

Product datasheet for MC223320

Rag1 (NM_009019) Mouse Untagged Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	Rag1 (NM_009019) Mouse Untagged Clone
Tag:	Tag Free
Symbol:	Rag1
Synonyms:	Rag-1
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)
Fully Sequenced ORF:	>MC223320 representing NM_009019 Red=Cloning site Blue=ORF Orange=Stop codon

TTTTGTAATACGACTCACTATAGGGCGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC
GCC**CGCATCGCC**

ATGGCTGCCTCCTTGCCGTCTACCCTGAGCTTCAGTTCTGCACCCGATGAAATTC AACACCCACAAATCA
AATTTTCCGAGTGAAATTTAAGCTGTTTAGGGTGAGATCCTTTGAAAAGGCACCCGAAGAAGCACAGAA
GGAGAAGGATTCCTCAGAGGGGAAACCTTACCTAGAACAGTCTCCAGTAGTTCAGAGAAGCCTGGTGGT
CAGAACTCAATTCTGACTCAACGAGCACTGAACTCCATCCTAAATTTCAAAGAAATTCATGCTGATG
GGAAGTCAAGCGACAAAGCAGTTCACCAAGCCAGGCTTAGACACTTCTGCCGCATCTGTGGGAATCGTTT
CAAGAGTGACGGGCACAGCCGGAGATACCCAGTCCACGGGCCCGTGGACGCTAAAACCCAAAGTCTTTTC
CGAAAGAAGGAAAAAGAGTCACTTCCTGGCCAGACCTCATTGCCAGGATTTTCCGGATCGACGTGAAGG
CAGATGTTGACTCCATCCACCCGACGGAATTCTGCCATGACTGTTGGAGCATCATGCACAGAAAGTTCAG
CAGTCCCACAGTCAGGTCTACTTCCCAAGGAAAGTGACCGTGGAGTGGCACCCACACACCCGCTCTGT
GACATCTGTTTTACTGCCCATCGGGGACTCAAGAGGAAGAGACATCAGCCCAATGTGCAGCTCAGCAAGA
AACTAAAACTGTGCTCAACCACGCGAGACGGGACCGTCGCAAGAGAACTCAGGCTAGGGTCAGCAGCAA
GGAAGTCTGAAGAAGATCTCCAAGTGCAGTAAGATTCATCTCAGTACCAAGCTTCTTGCCGTGGACTTC
CCAGCACACTTTGTGAAATCCATCTCCTGCCAGATATGCGAACACATTCTGGCTGATCCCGTGGAGACCA
GCTGCAAGCATCTATTCTGTAGGATCTGCATTCTCAGATGTCTCAAAGTCATGGGCAGCTATTGTCCCTC
TTGCCGATATCCGTGCTTCCCTACTGACCTGGAGAGCCAGTGAAGTCTTTTCTGAACATCTTGAATTCT
CTCATGGTCAAGTGTCCCGCGCAAGATTGCAATGAGGAAGTGAAGTCTGGAAAAATATAACCACCATGTGT
CAAGCCACAAAGAATCTAAAGAGACTTTGGTGATATCAATAAAGGGGGACGGCCTCGCCAGCATCTCCT
GTCAGTACGAGAAGGGCGCAGAAACATCGGCTGAGGGAGCTCAAGATTCAGTCAAAGAATTTGCTGAC
AAAGAAGAAGGTGGAGATGTGAAGGCTGTCTGCTTGACATTGTTTCTCCTGGCACTGAGGGCGAGGAATG
AGCACAGGCAAGCTGATGAATTAGAGGCCATCATGCAAGGCAGGGGCTCCGGGCTTCAACCAGCTGTTTG
CTTGCCATCCGTGTCAATACCTTCTCAGCTGTAGCCAATACCATAAGATGTACAGGACTGTGAAAGCT



ATCACTGGGAGGCAGATTTTTCAACCTTTGCATGCTCTTCGGAATGCCGAGAAAGTCCTTCTGCCAGGCT
 ACCATCCCTTTGAGTGGCAGCCCCACTGAAGAATGTGTCTCCAGAAGTATGTTGGAATTATTGATGG
 GCTGTCTGGACTTGCCTCCTCTGTGGATGAGTACCCAGTAGATACCATTGCGAAGAGGTTCCGCTACGAC
 TCTGCTTTGGTGTCTGCTTTGATGGACATGGAAGAAGACATCTTGAAGGCATGAGATCCCAAGATCTTG
 ATGACTACCTGAATGGTCCCTTCACAGTGGTGGTAAAGGAGTCTTGGCATGGAATGGGGGATGTGAGTGA
 GAAGCACGGGAGTGGCCCGCAGTTCAGAAAAAGGCCGTTTCGTTTCTTTTACAGTCATGAGAATTACG
 ATAGAGCATGGTTCACAGAACGTGAAGGTGTTTGAAGAACCCCAAGCCCAATTCTGAACTGTGTTGCAAGC
 CGTTGTGCTTATGCTGGCAGATGAGTCTGACCATGAGACCCTTACTGCTATTCTAAGCCCCCTCATTGC
 CGAGAGGGAGGCCATGAAGAGCAGTGAATTAACGCTGGAGATGGGAGGCATCCCCAGGACTTTTTAAATTC
 ATCTTCAGGGGCACTGGATACGATGAAAAAATTGTCCGGGAAGTGAAGGCTTGAAGCTTCTGGCTCAG
 TCTACATCTGTACTCTGTGACACCACCCGTTTGAAGCCTCTCAGAATCTTGTCTTCCACTCCATAAC
 CAGAAGCCACGCCGAGAACCCTGCAGCGCTATGAGGTCTGGCGTCCAATCCGATCATGAGTCCGTGGAA
 GAGCTCCGGGACCGGTGAAAGGGTCTCTGCCAAACCTTTCATCGAGACAGTCCCTTCCATAGATGCGC
 TCACTGTGACATTGGCAATGCAGCTGAATTCTATAAGATTTTCCAGCTGGAGATAGGGGAAGTGATAA
 ACATCCCAATGCCTCTAAGAGGAAAGGAAGAGATGGCAGGCCAGCTGGACAAACATCTCCGAAAAGG
 ATGAACTTAAACCAATCATGAGGATGAATGGCAACTTTCGCCGGAAGCTTATGACCCAGAGACTGTAG
 ACGCAGTTTGTGAGTTAATTCCTTCTGAGGAGAGGCATGAAGCTCTCAGGGAGCTCATGGACCTTACCT
 GAAGATGAAACCCGTGTGGCGCTTTCATGTCCCGCTAAAGAGTGTCCAGAGTCCCTCTGTCACTACAGT
 TTCAACTCACAGCGTTTCGCGGAACTCCTCTCCACCAAGTTCAAATATAGATACGAGGGCAAAATCACCA
 ATTACTTTACAAAACCTTGGCAGATGTCCCTGAAATTATTGAAAGGGATGGCTCTATCGGGGCTGGGC
 AAGTGAGGGAAATGAATCGGGTAAACAGCTGTTTAGACGGTTTCGGAAAATGAATGCCAGGCAGTCCAAG
 TGCTATGAGATGGAAGATGTCTGAAACATCACTGGCTGTATACTTCAAATACCTCCAGAAGTTTATGA
 ATGCTCATAACGCGTTAAAAAGCTCTGGGTTTACCATGAACTCAAAGGAGACCTTAGGGGACCTTTGGG
 CATTGAGGACTCTCTGAAAGCCAAGATTCAATGGAGTTTAA

AGCGGACCGACGCGTACGCGCCGCTCGAGCAGAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCC
 TGGATTACAAGGATGACGACGATAAGGTTTAA

Restriction Sites:

SgfI-RsrII

ACCN:

NM_009019

Insert Size:

3123 bp

OTI Disclaimer:

Our molecular clone sequence data has been matched to the reference identifier above as a point of reference. Note that the complete sequence of our molecular clones may differ from the sequence published for this corresponding reference, e.g., by representing an alternative RNA splicing form or single nucleotide polymorphism (SNP).

Components:

The ORF clone is ion-exchange column purified and shipped in a 2D barcoded Matrix tube containing 10ug of transfection-ready, dried plasmid DNA (reconstitute with 100 ul of water).

Reconstitution Method:

1. Centrifuge at 5,000xg for 5min.
2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.
3. Close the tube and incubate for 10 minutes at room temperature.
4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.
5. Store the suspended plasmid at -20°C. The DNA is stable for at least one year from date of shipping when stored at -20°C.

RefSeq:

[NM_009019.2](#), [NP_033045.2](#)

RefSeq Size:

6669 bp

RefSeq ORF: 3123 bp

Locus ID: 19373

UniProt ID: [P15919](#)

Cytogenetics: 2 53.88 cM

Gene Summary: Catalytic component of the RAG complex, a multiprotein complex that mediates the DNA cleavage phase during V(D)J recombination. V(D)J recombination assembles a diverse repertoire of immunoglobulin and T-cell receptor genes in developing B and T-lymphocytes through rearrangement of different V (variable), in some cases D (diversity), and J (joining) gene segments. In the RAG complex, RAG1 mediates the DNA-binding to the conserved recombination signal sequences (RSS) and catalyzes the DNA cleavage activities by introducing a double-strand break between the RSS and the adjacent coding segment. RAG2 is not a catalytic component but is required for all known catalytic activities. DNA cleavage occurs in 2 steps: a first nick is introduced in the top strand immediately upstream of the heptamer, generating a 3'-hydroxyl group that can attack the phosphodiester bond on the opposite strand in a direct transesterification reaction, thereby creating 4 DNA ends: 2 hairpin coding ends and 2 blunt, 5'-phosphorylated ends. The chromatin structure plays an essential role in the V(D)J recombination reactions and the presence of histone H3 trimethylated at 'Lys-4' (H3K4me3) stimulates both the nicking and hairpinning steps. The RAG complex also plays a role in pre-B cell allelic exclusion, a process leading to expression of a single immunoglobulin heavy chain allele to enforce clonality and monospecific recognition by the B-cell antigen receptor (BCR) expressed on individual B-lymphocytes. The introduction of DNA breaks by the RAG complex on one immunoglobulin allele induces ATM-dependent repositioning of the other allele to pericentromeric heterochromatin, preventing accessibility to the RAG complex and recombination of the second allele. In addition to its endonuclease activity, RAG1 also acts as an E3 ubiquitin-protein ligase that mediates monoubiquitination of histone H3. Histone H3 monoubiquitination is required for the joining step of V(D)J recombination. Mediates polyubiquitination of KPNA1.[UniProtKB/Swiss-Prot Function]