

AtAER Protein, Arabidopsis thaliana, Recombinant (His & SUMO)

General Information

Synonyms:	NADPH:2-alkenal/one alpha,beta-hydrogenase (ALH);AER;P1-zeta-crystallin protein (P1-ZCr);NADP-dependent alkenal double bond reductase P1 (DBR1);AtAER;P1;NADPH-azodicarbonyl/quinone reductase;NADPH-dependent oxidoreductase 2-alkenal reductase
Protein Construction:	1-345 aa
Species:	Arabidopsis thaliana
Expression Host:	E. coli
Accession:	Q39172
Molecular Weight:	54.1 kDa (predicted)
AA Sequence:	MTATNKQVILKDYVSGFPTESEDFDFTTTTVELRVPEGTNSVLVKNLYLSCDPYMRIRMGKPDSTAALAQAYT PGQPIQGYGVSRIIESGHPDYKKGDLLWGIVAWEEYSVITPMTHAHFKIQHTDVPLSYTGLLGMPGMTAYAG FYEVCSPKEGETVYVSAASGAVGQLVGLAKMMGCYVVGSAKSKEKVDLLKTKFGFDDAFNYKEESDLTAAL KRCFPNGIDIYFENVGGKMLDAVLVNMNMHGRIAVCGMISQYNLENQEGVHNLNIIYKRIRIQGFVVSDFYD KYSKFLEFVLPHIREGKITYVEDVADGLEKAPEALVGLFHGKNVKGQVVVVARE

QC Testing

Biological Activity:	Activity has not been tested. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.
Purity:	> 90% as determined by SDS-PAGE.
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Tris-based buffer, 50% glycerol

Preparation and Storage

Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

Stability & Storage:

Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

Involved in the detoxification of reactive carbonyls. Acts on lipid peroxide-derived reactive aldehydes. Specific to a

double bond activated by an adjacent carbonyl group. Can use both quinones and diamide as substrates, but not menadione, ferricyanide or phylloquinone. Can use 4-hydroxy-(2E)-nonenal (HNE), 4-hydroxy-(2E)-hexenal (HHE), (2E)-nonenal, (2E)-hexenal, (2E)-pentenal, propenal (acrolein), 3-buten-2-one and 3-penten-2-one, but not (R)-(-)-carvone, n-nonanal, n-hexanal, (3Z)-hexenal, cyclohex-2-en-1-one or 12-oxo phytodienoic acid (OPDA) as electron acceptors. Catalyzes the reduction of the alpha,beta-unsaturated bond of 2-alkenals, of lipid peroxide-derived oxenes 9-oxo-10(E),12(Z)-octadecadienoic acid (9-KODE) and 13-oxo-9(Z),11(E)-octadecadienoic acid (13-KODE), as well as 4-oxo-(2E)-nonenal and 4-hydroxynonenal. Can use 12-oxo-10(E) dodecanoate (traumatin), trans-1,3 diphenyl-2-propenone, trans-1,4-diphenyl-2-butene-1,4-dione, 9-oxo-12,13-epoxy-(10E)-octadecenoic acid (trans-EKODE-1b) and 9,13-dihydroxy-10-oxo-11-octadecenoic acid as substrates. Catalyzes the reduction of the 7-8 double bond of phenylpropanal substrates, such as p-coumaryl aldehyde and coniferyl aldehyde (in vitro). Has activity towards toxic substrates, such as 4-hydroxy-(2E)-nonenal (in vitro). May play a distinct role in plant antioxidant defense and is possibly involved in NAD(P)/NAD(P)H homeostasis.

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