BostonBiochem®

An R&D Systems Company

MATERIAL DATA SHEET

Recombinant Human ISG15/UCRP Low Endotoxin
Cat. # UL-605

Interferon-stimulated Gene 15 (ISG15), also known as Ubiquitin Cross-reacting Protein (UCRP), is a Ubiquitin-like protein that is covalently coupled to target proteins in a process termed ISGylation. The mature form of ISG15 is a 156 amino acid (aa) polypeptide with a predicted molecular weight of 17 kDa. ISG15/UCRP exhibits 66% aa sequence identity with its mouse ortholog. Structurally, ISG15/UCRP consists of two tandem Ubiquitin-like domains that share a similar 3-dimensional structure with Ubiquitin and other Ubiquitin-like modifiers including NEDD8 and SUMO1. Modification of targets by ISG15/UCRP occurs in a stepwise enzymatic process similar to that of Ubiquitin. Enzymes regulating ISGylation include the activating (E1) enzyme UBE1L, the conjugating (E2) enzyme UbcH8, and ligases (E3) such as EFP/TRIM25 and HERC5 (1-4). Removal of ISG15/UCRP is catalyzed by the deconjugating enzyme UBP43/USP18 (5). Functionally, ISG15/UCRP has putative roles in the immune response and tumorigenesis. This is reflected by intracellular ISG15/UCRP targets that include Cyclin D1, tumor suppressor p63, IRF3, and a range of viral proteins (6-8). It is induced by type 1 interferons and microbial infection, and knockout mice exhibit an increased sensitivity to infection by some viruses (6). ISG15/UCRP can also be secreted by cells of the immune system and may act in a cytokine-like manner (9). For instance, it is produced by human granulocytes in response to mycobacterium exposure, and natural killer cells and T cells respond to extracellular ISG15/UCRP with IFN-gamma production (10). Further supporting a role in immune function, ISG15/UCRP mutations are associated with MSMD, an inherited disorder characterized by increased susceptibility to mycobacterial infection (10).

Product Information	
Quantity:	500 µg
MW:	17 kDa
Source:	*E. coli*-derived Accession # P05161
Stock:	X mg/ml (X µM) in 50 mM HEPES pH 7.5, 100 mM NaCl, 5% (v/v) Glycerol, 2mM TCEP
Purity:	>95%, by SDS-PAGE under reducing conditions and visualized by Colloidal Coomassie® Blue stain.

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Use & Storage

Use: Recombinant Human ISG15 can be conjugated to substrate proteins via the subsequent actions of an ISG15-activating (E1) enzyme, an ISG15-conjugating (E2) enzyme, and an ISG15 ligase (E3). Reaction conditions will need to be optimized for each specific application. We recommend an initial Recombinant Human ISG15 concentration of 1-10 µM for conjugation reactions. For cell-based applications, optimal concentrations will need to be established by the investigator.

Storage: **Use a manual defrost freezer and avoid repeated freeze-thaw cycles.**

- 12 months from date of receipt, -70 °C as supplied.
- 3 months, -70 °C under sterile conditions after opening.

Literature

References:

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