

Store at
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#35114

IFN (Type I/III) Signaling Pathway Antibody Sampler Kit



Support: +1-978-867-2388 (U.S.)
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New 02/21

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

Products Included	Product #	Quantity	Mol. Wt.	Isotype/Source
Tyk2 (D415T) Rabbit mAb	14193	20 µl	134 kDa	Rabbit IgG
P-Tyk2 (Y1054/1055) (D7T8A) Rabbit mAb	68790	20 µl	134 kDa	Rabbit IgG
Jak1 (6G4) Rabbit mAb	3344	20 µl	130 kDa	Rabbit IgG
P-Jak1 (Y1034/1035) (D7N4Z) Rabbit mAb	74129	20 µl	130 kDa	Rabbit IgG
Stat1 (D1K9Y) Rabbit mAb	14994	20 µl	84, 91 kDa	Rabbit IgG
P-Stat1 (Y701) (D4A7) Rabbit mAb	7649	20 µl	84, 91 kDa	Rabbit IgG
Stat2 (D9J7L) Rabbit mAb	72604	20 µl	97, 113 kDa	Rabbit IgG
P-Stat2 (Y690) (D3P2P) Rabbit mAb	88410	20 µl	97, 113 kDa	Rabbit IgG
IRF-9 (D2T8M) Rabbit mAb	76684	20 µl	48 kDa	Rabbit IgG
Anti-rabbit IgG, HRP-linked Antibody	7074	100 µl		Goat

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

Description: The IFN (Type I/III) Signaling Pathway Antibody Sampler Kit provides an economical means of detecting the activation of the IFN (Type I/III) 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 lambda (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 (Type I/III) 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 referred as Tyr1022 and Tyr1023. Phospho-Tyk2 (Tyr1054/1055) (D7T8A) Rabbit mAb detects Tyk2 when phosphorylated at both Tyr1054 and Tyr1055. Cross-reactivity was not observed with other family members. Phospho-Stat1 (Tyr701) (D4A7) Rabbit mAb recognizes endogenous levels of Stat1 protein only when phosphorylated at Tyr701. Phospho-Stat2 (Tyr690) (D3P2P) Rabbit mAb recognizes endogenous levels of Stat2 protein only when phosphorylated at Tyr690. IRF-9 (D2T8M) Rabbit mAb cross-reacts with an unidentified protein of 95 kDa. Stat1 (D1K9Y) Rabbit mAb cross-reacts with an unidentified protein of 150 kDa. A band of unknown identity at 55 kDa is detected in some cell lines by Tyk2 (D415T) Rabbit mAb.

Source/Purification: Monoclonal antibodies are produced by immunizing rabbits with synthetic peptides corresponding to residues surrounding Ile800 of Jak1, Pro688 of Stat1, Leu706 of Stat2, the carboxy terminus of Tyk2, and with recombinant protein specific to IRF-9. Phosphorylation-specific monoclonal antibodies are produced by immunizing rabbits with synthetic peptides corresponding to residues surrounding Tyr1034/1035 of Jak1, Tyr1054/1055 of Tyk2, Tyr701 of Stat1, and Tyr690 of Stat2.

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/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.

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