

MEF2 Transcription Factor Assay Kit (colorimetric) ab207213

[1 Image](#)

Overview

Product name	MEF2 Transcription Factor Assay Kit (colorimetric)
Detection method	Colorimetric
Sample type	Nuclear Extracts
Assay type	Semi-quantitative
Sensitivity	600 ng/well
Assay time	3h 30m
Species reactivity	Reacts with: Human
Product overview	MEF2 Transcription Factor Assay Kit (Colorimetric) (ab207213) is a high throughput assay to quantify MEF2 activation in nuclear extracts. This assay combines a quick ELISA format with a sensitive and specific non-radioactive assay for transcription factor activation.

A specific double stranded DNA sequence containing the MEF2 consensus binding site has been immobilized onto a 96-well plate. Active MEF2 present in the nuclear extract specifically binds to the oligonucleotide. MEF2 is detected by a primary antibody that recognizes an epitope of MEF2 accessible only when the protein is activated and bound to its target DNA. An HRP-conjugated secondary antibody provides sensitive colorimetric readout at OD 450 nm. This product detects only human MEF2.

Key performance and benefits:

Assay time: 3.5 hours (cell extracts preparation not included).

Detection limit: < 0.6 µg nuclear extract/well.

Detection range: 0.6 – 10 µg nuclear extract/well.

Notes

The transmission of extracellular signals into intracellular responses is a complex process that often involves the activity of mitogen-activated protein kinases (MAPKs). The MAPK pathway is a three kinase cascade consisting of a MAPK kinase (MAPKKK or MEKK) that activates a MAP/ERK kinase (MEK or MAPKK). This stimulates a phosphorylation-dependent increase in the

activity of the MAP kinase. Upon activation, MAPKs phosphorylate a variety of intracellular targets including transcription factors, transcription adaptor proteins, membrane and cytoplasmic substrates as well as other protein kinases.

At least three parallel MAPK pathways exist in humans. The extracellular signal-regulated protein kinase (ERK) pathway primarily transmits mitogenic and differentiation stimuli, while the c-Jun N-terminal kinase (JNK) and p38 pathways predominantly transmit stress and cytokine stimuli. c-Myc, an ERK substrate, is a transcription factor that regulates cell growth and differentiation, glycolysis and apoptosis. Deregulation of c-Myc has been implicated in the origin of diverse human cancers. Elk-1 is a member of the ternary complex factor (TCF) sub-family of the ETS domain family. Elk-1 can be stimulated by all three MAPK pathways, and its main function is the regulation of the activity of the c-Fos promoter in response to extracellular stimuli. MEF2, a member of the MADS box family, is mainly involved in muscle differentiation, but also plays roles in muscle hypertrophy, neuronal survival and T-cell apoptosis. MEF2 is activated by both the p38 and ERK5 pathways.¹ STAT1 is involved in activation of IFN α and γ genes, and is activated by p38 and JNK pathways. c-Jun is a member of the activator protein-1 (AP-1) family and is activated by both ERK1/2 and JNK pathways.² AP-1 members play roles in the expression of genes involved in proliferation and cell cycle progression. ATF-2 is a member of the ATF/CREB family that binds to the cAMP response element (CRE). ATF-2 is activated by ERK1/2, JNK and p38.

Platform Microplate reader

Properties

Storage instructions Please refer to protocols.

Components	1 x 96 tests	5 x 96 tests
10X Antibody Binding Buffer	1 x 2.2ml	1 x 11ml
10X Wash Buffer	1 x 22ml	1 x 110ml
96-well MEF2 assay plate	1 unit	5 units
Anti-rabbit HRP-conjugated IgG	1 x 11 μ l	1 x 55 μ l
Binding Buffer	1 x 10ml	1 x 50ml
C ₂ C ₁₂ nuclear extract	1 x 40 μ l	1 x 200 μ l
Developing Solution	1 x 11ml	1 x 55ml
Dithiothreitol (DTT) (1 M)	1 x 100 μ l	1 x 500 μ l
Lysis Buffer	1 x 10ml	1 x 50ml
MEF2 antibody	1 x 11 μ l	1 x 55 μ l
MEF2 mutated oligonucleotide (10 pmol/ μ L)	1 x 100 μ l	1 x 500 μ l
MEF2 wild-type oligonucleotide (10 pmol/ μ L)	1 x 100 μ l	1 x 500 μ l

Components	1 x 96 tests	5 x 96 tests
Plate sealer	1 unit	5 units
Protease Inhibitor Cocktail	1 x 100µl	1 x 500µl
Stop Solution	1 x 11ml	1 x 55ml

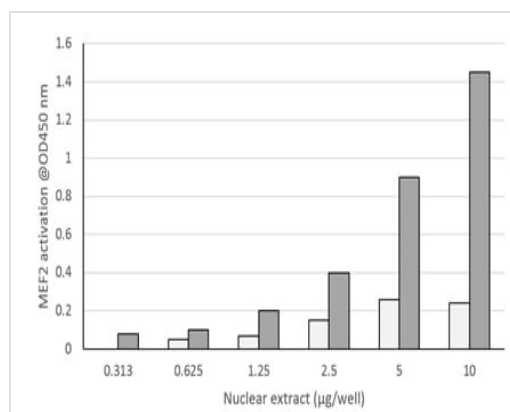
Relevance

Transcriptional activator which binds specifically to the MEF2 element, 5'-YTA[AT]4TAR-3', found in numerous muscle-specific genes. Also involved in the activation of numerous growth factor- and stress-induced genes. Mediates cellular functions not only in skeletal and cardiac muscle development, but also in neuronal differentiation and survival. Plays diverse roles in the control of cell growth, survival and apoptosis via p38 MAPK signaling in muscle-specific and/or growth factor-related transcription. In cerebellar granule neurons, phosphorylated and sumoylated MEF2A represses transcription of NUR77 promoting synaptic differentiation. Associates with chromatin to the ZNF16 promoter.

Cellular localization

Nuclear

Images



Different amounts of nuclear extracts from unstimulated C2C12 (light grey) (undifferentiated) and U-937 cells (dark grey) were tested for MEF2 activation. This data is provided for demonstration only.

Different amounts of nuclear extracts from unstimulated C2C12 (Light gray) (undifferentiated) and U-937 cells (Dark gray) are tested for MEF2 activity by using the MEF2 TF Assay Kit.

Please note: All products are "FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES"

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