

Store at  
-20°C  
#44902

# IFN- $\gamma$ Signaling Pathway Antibody Sampler Kit

1 Kit (9 x 20 microliters)

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**For Research Use Only. Not for Use in Diagnostic Procedures.**

Product Includes	Product #	Quantity	Mol. Wt	Isotype/Source
IFNGR1 (E444) Antibody	10405	20 $\mu$ l	45-90 kDa	Rabbit
Jak1 (6G4) Rabbit mAb	3344	20 $\mu$ l	130 kDa	Rabbit IgG
Phospho-Jak1(Tyr1034/1035) (D7N4Z) Rabbit mAb	74129	20 $\mu$ l	130 kDa	Rabbit IgG
Jak2 (D2E12) XP <sup>®</sup> Rabbit mAb	3230	20 $\mu$ l	125 kDa	Rabbit IgG
Phospho-Jak2 (Tyr1007/1008) (C80C3) Rabbit mAb	3776	20 $\mu$ l	125 kDa	Rabbit IgG
Phospho-Stat1 (Tyr701) (D4A7) Rabbit mAb	7649	20 $\mu$ l	84, 91 kDa	Rabbit IgG
Phospho-Stat1 (Ser727) (D3B7) Rabbit mAb	8826	20 $\mu$ l	91 kDa	Rabbit IgG
Stat1 (D1K9Y) Rabbit mAb	14994	20 $\mu$ l	84, 91 kDa	Rabbit IgG
Anti-rabbit IgG, HRP-linked Antibody	7074	100 $\mu$ l		Goat

Please visit [cellsignal.com](http://cellsignal.com) for individual component applications, species cross-reactivity, dilutions, protocols, and additional product information.

## Description

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

## Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100  $\mu$ g/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at  $-20^{\circ}\text{C}$ . Do not aliquot the *antibodies*.

## 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- $\alpha$  (13 different subtypes), IFN- $\beta$  (also known as IFN- $\beta$ 1), IFN- $\epsilon$ , IFN- $\kappa$ , and IFN- $\omega$ . They bind to a receptor complex containing IFNAR1 and IFNAR2, which is broadly expressed on most cells. IFN- $\gamma$  is the sole member of type II IFN. It signals through a receptor complex consisting of IFN $\gamma$ R1 and IFN $\gamma$ R2, which is also expressed on most cell types. Type III IFN, also known as interferon lambdas (IFN- $\lambda$ s), has four members in humans: IFN- $\lambda$ 1 (IL29), IFN- $\lambda$ 2 (IL28A), IFN- $\lambda$ 3 (IL28B), and IFN- $\lambda$ 4. IFN- $\lambda$ s signal through a heterodimeric receptor composed of IFN $\lambda$ R1 and IL-10R2. While IL-10R2 is broadly expressed and shared by the IL-10 family cytokines, IFN $\lambda$ 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. They, along with IRF-9, form the so-called interferon-stimulated gene factor 3 (ISGF3) 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- $\gamma$  induces phosphorylation and activation of Jak1 and Jak2, which subsequently phosphorylate Stat1. Phosphorylated Stat1 dimerizes, translocates to the nucleus, and binds to  $\gamma$ -interferon-activated site (GAS) to initiate the transcription of ISGs (6,7).

## Background References

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- Hervas-Stubbs, S. et al. (2011) *Clin Cancer Res* 17, 2619-27.
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- Green, D.S. et al. (2017) *J Biol Chem* 292, 13925-13933.
- Ivashkiv, L.B. (2018) *Nat Rev Immunol* 18, 545-558.

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