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# ISG15 Antibody (N-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP1150a

## Product Information

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| **Application** | IHC-P, WB, E |
| **Primary Accession** | P05161 |
| **Reactivity** | Human |
| **Host** | Rabbit |
| **Clonality** | Polyclonal |
| **Isotype** | Rabbit IgG |
| **Calculated MW** | 17888 |
| **Antigen Region** | 31-61 |

## Additional Information

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| **Gene ID** | 9636 |
| **Other Names** | Ubiquitin-like protein ISG15, Interferon-induced 15 kDa protein, Interferon-induced 17 kDa protein, IP17, Ubiquitin cross-reactive protein, hUCRP, ISG15, G1P2, UCRP |
| **Target/Specificity** | This ISG15 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 31-61 amino acids from the N-terminal region of human ISG15. |
| **Dilution** | IHC-P~~1:100~500 WB~~1:1000 E~~Use at an assay dependent concentration. |
| **Format** | Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS. |
| **Storage** | Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles. |
| **Precautions** | ISG15 Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures. |

## Protein Information

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| **Name** | ISG15 ( HGNC:4053) |
| **Synonyms** | G1P2, UCRP |
| **Function** | Ubiquitin-like protein which plays a key role in the innate immune response to viral infection either via its conjugation to a target protein (ISGylation) or |

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| | via its action as a free or unconjugated protein (PubMed:27564865, PubMed:39465252). ISGylation involves a cascade of enzymatic reactions involving E1, E2, and E3 enzymes which catalyze the conjugation of ISG15 to a lysine residue in the target protein (PubMed:33727702). Its target proteins include IFIT1, MX1/MxA, PPM1B, UBE2L6, UBA7, CHMP5, CHMP2A, CHMP4B and CHMP6. Isgylation of the viral sensor IFIH1/MDA5 promotes IFIH1/MDA5 oligomerization and triggers activation of innate immunity against a range of viruses, including coronaviruses, flaviviruses and picornaviruses (PubMed:33727702). Can also isgylate: EIF2AK2/PKR which results in its activation, RIGI which inhibits its function in antiviral signaling response, EIF4E2 which enhances its cap structure-binding activity and translation-inhibition activity, UBE2N and UBE2E1 which negatively regulates their activity, IRF3 which inhibits its ubiquitination and degradation and FLNB which prevents its ability to interact with the upstream activators of the JNK cascade thereby inhibiting IFNA-induced JNK signaling. Exhibits antiviral activity towards both DNA and RNA viruses, including influenza A, HIV-1 and Ebola virus. Restricts HIV-1 and ebola virus via disruption of viral budding. Inhibits the ubiquitination of HIV-1 Gag and host TSG101 and disrupts their interaction, thereby preventing assembly and release of virions from infected cells. Inhibits Ebola virus budding mediated by the VP40 protein by disrupting ubiquitin ligase activity of NEDD4 and its ability to ubiquitinate VP40. ISGylates influenza A virus NS1 protein which causes a loss of function of the protein and the inhibition of virus replication. The secreted form of ISG15 can: induce natural killer cell proliferation, act as a chemotactic factor for neutrophils and act as a IFN-gamma-inducing cytokine playing an essential role in antimycobacterial immunity. The secreted form acts through the integrin ITGAL/ITGB2 receptor to initiate activation of SRC family tyrosine kinases including LYN, HCK and FGR which leads to secretion of IFNG and IL10; the interaction is mediated by ITGAL (PubMed:29100055). |
| **Cellular Location** | Cytoplasm. Secreted Note=Exists in three distinct states: free within the cell, released into the extracellular space, or conjugated to target proteins |
| **Tissue Location** | Detected in lymphoid cells, striated and smooth muscle, several epithelia and neurons. Expressed in neutrophils, monocytes and lymphocytes. Enhanced expression seen in pancreatic adenocarcinoma, endometrial cancer, and bladder cancer, as compared to non-cancerous tissue. In bladder cancer, the increase in expression exhibits a striking positive correlation with more advanced stages of the disease. |

## Background

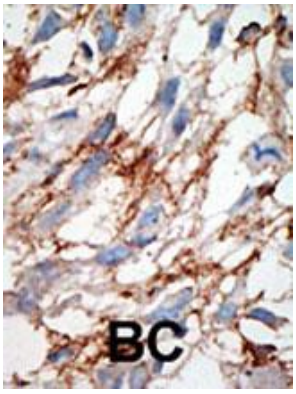
ISG15 is secreted from monocytes in response to type I interferons and causes natural killer (NK)-cell proliferation and an augmentation of non-MCH (major histocompatibility complex)-restricted cytotoxicity. Synthesis is stimulated by IFN-alpha or IFN-beta or IFN-omega , but not IFN-gamma . ISG15 expression is also induced by overexpression of interferon regulatory factors that participate in transcriptional regulation of IFN genes, and by influenza B virus. ISG15 is secreted also by cell lines of monocyte, T-lymphocyte, B-lymphocyte, human fibroblasts, and epithelial origins. The induction of terminal differentiation in human melanoma cells is associated with alterations in ISG15 expression. Enhancement of NK cell proliferation, augmentation of non-major histocompatibility complex-restricted cytotoxicity, and induction of IFN-gamma from T cells identify ISG15 as a member of the cytokine cascade and suggest that it may be responsible for amplifying and directing some of the immunomodulatory effects of IFN-alpha or IFN-beta. ISG15 has has also been shown to function intracellularly as a ubiquitin homolog.

## References

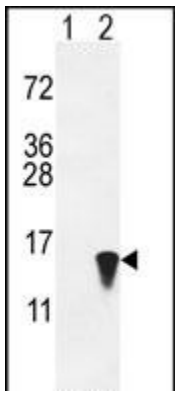
Padovan, E., et al., Cancer Res. 62(12):3453-3458 (2002).
Meraro, D., et al., J. Immunol. 168(12):6224-6231 (2002).

Reich, N., et al., Proc. Natl. Acad. Sci. U.S.A. 84(18):6394-6398 (1987).
Blomstrom, D.C., et al., J. Biol. Chem. 261(19):8811-8816 (1986).
Clauss, I.M., et al., Cytogenet. Cell Genet. 53 (2-3), 166-168 (1990).

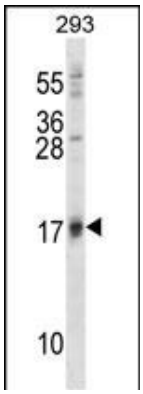
## Images



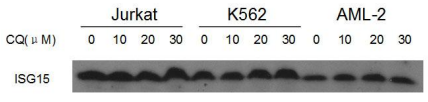

Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated. BC = breast carcinoma; HC = hepatocarcinoma.




Western blot analysis of ISG15 (arrow) using rabbit polyclonal hISG15-A46 (Cat. #AP1150a). 293 cell lysates (2 ug/lane) either nontransfected (Lane 1) or transiently transfected with the ISG15 gene (Lane 2) .




ISG15 Antibody (A46) (Cat. #AP1150a) western blot analysis in 293 cell line lysates (35ug/lane).This demonstrates the ISG15 antibody detected the ISG15 protein (arrow).




ISG15 Antibody western blot analysis in Jurkat? K562 and AML-2 cell line lysates treated with a small molecular of 0?10?20?30uM for 24 hours.(Offered friendly by Biyin Cao, Soochow University, Center for Blood Research)

## Citations

- Neutrophil Extracellular Traps Contribute to COVID-19 Hyperinflammation and Humoral Autoimmunity
- Interferon stimulated gene 15 expression at the human embryo-maternal interface.
- Herpes simplex virus and interferon signaling induce novel autophagic clusters in sensory neurons.
- Oncogene-mediated regulation of p53 ISGylation and functions.
- ISG15 deficiency and increased viral resistance in humans but not mice.

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