# Active Recombinant Human NRAS Protein, His-tagged

**Cat. No.** NRAS-01H **Lot. No.** (See product label)

## SPECIFICATION

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| **Product Overview** | The wild-type human N-Ras protein has been produced in a bacterial expression system. The recombinant protein contains six histidine residues at its amino terminus (His-tag). |
| **Species** | Human |
| **Source** | Bacteria |
| **Description** | This is an N-ras oncogene encoding a membrane protein that shuttles between the Golgi apparatus and the plasma membrane. This shuttling is regulated through palmitoylation and depalmitoylation by the ZDHHC9-GOLGA7 complex. The encoded protein, which has intrinsic GTPase activity, is activated by a guanine nucleotide-exchange factor and inactivated by a GTPase activating protein. Mutations in this gene have been associated with somatic rectal cancer, follicular thyroid cancer, autoimmune lymphoproliferative syndrome, Noonan syndrome, and juvenile myelomonocytic leukemia. |
| **Form** | White lyophilized powder |
| **Bio-activity** | The biological activity of N-Ras can be determined from the ability of the RasGRF1 exchange domain (Ras-GRF1-ExD) to catalyze the exchange of GDP for GTP on N-Ras. A standard biological assay for monitoring the biological activity of N-Ras is an exchange assay utilizing the 2× Exchange Buffer from the RhoGEF exchange assay kit and the human RasGRF GEF domain. |

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| **Molecular Mass** | 25 kDa |
| **Purity** | Protein purity is determined by scanning densitometry of Coomassie Blue-stained protein on a 4-20% polyacrylamide gradient gel. His tagged N-Ras protein was determined to be > 90% pure. |
| **Applications** | Study of N-Ras exchange activity with different GEFs, Identification of N-Ras exchange factors (GEFs), Positive control for GEF studies, Biochemical characterization of N-Ras protein interactions, Western blot standard |
| **Stability** | The protein is stable for six months if stored at -70 centigrade. The protein should not be exposed to repeated freezethaw cycles. The lyophilized protein is stable at 4 centigrade desiccated (<10% humidity) for one year. |
| **Storage** | In order to maintain high biological activity of the protein, it is strongly recommended that the protein solution be supplemented with DTT to 1 mM final concentration, aliquoted into "experiment-sized" amounts, snap frozen in liquid nitrogen, and stored at -70 centigrade. |
| **Reconstitution** | Before reconstitution, briefly centrifuge to collect the product at the bottom of the tube. The protein should be reconstituted to 5 mg/mL with the addition of 20 µL of Milli-Q water (100 µg size). When reconstituted, the protein will be in the following buffer: 50 mM Tris pH 7.5, 50 mM NaCl, 0.5 mM MgCl2, 5% (w/v) sucrose, and 1% (w/v) dextran. |

## GENE INFORMATION

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|---|---|
| **Gene Name** | NRAS NRAS proto-oncogene, GTPase [ Homo sapiens (human) ] |
| **Official Symbol** | NRAS |

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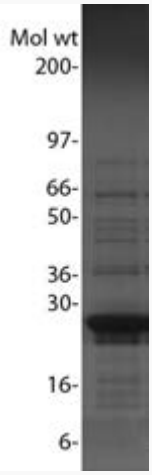
| **Synonyms** | NRAS; NRAS proto-oncogene, GTPase; NS6; CMNS; NCMS; ALPS4; N-ras; NRAS1; GTPase NRas; N-ras protein part 4; neuroblastoma RAS viral (v-ras) oncogene homolog; neuroblastoma RAS viral oncogene homolog; transforming protein N-Ras; v-ras neuroblastoma RAS viral oncogene homolog; EC 3.6.5.2 |
| **Gene ID** | 4893 |
| **mRNA Refseq** | NM_002524 |
| **Protein Refseq** | NP_002515 |
| **MIM** | 164790 |
| **UniProt ID** | P01111 |
| **Purity** |  <br>A 20 µg sample of recombinant N-Ras protein (molecular weight approx. 25 kDa) was separated by electrophoresis in a 4-20% SDS-PAGE system and stained with Coomassie Blue. Protein quantitation was determined using the Precision Red Protein Assay Reagent. Mark12 molecular weight markers are from Life |

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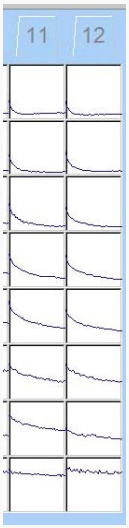
Technologies Inc.

**Ras-GRF GEF protein mediated Bodipy-GDP dissociation/exchange on N-Ras.**




GDP-Bodipy-FL-loaded N-Ras protein was added to duplicate wells of a 96-well half area plate containing diluted Exchange Buffer and mixed well. To initiate the dissociation exchange reaction, 1 mM GTP plus Ras-GRF GEF protein (rows A to G), or 1 mM GTP only in Dilution Buffer (row H), was added to the wells, mixed, and fluorescence measurements were obtained using a Tecan SpectraFluor Plus Spectrophotometer. Ras-GRF was diluted 2 fold from row A through row G starting at 4 µM. Note the rapid drop in fluorescence in rows A,B and C which is indicative of fast exchange, and the nearly flat line of row H which indicates no exchange is occurring in the absence of Ras-GRF.

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