

### Certificate of Analysis

**Product:** Protein A Purified Anti-NRF1 (Rabbit)

**Code:** 200-401-869

**Lot #:** 15974

**Size:** 500 µg

**Physical State:** Liquid (sterile filtered)

**Antibody Concentration:** 1.0 mg/ml (by UV absorbance at 280 nm)

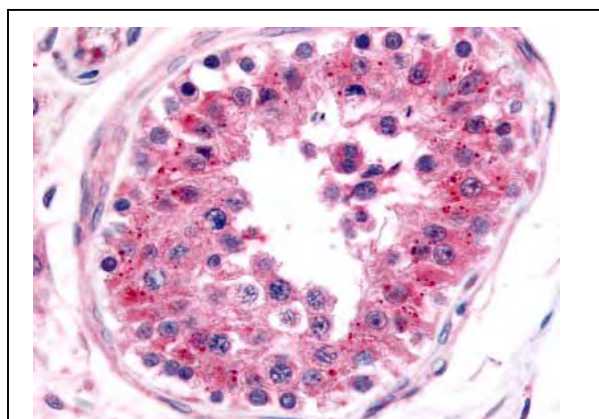
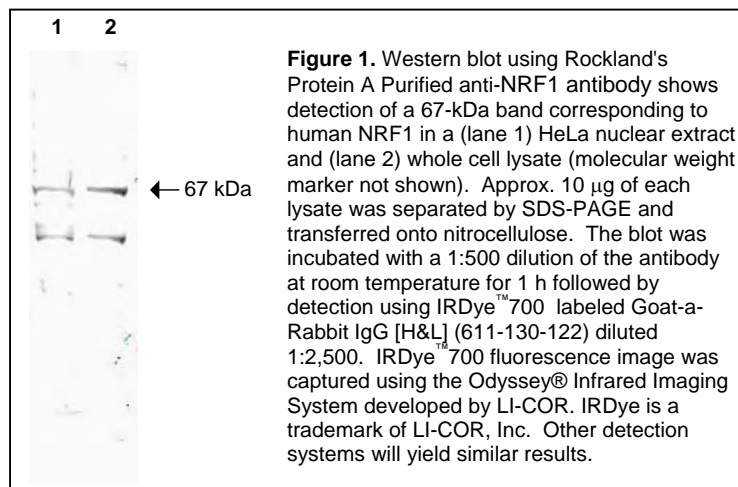
**Buffer:** 0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2

**Stabilizer:** None

**Preservative:** 0.01% (w/v) Sodium Azide

**Storage Conditions:** Store vial at -20° C prior to opening. Dilute only prior to immediate use. For extended storage aliquot contents and freeze at -20° C or below. Avoid cycles of freezing and thawing. Expiration date is one (1) year from date of opening.

**Background Information:** NRF1 (also known as nuclear respiratory factor 1, alpha palindromic binding protein and alpha-pal) is the mammalian homolog to the erect wing (ewg) *Drosophila* protein that is required for proper development of the central nervous system and indirect flight muscles. In mammals NRF1 functions as a transcription factor that activates the expression of the EIF2S1 (EIF2-alpha) gene. This protein links the transcriptional modulation of key metabolic genes to cellular growth and development and has been implicated in the control of nuclear genes required for respiration, heme biosynthesis, and mitochondrial DNA transcription and replication. NRF1 forms a homodimer and binds DNA as a dimer. NRF1 shows a nuclear localization and is widely expressed in embryonic, fetal, and adult tissues. Phosphorylation of NRF1 enhances DNA binding. Multiple splice variants have been identified for this protein.



**Figure 2.** Immunohistochemistry. Rockland's Affinity Purified anti-NRF1 antibody was used at a 5 µg/ml to detect NRF1 in a variety of tissues. This image shows NRF1 staining of human testis. The antibody shows nuclear staining in lymphocytes. Tissue was formalin-fixed and paraffin embedded. *Personal Communication, Tina Roush, LifeSpanBiosciences, Seattle, WA.*

**Application Note(s):** This protein A purified antibody has been tested for use in ELISA, immunohistochemistry and by western blot. Specific conditions for reactivity should be optimized by the end user. Expect a band approximately 67 kDa in size corresponding to NRF1 by western blotting in the appropriate cell lysate or extract. Splice variants exist for this protein that may result in the detection of lower molecular weight bands.

#### Recommended Dilutions:

ELISA	1:3,000 - 1:10,000
WESTERN BLOT	1:500 - 1:2,000
IMMUNOHISTOCHEMISTRY	2 µg/ml - 5 µg/ml
OTHER APPLICATIONS	User Optimized

**Immunogen:** This protein A purified antibody was prepared from whole rabbit serum produced by repeated immunizations with a purified recombinant mouse NRF1 protein corresponding to aa 1- 534 of the native protein.

**Purity and Specificity:** : This protein A purified antibody is directed against mouse NRF1. The product was purified from monospecific antiserum by protein A affinity purification. BLAST analysis was used to suggest reactivity with this protein from mouse, human, chimpanzee, dog, rat, chicken, frog and zebrafish based on very high sequence homology with the immunogen sequence. Cross reactivity with NRF1 homologues from other sources has not been determined.

**Relevant Link(s):** Swiss Prot: [Q9WU00](#) NCBI Link [AAH05410](#)

**Protein Sequence:** Mouse NRF1, 534 aa, predicted MW 57.2 kDa

1	meehgvqtqe	hmatieahav	aqvqvvhva	tyehsmlsa	dedspssped	tsyddsdiin
61	staadevtah	laaagpvgma	aaaavatgkk	rkrphvfesn	psirkrqqr	llrklratld
121	eytrrvqqqa	ivlcispskp	npvfkvfqaa	plenvvrkyk	smiledlesa	laehapapqe
181	vnselpplti	dgipvsvdkm	tqaqlrafip	emlkystgrg	kpgwgkesck	piwwpedipw
241	anvrsvrte	eqkqrsvwtq	alrtivkncy	kqhgredlly	afedqqtqtq	attthsiahl
301	vpsqtvvtqf	snpdgtvsli	qvgtgatvat	ladaselptt	vtvaqvnysa	vadgeveqnrw
361	atlqggemti	qttqaseatq	avaslaeav	aasqemqgga	tvtmlnsea	aahavatlae
421	atlqgggqiv	lsgetaaavg	altgvqdang	pdgvhawtis	kavtapqaag	kihtdfgkfg
481	imaevmkded	lkeessenaa	kaagkykqqg	rayvvedgdi	iffkfnspqq	lkkk

### General References:

Mootha, V.K., et al. (2003) Integrated analysis of protein composition, tissue diversity, and gene regulation in mouse mitochondria. *Cell* **115** (5), 629-640.

O'Hara, M.F., Nibbio, B.J., Craig, R.C., Nemeth, K.R., Charlap, J.H. and Knudsen, T.B. (2003) Mitochondrial benzodiazepine receptors regulate oxygen homeostasis in the early mouse embryo. *Reprod Toxicol* **17** (4), 365-375.

Morrish, F., Giedt, C. and Hockenbery, D. (2003) c-MYC apoptotic function is mediated by NRF-1 target genes. *Genes Dev.* **17** (2), 240-255.

Schaefer, L., Engman, H. and Miller, J.B. (2000) Coding sequence, chromosomal localization, and expression pattern of Nrf1: the mouse homolog of *Drosophila* erect wing. *Mamm. Genome* **11** (2), 104-110.

Huo, L. and Scarpulla, R.C. (1999) Multiple 5'-untranslated exons in the nuclear respiratory factor 1 gene span 47 kb and contribute to transcript heterogeneity and translational efficiency. *Gene* **233** (1-2), 213-224.

Virbasius, C.A., Virbasius, J.V. and Scarpulla, R.C. (1993) NRF-1, an activator involved in nuclear-mitochondrial interactions, utilizes a new DNA-binding domain conserved in a family of developmental regulators. *Genes Dev.* **7** (12A), 2431-2445.

### Related Products:

#W09-000-364	HeLa Whole Cell Lysate in SDS-PAGE Sample Buffer
#W09-001-367	HeLa Cell Nuclear Extract in SDS-PAGE Sample Buffer
#611-703-127	Peroxidase Conjugated Affinity Purified Anti-RABBIT IgG (H&L) (DONKEY) MX10
#611-132-122	IRDye800 Conjugated Affinity Purified Anti-RABBIT IgG (H&L) (GOAT) MX10
#MB-070	Blocking Buffer for Fluorescent Western Blotting
#KIA-003	<b>MaxTag</b> <sup>TM</sup> Anti-RABBIT IgG Kit for Immunoblotting
#MB-070	Blocking Buffer for Fluorescent Western Blotting

**USDA Certification:** All products of animal origin manufactured by Rockland Immunochemicals are derived from starting materials of North American origin. Collection was performed in United States Department of Agriculture (USDA) inspected facilities and all materials have been inspected and certified to be free of disease and suitable for exportation.

**Note:** This product is for research use only and is not intended for therapeutic or diagnostic applications. Please contact a technical service representative for more information.