

Azoreductase/NQO1 Protein, Human

Cat. No.:	HY-P74405A
Synonyms:	NQO1; DIA4; NAD(P)H dehydrogenase [quinone] 1; Azoreductase; DTD; QR1
Species:	Human
Source:	E. coli
Accession:	P15559-1 (M1-K274)
Gene ID:	1728
Molecular Weight:	Approximately 33 kDa

PROPERTIES

AA Sequence	<div> M V G R R A L I V L A H S E R T S F N Y A M K E A A A A A L K K K G W E V V E S D L Y A M N F N P I I S R K D I T G K L K D P A N F Q Y P A E S V L A Y K E G H L S P D I V A E Q K K L E A A D L V I F Q F P L Q W F G V P A I L K G W F E R V F I G E F A Y T Y A A M Y D K G P F R S K K A V L S I T T G G S G S M Y S L Q G I H G D M N V I L W P I Q S G I L H F C G F Q V L E P Q L T Y S I G H T P A D A R I Q I L E G W K K R L E N I W D E T P L Y F A P S S L F D L N F Q A G F L M K K E V Q D E E K N K K F G L S V G H H L G K S I P T D N Q I K A R K </div>
Biological Activity	The enzyme activity of this recombinant protein is testing in progress, we cannot offer a guarantee yet.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 µm filtered solution of 50 mM Tris-HCL, 300 mM NaCl, pH 7.4, 5% trehalose, 5% mannitol and 0.01% Tween 80.
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH ₂ O.
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	Azoreductase/NQO1 protein is a flavin-containing quinone reductase that facilitates the two-electron reduction of quinones to hydroquinones, utilizing either NADH or NADPH as electron donors. Operating through a ping-pong kinetic mechanism, the electrons are sequentially transferred from NAD(P)H to the flavin cofactor and subsequently to the quinone, effectively
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bypassing the generation of semiquinone and reactive oxygen species. This enzymatic activity plays a crucial role in regulating cellular redox balance by detoxifying quinones. Azoreductase/NQO1 serves as a superoxide scavenger, preventing hydroquinone oxidation and supporting antioxidant defense mechanisms. Moreover, it participates in the activation of quinones, generating redox-reactive hydroquinones with potential antitumor properties through DNA cross-linking. Notably, the protein acts as a gatekeeper for the core 20S proteasome, interacting with tumor suppressors TP53 and TP73 in a NADH-dependent manner to inhibit their ubiquitin-independent degradation during oxidative stress.

Caution: Product has not been fully validated for medical applications. For research use only.

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