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#44902

IFN- γ Signaling Pathway Antibody Sampler Kit



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For Research Use Only. Not For Use In Diagnostic Procedures.

Products Included	Product #	Quantity	Mol. Wt.	Isotype/Source
IFNGR1 (E444) Antibody	10405	20 μ l	45-90 kDa	Rabbit
Jak1 (6G4) Rabbit mAb	3344	20 μ l	130 kDa	Rabbit IgG
P-Jak1 (Y1034/1035) (D7N4Z) Rabbit mAb	74129	20 μ l	130 kDa	Rabbit IgG
Jak2 (D2E12) XP [®] Rabbit mAb	3230	20 μ l	125 kDa	Rabbit IgG
P-Jak2 (Y1007/1008) (C80C3) Rabbit mAb	3776	20 μ l	125 kDa	Rabbit IgG
P-Stat1 (Y701) (D4A7) Rabbit mAb	7649	20 μ l	84, 91 kDa	Rabbit IgG
P-Stat1 (S727) (D3B7) Rabbit mAb	8826	20 μ l	91 kDa	Rabbit IgG
Stat1 (D1K9Y) Rabbit mAb	14994	20 μ l	84, 91 kDa	Rabbit IgG
Anti-rabbit IgG, HRP-linked Antibody	7074	100 μ l		Goat

See www.cellsignal.com for individual component applications, species cross-reactivity, dilutions, and additional application protocols.

Description: The IFN- γ Signaling Pathway Antibody Sampler Kit provides an economical means of detecting the activation of the IFN- γ signaling pathway using phospho-specific and control antibodies. The kit includes enough antibodies to perform two western blot experiments with each primary antibody.

Background: Originally discovered in the late 1950s for their antiviral activity, interferons (IFNs) have since been assigned diverse roles in many physiological and pathological processes. There are three families of IFNs: types I, II, and III. In humans, type I contains IFN- α (13 different subtypes), IFN- β (also known as IFN- β 1), IFN- ϵ , IFN- κ , and IFN- ω . They bind to a receptor complex containing IFNAR1 and IFNAR2, which is broadly expressed on most cells. IFN- γ is the sole member of type II IFN. It signals through a receptor complex consisting of IFN γ R1 and IFN γ R2, which is also expressed on most cell types. Type III IFN, also known as interferon lambdas (IFN- λ s), have four members in humans: IFN- λ 1 (IL29), IFN- λ 2 (IL28A), IFN- λ 3 (IL28B), and IFN- λ 4. IFN- λ s signal through a heterodimeric receptor comprised of IFN λ R1 and IL-10R2. While IL-10R2 is broadly expressed and shared by the IL-10 family cytokines, IFN λ R1 expression is restricted to epithelial cells, neuronal cells, and subsets of myeloid cells (1-3). Engagement of all IFNs with their receptors initiates downstream signaling events, mainly, activation of the Jak-Stat signaling cascade. For type I and III IFNs, Jak1 and Tyk2 are phosphorylated and activated, leading to subsequent phosphorylation of Stat1 and Stat2. Phosphorylated Stat1 and Stat2 are released from the receptor complex and, together with IRF-9, they form so-called ISGF3 (interferon-stimulated gene factor 3) transcriptional complex. ISGF3 translocates to the nucleus, binds to the interferon-stimulated response element (ISRE) to initiate the transcription of a wide array of interferon-stimulated genes (ISGs) (4,5). On the other hand, IFN- γ induces phosphorylation and activation

of Jak1 and Jak2, which subsequently phosphorylate Stat1. Phosphorylated Stat1 dimerizes, translocates to the nucleus, and binds to γ -interferon-activated site (GAS) to initiate the transcription of ISGs (6,7).

Specificity/Sensitivity: Each antibody in the IFN- γ Signaling Pathway Antibody Sampler Kit detects endogenous levels of its target protein. Phospho-Jak1 (Tyr1034/1035) (D7N4Z) Rabbit mAb can detect Jak1 when dually or singly phosphorylated at Tyr1034. This site has historically been referenced as Tyr1022 and Ty1023. Phospho-Jak2 (Tyr1007/1008) (C80C3) Rabbit mAb detects endogenous levels of Jak2 when phosphorylated at Tyr1007/1008. This antibody can also detect single phosphorylation at either 1007 or 1008. This antibody may cross-react with phospho-Jak1 and phospho-Tyk2. Phospho-Stat1 (Tyr701) (D4A7) Rabbit mAb recognizes endogenous levels of Stat1 protein only when phosphorylated at Tyr701. Phospho-Stat1 (Ser727) (D3B7) Rabbit mAb recognizes endogenous levels of Stat1 protein only when phosphorylated at Ser727. Stat1 (D1K9Y) Rabbit mAb cross-reacts with an unidentified protein of 150 kDa.

Source/Purification: Monoclonal antibodies are produced by immunizing rabbits with synthetic peptides corresponding to residues surrounding Ile800 of Jak1, Pro841 of Jak2, and Pro688 of Stat1. Phosphorylation-specific monoclonal antibodies are produced by immunizing rabbits with synthetic peptides corresponding to residues surrounding Tyr1034/1035 of Jak1, Tyr1007/1008 of Jak2, and Tyr701 and Ser727 of Stat1. Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Glu444 of IFNGR1 protein. Antibodies are purified by protein A and peptide affinity chromatography.

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 μ g/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C. Do not aliquot the antibodies.

Please visit www.cellsignal.com for validation data and a complete listing of recommended companion products.

Background References:

- (1) Schneider, W.M. et al. (2014) *Annu Rev Immunol* 32, 513-45.
- (2) Hemann, E.A. et al. (2017) *Front Immunol* 8, 1707.
- (3) Walter, M.R. (2020) *Front Immunol* 11, 606489.
- (4) Hervas-Stubbs, S. et al. (2011) *Clin Cancer Res* 17, 2619-27.
- (5) Mesev, E.V. et al. (2019) *Nat Microbiol* 4, 914-924.
- (6) Green, D.S. et al. (2017) *J Biol Chem* 292, 13925-13933.
- (7) Ivashkiv, L.B. (2018) *Nat Rev Immunol* 18, 545-558.

U.S. Patent No. 7,429,487, foreign equivalents, and child patents deriving therefrom.

Jak antibodies produced under license (granting certain rights including those under U.S. Patent No. 5,658,791) from Chemicon International, Inc.

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Applications: W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide **Species Cross-Reactivity:** H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebrafish B—bovine Dg—dog Pg—pig Sc—S. cerevisiae Ce—C. elegans Hr—Horse All—all species expected **Species enclosed in parentheses are predicted to react based on 100% homology.**