CDKN1A Protein, Human (GST)

Cat. No.:	HY-P700570
Synonyms:	CDK-interacting protein 1Melanoma differentiation-associated protein 6 ; MDA-6p21
Species:	Human
Source:	E. coli
Accession:	P38936 (S2-P164)
Gene ID:	1026
Molecular Weight:	53 kDa

PROPERTIES

AA Sequence	S E P A G D V R Q N P C G S K A C R R L F G P V D S E Q L S R D C D A L M A G C I Q E A R E R W N F D F V T E T P L E G D F A W E R V R G L G L P K L Y L P T G P R R G R D E L G G G R R P G T S P A L L Q G T A E E D H V D L S L S C T L V P R S G E Q A E G S P G G P G D S Q G R K R R Q T S M T D F Y H S K R R L I F S K R K P
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm filtered solution of 20 mM Tris-HCl, 0.5 M NaCl, 6% Trehalose, pH 8.0.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	The CDKN1A protein assumes a crucial role in controlling cell cycle progression and orchestrating DNA damage-induced G2 arrest. It actively participates in p53/TP53-mediated inhibition of cellular proliferation in response to DNA damage and is also implicated in p53-independent DNA damage-induced G2 arrest, mediated by CREB3L1 in astrocytes and osteoblasts. Functionally, CDKN1A binds to and inhibits cyclin-dependent kinase activity, preventing the phosphorylation of critical cyclin-dependent kinase substrates and thereby blocking cell cycle progression. It contributes to the nuclear localization and assembly of the cyclin D-CDK4 complex, promoting its kinase activity towards RB1. At higher stoichiometric ratios, CDKN1A inhibits the kinase activity of the cyclin D-CDK4 complex and competes with POLD3 for PCNA binding, leading to the inhibition of DNA synthesis by DNA polymerase delta. The intricate regulatory network of CDKN1A includes interactions with

	HDAC1, MKRN1, PSMA3, CDK4, CDK2, PIM1, STK11, NUAK1, and TRIM39 isoforms, reflecting its diverse role in cell cycle regulation and DNA damage response.

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