Qty: 100 µg/400 µl

Rabbit anti-IRF7

Catalog No. 51-3300

Lot No. See product label

Rabbit anti-IRF7 (Interferon Regulatory Factor 7)

FORM

This polyclonal antibody is supplied as a 400 µl aliquot at a concentration of 0.25 mg/ml in phosphate buffered saline (pH 7.4) containing 0.1% sodium azide. The antibody is epitope affinity-purified from rabbit antiserum.

POLYCLONAL ANTIBODY DESIGNATION (PAD): ZM7

IMMUNOGEN

Recombinant protein derived from amino acids 207-452 of the murine IRF7 protein.

SPECIFICITY

This antibody is specific for murine IRF7 protein, and does not cross-react with other IRF proteins.

REACTIVITY

This antibody reacts with murine IRF7, tested with 293T cells transfected with murine IRF7. Reactivity with endogenous protein has not been observed. Reactivity with other species has not been determined.

Sample	ELISA	Gel Shift Mobility Assay	Immuno-fluorescence	Immuno-precipitation	Western Blotting
Mouse		+	+	+	+
Immunogen	+				

USAGE

Working concentrations for specific applications should be determined by the investigator. Appropriate concentrations will be affected by several factors, including secondary antibody affinity, antigen concentration, sensitivity of detection method, temperature and length of incubations, etc. The suitability of this antibody for applications other than those listed below has not been determined. The following concentration ranges are recommended starting points for this product.

ELISA:	0.1-1.0 µg/ml
Gel Mobiility Shift Assay:	0.2-1.0 µg / 5ul reaction
Immunofluorescence:	~10 µg/ml
Immunoprecipitation:	3.0-5.0 µg/extract from 10^7 cells
Western Blotting:	0.5-2.0 µg/ml

Reactivity of this antibody in applications other than those named here has not been evaluated.

STORAGE

Store at 2-8°C for up to one month. Store at –20°C for long term storage. Avoid repeated freezing and thawing.

BACKGROUND

The Interferon Regulatory Factor (IRF) family of proteins was discovered during the analysis of gene transcription of the type I IFN proteins (IFNα and IFNβ) and or the target genes induced by these IFNs. The founding member of the IRF family, IRF1, was identified as a factor that binds positive regulatory domain 1 (PRD1) of the IFNβ promoter (1, 2) and the IFN stimulated response element (ISRE) of IFN stimulated genes (3). While complex and somewhat contradictory evidence has been obtained concerning the role of IRF1 in the induction of IFN genes, the preponderance of the data now suggest that this widely induced protein is not required for IFN gene induction but rather is involved in responses to IFNγ, in modulation of the immune system, and in regulation of apoptosis (reviewed in 4, 5). The hallmark of IRF proteins is a conserved amino-terminal DNA binding domain responsible for site-specific interaction with the enhancers of target genes, and a less well conserved carboxyl-terminal effector domain. A breakthrough in our understanding of IRF proteins came with the discovery that a

(cont'd)

BACKGROUND (cont'd)

subunit of the multimeric IFNα stimulated transcription factor ISGF3 was a member of the IRF family. This protein, originally named ISGF3γ p48 (6, 7) and now known as IRF9, encodes a protein-interaction function within its effector domain that allows it to recruit the IFN-activated transcription factors Stat1 and Stat2 to DNA (reviewed in 8). Abundance of IRF9 modulates the specificity of IFN action by controlling the distribution of activated Stat1 protein between ISRE-containing target genes and target genes controlled by the distinct GAS enhancer element (9).

The concept of a protein interaction function that recruits transcription factor partners has become the paradigm for understanding the IRF effector domain. IRF4 (also known as Pip/ICSAT) functions as a transactivator by recruiting the Ets-family transcription factor Pu.1 (10); the effector domain of ICSBP (now called IRF8) acts as a repressor through protein-protein interactions (11-13) or as an activator by recruitment of Pu.1 (14); and IRF3 and IRF7 appear to function as transactivators by recruitment of coactivator proteins, such as CBP/p300 (15-23).

Some IRF proteins are sensors of virus infection. Early evidence suggested that IRF1 activity was modulated in virus-infected cells through a phosphorylation event (24); more recently, direct phosphorylation of IRF3 in response to virus was demonstrated (17, 21). Phosphorylation of IRF3 regulates its nuclear accumulation, its access to DNA, and its ability to recruit coactivators, particularly CBP/p300. These processes appear to be essential for induction of the IFNβ gene, as well as potentially IFNα genes and other virally-induced cellular genes. These data provide an elegant model for regulation of IFN genes in response to virus infection. A kinase activated by virus infection phosphorylates IRF3 in the cytoplasm, causing it to accumulate in the nucleus, bind specific sites in the IFNβ promoter, and recruit coactivators to a preinitiation complex. Late in the response, it may be specifically degraded by a proteasome-mediated process (25) to terminate transcription.

This picture has been somewhat complicated by the discovery of a related member of the IRF family, IRF7. IRF7 is highly induced in response to IFN but remains inactive until phosphorylated in response to viral infection (19, 26, 27). Once phosphorylated, IRF7 binds critical promoter elements regulating IFNα gene expression and is absolutely required for expression of a subset of IFNα genes comprising a second wave of IFN production following virus infection (26). IRF7 may also play a role in IFNβ gene expression as part of a complex with IRF3 (28).

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RELATED PRODUCTS

Product	Clone/PAD	Catalog No.
Rb x IRF3	ZM3	51-3200
PhosphoSTAT1	ST1P-11A5	33-3400
PhosphoSTAT5	ST5P-4A9	33-6000
ISGF3g p48	poly	71-4600
PhosphoSTAT4	poly	71-7900
PhosphoSTAT5	poly	71-6900
PhosphoSTAT4	poly	71-7900
Rabbit anti Stat1α/β,2,3,4,5a,5b,6	poly	www.zymed.com
Mouse anti Stat1α/β,2,3,4,5a,5b,6	various clones	www.zymed.com

Product	Conjugate	Cat. No.
Goat anti-Rabbit IgG (H+L)	Purified	81-6100
(ZyMAX™ Grade)	FITC	81-6111
	TRITC	81-6114
	Cy™3	81-6115
	Cy™5	81-6116
	HRP	81-6120
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	Biotin	81-6140
Protein A	Sepharose® 4B	10-1041
rec-Protein G	Sepharose® 4B	10-1241

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