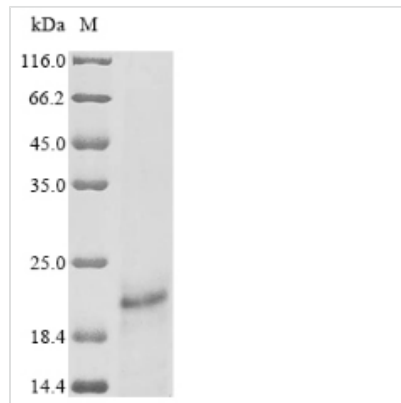




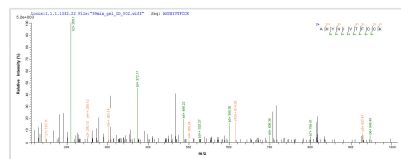
Recombinant Human papillomavirus type 16

Protein E7 (E7)

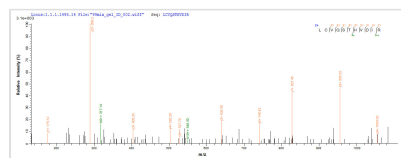
Product Code	CSB-EP365855HML
Relevance	E7 protein has both transforming and trans-activating activities. Disrupts the function of host retinoblastoma protein RB1/pRb, which is a key regulator of the cell cycle. Induces the disassembly of the E2F1 transcription factors from RB1, with subsequent transcriptional activation of E2F1-regulated S-phase genes. Inactivation of the ability of RB1 to arrest the cell cycle is critical for cellular transformation, uncontrolled cellular growth and proliferation induced by viral infection. Stimulation of progression from G1 to S phase allows the virus to efficiently use the cellular DNA replicating machinery to achieve viral genome replication. Interferes with histone deacetylation mediated by HDAC1 and HDAC2, leading to activation of transcription .
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.	P03129
Product Type	Recombinant Protein
Immunogen Species	Human papillomavirus type 16
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	MHGDTPTLHEYMLDLQPETTDLYCYEQLNDSSEEEDEIDGPAGQAEPDRAHY NIVTFCKCDSTLRRCVQSTHVDIRLTLEDLLMGTGIVCPICSQKP
Lead Time	3-7 business days
Research Area	Epigenetics and Nuclear Signaling
Source	E.coli
Gene Names	E7
Expression Region	1-98aa
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	15.0 kDa
Protein Description	Full Length
Image	



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



Based on the SEQUEST from database of E.coli host and target protein, the LC-MS/MS Analysis result of CSB-EP365855HML could indicate that this peptide derived from E.coli-expressed Homo sapiens (Human) E7.



Based on the SEQUEST from database of E.coli host and target protein, the LC-MS/MS Analysis result of CSB-EP365855HML could indicate that this peptide derived from E.coli-expressed Homo sapiens (Human) E7.

Description

Protein E7 is a crucial oncoprotein found in high-risk human papillomavirus (HPV) types, such as HPV-16. E7 is a small phosphoprotein that interacts with various cellular proteins to promote cellular transformation. It shares sequence homology with adenovirus E1a protein and simian virus 40 large T antigen [1]. E7 exerts its functions by primarily interacting with the retinoblastoma protein (pRB) and other cellular targets, leading to the inactivation of Rb-related proteins p107 and p130 [2][3]. This inactivation of Rb family proteins by E7 disrupts the normal cell cycle regulation, allowing for uncontrolled cell proliferation [4].

E7 is considered the major transforming protein among HPV oncoproteins and is structurally and functionally similar to adenovirus E1A and SV40 Large T antigen [5]. It binds and destabilizes pRB, p107, and p130, inhibiting their tumor-suppressive functions and promoting cell cycle progression [6]. E7 contains conserved regions, including CR1 at the N-terminal end, CR2 with the LxCxE motif, and CR3 at the C-terminal end, which are crucial for its interactions with molecular targets [7][8].

Moreover, E7 binds to specific domains in the Rb protein, namely RbAB and RbC domains, further interfering with Rb's tumor-suppressive activities [9]. The interaction of E7 with pRB is essential for overcoming cell cycle arrest and promoting cell proliferation [6]. Additionally, E7 can induce abnormal centrosome duplication independently of Rb inactivation, further contributing to its oncogenic potential [4].

References:



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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.