

ProtéGene™ Gene Sets HRAS

Cat# P1010
 Lot# On vial label

Materials Provided:

1. HRAS-WT (P1010a): 20 µg plasmid DNA in 40 µl TE.
2. HRAS-S17N (P1010b): 20 µg plasmid DNA in 40 µl TE.
3. HRAS-G12V (P1010c): 20 µg plasmid DNA in 40 µl TE.
4. Product Information Sheets.

Note: Individual plasmids can be ordered separately. Some plasmids are shipped as lyophilized pellet.

Receiving and Storage:

If received in lyophilized form, add 40 µl sterile DI water to the vial, mix thoroughly by vortex and then collect the contents by centrifuging the vials briefly in a microcentrifuge. If received in liquid form, spin the vials briefly in a microcentrifuge to collect the contents. Store the products at 2-8°C if used immediately and store at -20°C for extended storage.

Expression Vector:

pMEV-2HA (a): Cat# P1001a.

Affinity Tag:

N-terminal 2 x HA, a 9-aa peptide derived from influenza virus (MGYPYDVPDYAYPYDVPDYAGS) .

Prokaryotic Selection:

The kanamycin-resistance gene (aminoglycoside 3' phospho-transferase) expression cassette in the plasmids confers Kanamycin resistance to bacteria cells. Bacterial cells transformed with the plasmids should be maintained and grown in media containing 25-50µg/ml Kanamycin (e.g. Cat#LK-1100, Prepoured LB Agar plates, Biomyx, San Diego, California).

Eukaryotic Selection:

The neomycin resistance gene, driven by SV40 early promoter, confers G418 resistance to eukaryotic cells. Stable mammalian cell lines can be selected with G418.

Description of HRAS and Mutants

Ras proteins are members of small GTPase superfamily. They bind GDP/GTP and possess intrinsic GTPase activity. These proteins act as switches to turn on/off their downstream target proteins in response to upstream stimuli because they can alternate between an inactive form bound to GDP and an active form bound to GTP. Activating mutations of HRAS, including G12V, activate the potential of HRAS to transform cultured cells and are implicated in a variety of human tumors. Defects in HRAS are also the cause of oral squamous cell carcinomas (oscc). S17N is a widely used dominant negative mutant of HRAS.

Molecular Features of the Inserts:

Gene: *Homo sapiens v-Ha-ras Harvey rat sarcoma viral oncogene homolog*

Other names: HRAS1, RASH1, Ha-Ras

GenBank Reference Sequence: [NM_005343](#)

Protein Accession:

5'-Cloning Site: Bam HI

5'-Junction Sequence: 5'-...tac gct gga tcc ATG ACG GAA...3'

3'-Cloning Site: Eco RI

3'-Junction Sequence (lower strand):

5'-...tga att c TCA GGA GAG CAC...3'

HRAS Protein Sequence

(189 amino acid residues. Amino acid residues G12 and S17 are in bold and underlined.)

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1    MTEYKLVVVG AGGVGKSALT IQLIQNHFVD EYDPTIEDSY
41   RKQVVIDGET CLLDILDTAG QEEYSAMRDQ YMRTGEGFLC
81   VFAINNTKSF EDIHQYREQI KRVKDSDDDV MVLVGNKCDL
121  AARTVESRQA QDLARSYGIP YIETSAKTRQ GVEDAFYTLV
161  REIRQHKLRK LNPPDESGPG CMSCKCVLS
  
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HRAS Nucleotide Sequence

(570bps. Nucleotides encoding G12 and S17 are in bold and underlined)

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1    ATGACGGAAT ATAAGCTGGT GGTGGTGGGC GCCGGCGGTG TGGCAAGAG
51   TGGCGTGACC ATCCAGCTGA TCCAGAACCA TTTTGTGGAC GAATACGACC
101  CCACTATAGA GGATTCTTAC CGGAAGCAGG TGGTCATTGA TGGGGAGACG
151  TGCCTGTTGG ACATCCTGGA TACCGCCGGC CAGGAGGAGT ACAGCGCCAT
201  GCGGGACCAG TACATGCGCA CCGGGGAGGG CTTCTGTGTG GTGTTGCCA
251  TCAACAACAC CAAGTCTTTT GAGGACATCC ACCAGTACAG GGAGCAGATC
301  AAACGGGTGA AGGACTCGGA TGACGTGCCC ATGGTGTCTG TGGGGAACAA
351  GTGTGACCTG GCTGCACGCA CTGTGGAATC TCGGCAGGCT CAGGACCTCG
401  CCCGAAGCTA CGGCATCCCC TACATCGAGA CCTCGGCCAA GACCCGGCAG
451  GGAGTGGAGG ATGCCTTCTA CACGTGGGTG CGTGAGATCC GGCAGCACAA
501  GCTGCGGAAG CTGAACCTC CTGATGAGAG TGGCCCCGGC TGCATGAGCT
551  GCAAGTGTGT GCTCTCTCTGA
  
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Mutations:

HRAS-WT (P1010a): No mutation

HRAS-S17N (P1010b): AGT to AAT

HRAS-G12V (P1010c): GGT to GTT

References:

The following GenBank entries are the reference sequences compiled from various individual entries from many laboratories. They have a regularly updated collection of references. The OMIM (#190020) describe the SNPs/variations of the gene and their associations with various genetic diseases.

GenBank Entry: [NM_005343](#)

NCBI Text Ref: [190020](#)

Protein Sequence: [NP_005334](#).