Azoreductase/NQO1 Protein, Mouse (P.pastoris, His)

Cat. No.:	HY-P71831
Synonyms:	Nqo1; Dia4; Nmo1; Nmor1; NAD(P)H dehydrogenase [quinone] 1; EC 1.6.5.2; Azoreductase; DT-diaphorase; DTD; Phylloquinone reductase; Quinone reductase 1; QR1
Species:	Mouse
Source:	P. pastoris
Accession:	Q64669 (A2-K274)
Gene ID:	18104
Molecular Weight:	Approximately 33 kDa

PROPERTIES

AA Sequence	A A R R A L I V L A H S E K T S F N Y A M K E A A V E A L K K R G W E V L E S D L Y A M N F N P I I S R N D I T G E L K D S K N F Q Y P S E S S L A Y K E G R L S P D I V A E H 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 L V A G F A Y T Y A A M Y D N G P F Q N K K T L L S I T T G G S G S M Y S L Q G V H G D M N V I L W P I Q S G I L R F C G F Q V L E P Q L V Y S I G H T P P D A R M Q I L E G W K K R L E T V W E 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 E E Q K K N K F G L S V G H H L G K S I P A D N Q I K A R K
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 sterile filtered 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	Azoreductase/NQO1 protein, a flavin-containing quinone reductase, plays a pivotal role in cellular redox regulation by catalyzing the two-electron reduction of quinones to hydroquinones, utilizing either NADH or NADPH as electron donors. Operating through a ping-pong kinetic mechanism, the enzyme sequentially transfers electrons from NAD(P)H to its flavin cofactor and then from the reduced flavin to the quinone, thereby bypassing the formation of semiquinone and reactive

oxygen species. This process serves as a key component in quinone detoxification, regulating the cellular redox state. Azoreductase/NQO1 also contributes to the reduction of plasma membrane redox system components, such as coenzyme Q and vitamin quinones, generating antioxidant hydroquinone forms and potentially acting as a superoxide scavenger. Moreover, the protein exhibits versatility in its actions, as it can alternatively activate quinones and their derivatives, producing redox-reactive hydroquinones with DNA cross-linking antitumor potential. Furthermore, Azoreductase/NQO1 functions as a gatekeeper of 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.

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