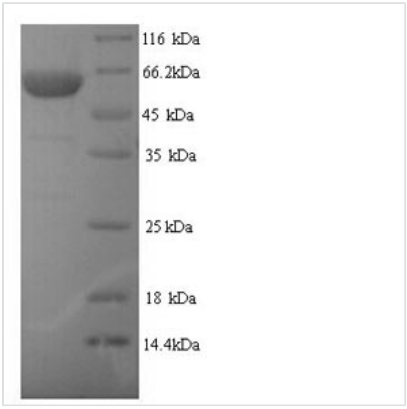
Recombinant Human E3 ubiquitin-protein ligase TRIM21 (TRIM21)

Product Code	CSB-YP024457HU
Relevance	E3 ubiquitin-protein ligase whose activity is dependent on E2 enzymes, UBE2D1, UBE2D2, UBE2E1 and UBE2E2. Forms a ubiquitin ligase complex in cooperation with the E2 UBE2D2 that is used not only for the ubiquitination of USP4 and IKBKB but also for its self-ubiquitination. Component of cullin-RING-based SCF (SKP1-CUL1-F-box protein) E3 ubiquitin-protein ligase complexes such as SCF(SKP2)-like complexes. A TRIM21-containing SCF(SKP2)-like complex is shown to mediate ubiquitination of CDKN1B ('Thr-187' phosphorylated-form), thereby promoting its degradation by the proteasome. Monoubiquitinates IKBKB that will negatively regulates Tax-induced NF-kappa-B signaling. Negatively regulates IFN-beta production post-pathogen recognition by polyubiquitin-mediated degradation of IRF3. Mediates the ubiquitin-mediated proteasomal degradation of IgG1 heavy chain, which is linked to the VCP-mediated ER-associated degradation (ERAD) pathway. Promotes IRF8 ubiquitination, which enhanced the ability of IRF8 to stimulate cytokine genes transcription in macrophages. Plays a role in the regulation of the cell cycle progression. Enhances the decapping activity of DCP2. Exists as a ribonucleoprotein particle present in all mammalian cells studied and composed of a single polypeptide and one of four small RNA molecules. At least two isoforms are present in nucleated and red blood cells, and tissue specific differences in RO/SSA proteins have been identified. The common feature of these proteins is their ability to bind HY RNAs.2
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	P19474
Alias	52 kDa Ro protein52 kDa ribonucleoprotein autoantigen Ro/SS-ARING finger protein 81Ro(SS-A)Sjoegren syndrome type A antigen ;SS-ATripartite motif-containing protein 21
Product Type	Recombinant Protein
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	MASAARLTMMWEEVTCPICLDPFVEPVSIECGHSFCQECISQVGKGGGSVCP VCRQRFLLKNLRPNRQLANMVNNLKEISQEAREGTQGERCAVHGERLHLFCE KDGKALCWVCAQSRKHRDHAMVPLEEAAQEYQEKLQVALGELRRKQELAEK LEVEIAIKRADWKKTVETQKSRIHAEFVQQKNFLVEEEQRQLQELEKDEREQL RILGEKEAKLAQQSQALQELISELDRRCHSSALELLQEVIIVLERSESWNLKDLD ITSPELRSVCHVPGLKKMLRTCAVHITLDPDTANPWLILSEDRRQVRLGDTQQS IPGNEERFDSYPMVLGAQHFHSGKHYWEVDVTGKEAWDLGVCRDSVRRKGH FLLSSKSGFWTIWLWNKQKYEAGTYPQTPLHLQVPPCQVGIFLDYEAGMVSF

	YNITDHGSLIYSFSECAFTGPLRPFFSPGFNDGGKNTAPLTLCPLNIGSQGSTDY
Lead Time	3-7 business days
Research Area	Epigenetics and Nuclear Signaling
Source	Yeast
Gene Names	TRIM21
Protein Names	Recommended name: E3 ubiquitin-protein ligase TRIM21 EC= 6.3.2.- Alternative name(s): 52 kDa Ro protein 52 kDa ribonucleoprotein autoantigen Ro/SS-A RING finger protein 81 Ro(SS-A) Sjoegren syndrome type A antigen Short
Expression Region	1-475aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-tagged
Mol. Weight	56.2kDa
Protein Description	Full Length

Image

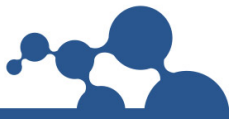


(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

Recombinant human E3 ubiquitin-protein ligase TRIM21 production in yeast involves co-cloning the gene of interest (1-475aa of human TRIM21) into an expression vector with an N-terminal 6xHis-tag gene, followed by transformation into yeast cells. The cells are cultured under conditions that induce protein expression. After sufficient growth is achieved, the cells are lysed to release the recombinant TRIM21 protein, which is purified through affinity chromatography. The purity of the protein is confirmed using SDS-PAGE, exceeding 90%.

RIM21, also known as Ro52/SSA1, is an E3 ubiquitin ligase particularly involved in immune host defense, signal transduction, and immune responses. TRIM21 participates in innate immunity by regulating the ubiquitination of IFN regulatory factors (IRFs) [1]. It negatively regulates the innate immune response to intracellular double-stranded DNA by promoting the degradation of DDX41 [2]. Additionally, TRIM21 interacts with proteins such as endoglin and galectin-3, indicating its role in modulating inflammatory responses [3]. TRIM21 is



associated with NF-κB-dependent cytokine expression, emphasizing its importance in regulating inflammatory processes [4]. Furthermore, TRIM21 also contributes to cancer development. Studies have reported that TRIM21 promotes hepatocarcinogenesis by inhibiting the p62-Keap1-Nrf2 antioxidant pathway [5].

References:
[1] M. Sjöstrand, A. Ambrosi, S. Brauner, J. Sullivan, S. Malin, V. Kuchrooet al., Expression of the immune regulator tripartite-motif 21 is controlled by ifn regulatory factors, The Journal of Immunology, vol. 191, no. 7, p. 3753-3763, 2013. https://doi.org/10.4049/jimmunol.1202341
[2] Z. Zhang, M. Bao, N. Lü, L. Weng, B. Yuan, & Y. Liu, The e3 ubiquitin ligase trim21 negatively regulates the innate immune response to intracellular double-stranded dna, Nature Immunology, vol. 14, no. 2, p. 172-178, 2012. https://doi.org/10.1038/ni.2492
https://doi.org/10.3389/fimmu.2017.00780
[3] E. Gallardo-Vara, L. Ruíz-Llorente, J. Casado?Vela, M. Ruiz-Rodríguez, N. López?Andrés, A. Pattnaiket al., Endoglin protein interactome profiling identifies trim21 and galectin-3 as new binding partners, Cells, vol. 8, no. 9, p. 1082, 2019. https://doi.org/10.3390/cells8091082
[4] R. Yoshimi, T. Chang, H. Wang, T. Atsumi, H. Morse, & K. Ozato, Gene disruption study reveals a nonredundant role for trim21/ro52 in nf-κb-dependent cytokine expression in fibroblasts, The Journal of Immunology, vol. 182, no. 12, p. 7527-7538, 2009. https://doi.org/10.4049/jimmunol.0804121
[5] F. Wang, Y. Zhang, J. Shen, B. Yang, W. Dai, J. Yanet al., The ubiquitin e3 ligase trim21 promotes hepatocarcinogenesis by suppressing the p62-keap1-nrf2 antioxidant pathway, Cellular and Molecular Gastroenterology and Hepatology, vol. 11, no. 5, p. 1369-1385, 2021. https://doi.org/10.1016/j.jcmgh.2021.01.007

Reconstitution

We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.