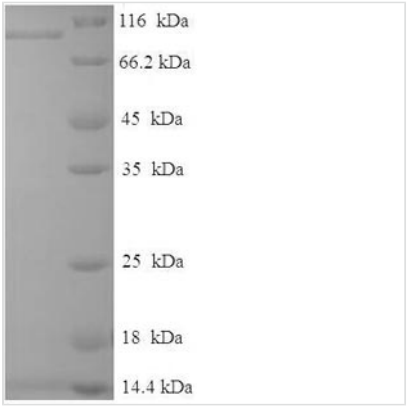
Recombinant Human RAF proto-oncogene serine/threonine-protein kinase (RAF1)

Product Code	CSB-EP019284HU
Relevance	Serine/threonine-protein kinase that acts as a regulatory link between the mbrane-associated Ras GTPases and the MAPK/ERK cascade, and this critical regulatory link functions as a switch determining cell fate decisions including proliferation, differentiation, apoptosis, survival and oncogenic transformation. RAF1 activation initiates a mitogen-activated protein kinase (MAPK) cascade that comprises a sequential phosphorylation of the dual-specific MAPK kinases (MAP2K1/MEK1 and MAP2K2/MEK2) and the Extracellular domain signal-regulated kinases (MAPK3/ERK1 and MAPK1/ERK2). The phosphorylated form of RAF1 (on residues Ser-338 and Ser-339, by PAK1) phosphorylates BAD/Bcl2-antagonist of cell death at 'Ser-75'. Phosphorylates adenylyl cyclases: ADCY2, ADCY5 and ADCY6, resulting in their activation. Phosphorylates PPP1R12A resulting in inhibition of the phosphatase activity. Phosphorylates TNNT2/cardiac muscle troponin T. Can promote NF-kB activation and inhibit signal transducers involved in motility (ROCK2), apoptosis (MAP3K5/ASK1 and STK3/MST2), proliferation and angiogenesis (RB1). Can protect cells from apoptosis also by translocating to the mitochondria where it binds BCL2 and displaces BAD/Bcl2-antagonist of cell death. Regulates Rho signaling and migration, and is required for normal wound healing. Plays a role in the oncogenic transformation of epithelial cells via repression of the TJ protein, occludin (OCLN) by inducing the up-regulation of a transcriptional repressor SNAI2/SLUG, which induces down-regulation of OCLN. Restricts caspase activation in response to selected stimuli, notably Fas stimulation, pathogen-mediated macrophage apoptosis, and erythroid differentiation
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.	P04049
Alias	Proto-oncogene c-RAF ;cRafRaf-1
Product Type	Recombinant Protein
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	MEHIQGAWKTISNGFGFKDAVFDGSSCISPTIVQQFGYQRRASDDGKLTDPSK TSNTIRVFLPNKQRTVVNVRNGMSLHDCLMKALKVRGLQPECCAVFRLLHEHK GKKARLDWNTDAASLIGEELQVDFLDHVPLTTHNFARKTFLKLAFCDICQKFLL NGFRCQTCGYKFHEHCSTKVPTMCVDWSNIRQLLLFPNSTIGDSGVPALPSLT MRRMRESVSRMPVSSQHRYSTPHAFTFNTSSPSSEGSLSQRQRSTSTPNVH MVSTTLPVDSRMIEDAIRSHSESASPSALSSSPNNLSPTGWSQPKTPVPAQRE RAPVSGTQEKNKIRPRGQRDSSYYWEIEASEVMLSTRIGSGSFGTVYKGKWH GDVAVKILKVVDPTPEQFQAFRNEVAVLRKTRHVNILLFMGYMTKDNLAIVTQ

	WCEGSSLYKHLHVQETKFQMFQLIDIARQTAQGMDYLHAKNIIHRDMKSNNIFL HEGLTVKIGDFGLATVKSRWSGSQQVEQPTGSVLWMAPEVIRMQDNNPFSF QSDVYSYGIVLYELMTGELPYSHINNRDQIIFMVGRGYASPDLSKLYKNCPKAM KRLVADCVKKVKEERPLFPQILSSIELLQHSLPKINRSASEPSLHRAAHTEDINA CTLTTSPRLPVF
Lead Time	3-7 business days
Research Area	Cancer
Source	E.coli
Gene Names	RAF1
Expression Region	1-648aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-SUMO-tagged
Mol. Weight	89.1kDa
Protein Description	Full Length

Image



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

Description

The recombinant human RAF1 protein, engineered with an N-terminal 6xHis-SUMO tag, is expressed using an E. coli expression system. The RAF1 gene fragment (1-648aa) is first co-cloned into a suitable expression vector with the 6xHis-SUMO tag gene and then transformed into competent E. coli cells. After induction with IPTG to trigger protein expression, the cells are harvested and lysed to obtain the targeted proteins. The recombinant RAF1 protein is purified using affinity chromatography. The purified RAF1 protein is analyzed for purity via SDS-PAGE, which typically shows a purity greater than 90%, ensuring the protein is suitable for downstream applications.

The human RAF1 (C-Raf) is a critical component of the MAPK signaling pathway. This pathway is essential for various cellular processes, including proliferation, differentiation, and survival. RAF1 is a serine/threonine kinase activated by the small GTPase Ras, which is itself stimulated by growth factors, hormones, and cytokines [1-4]. Upon activation, RAF1 phosphorylates and activates MEK, which subsequently activates ERK, leading to a cascade of downstream signaling events that influence gene expression and cellular

responses [5-7].

Excessive or prolonged activation of RAF1 can lead to adverse cellular outcomes, including apoptosis or uncontrolled cell division [8][9]. Recent studies have also highlighted the role of RAF1 in crosstalk with other signaling pathways, such as the PI3K/Akt pathway, which further complicates its function in cancer biology [2][10]. Understanding the multifaceted roles of RAF1 and its interactions within signaling networks is crucial for developing targeted therapies aimed at inhibiting its activity in cancer treatment [11][12].

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.