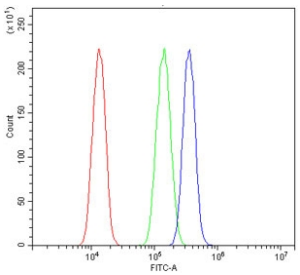
c-Fos Antibody / FOS (RQ5724)

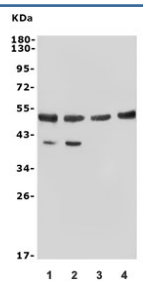
Catalog No.	Formulation	Size
RQ5724	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Purity	Affinity purified
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	P01100
Applications	Western Blot : 0.5-1ug/ml Direct ELISA : 0.1-0.5ug/ml
Limitations	This c-Fos antibody is available for research use only.



Western blot testing of 1) human HeLa, 2) human HepG2, 3) rat brain, 4) rat C6, 5) mouse brain and 6) mouse NIH 3T3 cell lysate with c-Fos antibody. A dominant band is detected at approximately 50 kDa in all samples, migrating above the predicted 41 kDa size of unmodified c Fos. Additional bands around 45 kDa and 60-65 kDa are present and are consistent with differentially phosphorylated c Fos species that show reduced or increased electrophoretic mobility, respectively.



Description

c-Fos antibody detects c-Fos, an immediate early transcription factor that serves as a rapid responder to extracellular stimuli and a key regulator of gene expression in processes including proliferation, differentiation, stress adaptation, and neuronal activity. The UniProt recommended name is Proto-oncogene c-Fos. As a member of the Fos family of transcription factors, c-Fos forms heterodimers with Jun proteins to create the AP-1 complex, a central regulator of signal dependent transcriptional programs across many tissues. Because of its fast and transient induction in response to stimuli, c-Fos is widely used as a marker for cellular activation, particularly in neuroscience and cell signaling research.

c-Fos is an inducible nuclear protein of approximately 380 amino acids characterized by a basic leucine zipper domain that mediates DNA binding and dimerization with Jun family proteins. Its expression is tightly controlled at multiple levels. Under basal conditions, c-Fos levels remain low due to rapid turnover and limited transcription. Upon stimulation by growth factors, neurotransmitters, mechanical stress, cytokines, or metabolic signals, c-Fos is rapidly transcribed and translated. This immediate early response enables cells to convert transient signaling events into coordinated transcriptional outputs, making c-Fos a crucial interpreter of environmental and intracellular cues.

The FOS gene is located on chromosome 14q24.3 and is expressed widely across tissues including brain, endocrine organs, immune cells, smooth muscle, and epithelium. In neurons, c-Fos is a widely used marker of activity dependent transcription and is rapidly induced by depolarization, synaptic stimulation, sensory input, behavioral experience, and pharmacologic manipulation. These properties have made c-Fos a key tool for mapping neuronal circuits, identifying activated pathways, and studying mechanisms of learning, memory, plasticity, and neuroadaptation.

Functionally, c-Fos participates in AP-1 complex formation, binding to specific DNA motifs known as TPA response elements to regulate transcription of genes involved in proliferation, differentiation, apoptosis, metabolism, and extracellular matrix remodeling. c-Fos activity is influenced by phosphorylation, ubiquitination, and interactions with coactivators or corepressors that modify its stability and transcriptional potency. Through these mechanisms, c-Fos integrates mitogen activated pathways such as ERK-MAPK, calcium dependent signaling, and stress induced cascades to orchestrate gene expression patterns suited to each physiological context.

c-Fos also contributes to developmental and homeostatic processes. During embryogenesis, FOS expression influences skeletal development, craniofacial formation, and proper differentiation of bone and cartilage. In adult tissues, c-Fos modulates smooth muscle contractility, hormone secretion, immune activation, and cellular responses to injury. Its versatility as a transcriptional regulator stems from its ability to respond to a wide range of upstream signals and to control diverse downstream gene networks.

Pathologically, dysregulated c-Fos expression has been associated with cancer, bone disease, neurodegeneration, and chronic inflammation. Overexpression of c-Fos can contribute to oncogenic transformation by enhancing proliferation, promoting abnormal differentiation, and cooperating with other transcription factors to sustain tumorigenic programs. In bone biology, excessive c-Fos activation drives osteoclast differentiation and contributes to bone resorption disorders. In neurological conditions, altered c-Fos induction patterns reflect disrupted neuronal activity, impaired synaptic function, or maladaptive stress responses. Because c-Fos is highly sensitive to external and internal cues, changes in its expression often serve as indicators of underlying pathological states.

In research settings, c-Fos is a cornerstone molecular marker for activity dependent transcription. It is commonly measured to assess cellular activation, pathway engagement, and responses to environmental stimuli across many biological systems. c-Fos antibody enables detection of nuclear c-Fos protein and supports investigations involving signaling cascades, neurobiology, pharmacodynamics, development, and oncogenic gene regulation. Researchers frequently use c-Fos expression as a timing based indicator of cell response due to its rapid induction, peak expression within minutes to hours, and return to baseline upon resolution of stimulation.

c-Fos antibody is validated for use in relevant research applications to detect Proto-oncogene c-Fos expression in cells and tissues. It supports studies of AP-1 signaling, immediate early gene responses, neuronal activation, and stimulus

driven transcription. NSJ Bioreagents provides c-Fos antibody reagents suitable for neuroscience, cancer research, developmental biology, and cell signaling studies.

Application Notes

Optimal dilution of the c-Fos antibody should be determined by the researcher.

Immunogen

Recombinant human protein (amino acids N45-D293) was used as the immunogen for the c-Fos antibody.

Storage

After reconstitution, the c-Fos antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.