

# NADP-dependent alkenal double bond reductase P1 (P1) (AER), Recombinant Protein

Cat *RP00086*

Size *0.02 mg (E-Coli)/ 0.2 mg (E-Coli)/ 5x0.2 mg (E-Coli)*

## Species

*Arabidopsis thaliana* (Mouse-ear cress)

## Full Product Name

Recombinant *Arabidopsis thaliana* NADP-dependent alkenal double bond reductase P1 (P1)

## Product Gene Name

AER recombinant protein

## Product Synonym Gene Name

P1

## Purity

Greater or equal to 85% purity as determined by SDS-PAGE. (lot specific)

## Sequence

MTATNKQVIL KDYVSGFPTE SDFDFTTTTV ELRVPEGTNS VLVKNLYLSC DPYMRIRMGK PDPSTAALAQ  
AYTPGQPIQG YGVSRIIESG HPDYKKGDLL WGIVAWEEYS VITPMTHAHF KIQHTDVPLS YYTGLLGMPG  
MTAYAGFYEV CSPKEGETVY VSAASGAVGQ LVGQLAKMMG CYVVGSAAGSK EKVDLLKTKF GFDDAFNYKE  
ESDLTAALKR CFPNGIDIYF ENVGGKMLDA VLVNMNMHGR IAVCGMISQY NLENQEGVHN LSNIYKRIR  
IQGFVVSDFY DKYSKFLEFV LPHIREGKIT YVEDVADGLE KAPEALVGLF HGKNVKGQVV VVARE

## Sequence Positions

1-345aa; Full Length

## Format

Lyophilized or liquid (Format to be determined during the manufacturing process)

## Host

E Coli or Yeast or Baculovirus or Mammalian Cell

## Molecular Weight

38.1 kDa

## Storage

Store at -20°C. For long-term storage, store at -20°C or -80°C. Store working aliquots at 4°C for up to one week. Repeated freezing and thawing is not recommended.

## Protein Family

Aerotaxis receptor

## NCBI Accession #

NP\_197199.1

## NCBI GI #

15237888

## NCBI GenBank Nucleotide #

FOR RESEARCH OR FURTHER MANUFACTURING USE ONLY

# NADP-dependent alkenal double bond reductase P1 (P1) (AER), Recombinant Protein

Cat *RP00086*

Size *0.02 mg (E-Coli)/ 0.2 mg (E-Coli)/ 5x0.2 mg (E-Coli)*

---

NM\_121703.4

## NCBI GenID

831560

## NCBI Official Full Name

alkenal reductase

## NCBI Official Symbol

AER

## NCBI Official Synonym Symbols

alkenal reductase; AT-AER; F2K13.120; F2K13\_120

## NCBI Protein Information

alkenal reductase

## NCBI Summary

encodes a 2-alkenal reductase (EC 1.3.1.74), plays a key role in the detoxification of reactive carbonyls

## UniProt Gene Name

AER

## UniProt Synonym Gene Names

P1-ZCr

## UniProt Protein Name

NADPH-dependent oxidoreductase 2-alkenal reductase

## UniProt Synonym Protein Names

NADP-dependent alkenal double bond reductase P1

## UniProt Primary Accession #

Q39172

## UniProt Secondary Accession #

Q501A9; Q8L865

## UniProt Related Accession #

Q39172

## UniProt Comments

Involved in the detoxification of reactive carbonyls (PubMed:10848984, PubMed:12514241, PubMed:16299173). Acts on lipid peroxide-derived reactive aldehydes (PubMed:12514241). Specific to a double bond activated by an adjacent carbonyl group (PubMed:12514241). Can use both quinones and diamide as substrates, but not menadione, ferricyanide or phyloquinone (PubMed:10848984). 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)-hexanal, cyclohex-2-en-1-one or 12-oxo

---

**FOR RESEARCH OR FURTHER MANUFACTURING USE ONLY**

# NADP-dependent alkenal double bond reductase P1 (P1) (AER), Recombinant Protein

Cat *RP00086*

Size *0.02 mg (E-Coli)/ 0.2 mg (E-Coli)/ 5x0.2 mg (E-Coli)*

---

phytyldienoic acid (OPDA) as electron acceptors (PubMed:12514241). 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 (PubMed:16299173). 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 (PubMed:26678323). Catalyzes the reduction of the 7-8 double bond of phenylpropanal substrates, such as p-coumaryl aldehyde and coniferyl aldehyde (in vitro) (PubMed:17028190). Has activity towards toxic substrates, such as 4-hydroxy-(2E)-nonenal (in vitro) (PubMed:17028190). May play a distinct role in plant antioxidant defense and is possibly involved in NAD(P)/NAD(P)H homeostasis (PubMed:17028190).

---

**FOR RESEARCH OR FURTHER MANUFACTURING USE ONLY**