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AtNaR: *Arabidopsis thaliana* NADH Nitrate Reductase

Product Specifications: Immobilized Metal Affinity Chromatography (IMAC) purified yeast NADH: nitrate reductase, 5 - 15 U/mg total protein. Modified method of Barbier, GG, RC Joshi, ER Campbell & WH Campbell (2004) *Protein Expression and Purification* 37: 61-71.

Specific Activity: 5 - 15 units/mg enzyme protein

Form: Freeze-dried protein glass containing 50 mM MOPS, pH 7.0, 0.1 mM EDTA, sugar, (MOPS = 3-[N-Morpholino]propanesulfonic acid)

Activity Supplied: Vials containing 0.5 – 5.0 U/vial, as specified by purchaser

General Information:

- **Product:** AtNaR: *Recombinant Higher plant (Arabidopsis thaliana NADH:Nitrate Reductase)*
- **SKUs:** AtNaR-U#, AtNaR-RPk, NRPk-DA-1At, NRPk-AND-1At, NRPk-HDA-3At, NRPk-FIA-3At
- **CAS #:** 9013-03-0
- **E.C #:** 1.7.1.1
- **Catalyzes NADH dependent reduction of nitrate to nitrite.**
- **Unit definition:** One unit will reduce 1.0 μ mole of nitrate to nitrite per minute in an NADH system, at pH 7.5 and 30°C
- **Temperature range:** Active at 15 – 40°C. Temp optimum 35°C
- **Functional in the presence of *Ct* ion and complex organics (e.g. humic acids)**
- **Physical form:** Freeze-dried protein glass
- **Stability problems:** Thermal denaturation; pH extremes. Use standard precautions for proteins
- **Expected purity range:** Greater than 95%
- **Impurities & relative %'s:** High mw polymers of nitrate reductase, <5%; fragments of NaR
- **Additives & relative %'s:** 50 mM MOPS/ 0.1 mM EDTA, sugar > 99% of dry weight
- **Range of protein expected:** 65-200 μ g protein/U enzyme
- **Range of activity expected:** Controlled at desired units per vial

Storage Conditions & Shelf Life Information*

*Shelf life guaranteed if stored as directed below

	-80°C	-20°C	4°C	RT: 20°C – 25°C	Above 40°C
Freeze-Dried	3+ Years	2+ Years	1+ Year	6 months	Up to 1 week
In Solution⁺	1+ Year	6+ months	Up to 1 week	Not recommended	Not recommended

+ Enzyme provided with enzyme diluent working solution, contains 25% glycerol

Recombinant Higher plant (*Arabidopsis thaliana*) NADH:NITRATE REDUCTASE, (EC 1.7.1.1), expressed in the GRAS yeast *Pichia pastoris*. PURIFIED to homogeneity by AFFINITY CHROMATOGRAPHY. NO animal derived materials. Purity is greater than 95%.

The product has been highly purified so that it does not contain any residual fermentation material other than the highly purified enzyme. The product does not contain ingredients of animal, plant or microbial origin other than that used in the fermentation process. The product is provided in pack sizes from 0.02 to 5.0 Enzyme Activity Units (U) per vial; 65 – 200 micrograms of protein equals 1.0 U. Additives are reagent grade. End use is for analysis of nitrate in agricultural, environmental, industrial, biomedical, water or wastewater samples. **No animal-derived materials.** No hazardous materials.