes. MEF-2 belongs to the MADS (MCM1, Agamous, Deficiens and serum-response factor) box family of transcription factors. The MEF-2 proteins comprise several alternatively spliced isoforms from the MEF-2 gene and a related factor encoded by the related gene xMEF2. MEF-2 expression is ubiquitous but preferential in skeletal and cardiac muscle cells. The Serine 59 residue, located between the MADS and MEF-2 domains of MEF-2C, is phosphorylated *in vivo* and can be phosphorylated *in vitro* by casein kinase-II (CKII). Phosphorylation of this site enhances the DNA binding and transcriptional activity of MEF-2C by increasing its DNA binding activity 5-fold.

REFERENCES

- Rosenthal, N. 1989. Muscle cell differentiation. *Curr. Opin. Cell Biol.* 1: 1094-1101.
- Gossett, L.A., Kelvin, D.J., Sternberg, E.A. and Olson, E.N. 1989. A new myocyte-specific enhancer-binding factor that recognizes a conserved element associated with multiple muscle-specific genes. *Mol. Cell. Biol.* 9: 5022-5033.
- Emerson, C.P. 1990. Myogenesis and developmental control genes. *Curr. Opin. Cell Biol.* 2: 1065-1075.
- Olson, E.N. 1990. MyoD family: a paradigm for development? *Genes Dev.* 4: 1454-1461.
- Weintraub, H., Davis, R., Tapscott, S., Thayer, M., Krause, M., Benzeat, R., Blackwell, T.K., Turner, D., Rupp, R., Hollenberg, S., Zhuang, Y. and Lassar, A. 1991. The MyoD gene family: nodal point during specification of the muscle cell lineage. *Science* 251: 761-766.
- Cserjesi, P. and Olson, E.N. 1991. Myogenin induces the myocyte-specific enhancer binding factor MEF-2 independently of other muscle-specific gene products. *Mol. Cell. Biol.* 11: 4854-4862.
- Yu, Y., Breitbart, R.E., Smoot, L.B., Lee, Y., Mahdavi, V. and Nadal-Ginard, B. 1992. Human myocyte-specific enhancer factor 2 comprises a group of tissue-restricted MADS box transcription factors. *Genes Dev.* 6: 1783-1798.
- Martin, J.F., Schwarz, J.J. and Olson, E.N. 1993. Myocyte enhancer factor (MEF) 2C: a tissue-restricted member of the MEF-2 family of transcription factors. *Proc. Natl. Acad. Sci. USA* 90: 5282-5286.
- Molkentin, J.D., Li, L. and Olson, E.N. 1996. Phosphorylation of the MADS-box transcription factor MEF-2C enhances its DNA binding activity. *J. Biol. Chem.* 271: 17199-17204.

CHROMOSOMAL LOCATION

Genetic locus: MEF2A (human) mapping to 15q26.3; Mef2a (mouse) mapping to 7 C.

SOURCE

p-MEF-2 (Thr 312) is a rabbit polyclonal antibody raised against a short amino acid sequence containing phosphorylated Thr 312 of MEF-2 of human origin.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

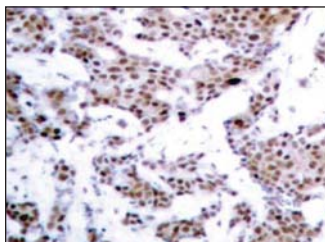
APPLICATIONS

p-MEF-2 (Thr 312) is recommended for detection of Thr 312 phosphorylated MEF-2 of human origin and correspondingly phosphorylated Thr 310 of mouse and rat origin by immunofluorescence and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 2) Immunohistochemistry: use ImmunoCruz™: sc-2051 or ABC: sc-2018 rabbit IgG Staining Systems.

DATA



p-MEF-2 (Thr 312): sc-101732. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human breast carcinoma tissue showing nuclear localization.

STORAGE

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

RESEARCH USE

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