

## Product datasheet for **MC216827**

### **Rnf8 (NM\_021419) Mouse Untagged Clone**

#### **Product data:**

Product Type:	Expression Plasmids
Product Name:	Rnf8 (NM_021419) Mouse Untagged Clone
Tag:	Tag Free
Symbol:	Rnf8
Synonyms:	3830404E21Rik; AIP37; laXp180
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)
Cell Selection:	Neomycin



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**Fully Sequenced ORF:** >MC216827 representing NM\_021419  
 Red=Cloning site Blue=ORF Orange=Stop codon

TTTTGTAATACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
 GCC**CGGATCGCC**

ATGGGCGAGCCCGACCCCTTGGTCTCGGGGCGAGCTCGCGGCCCGCGGAGCTGGTGTTCGGCGGCTGG  
 GGATGGACTGCGAGTGGCTGCAGCTGGAGGCTGGGACTGAGGTGACCATAGGACGGGGACTTAGTGTAC  
 ATACCAGCTGATATCAAAGGTTTGCCCTCTGATGATTTCCCGAAGCCACTGTGTTCTGAAGCAGAATCCT  
 GAGGGACAGTGGACCATTATGGACAATAAGAGTCTGAATGGTGTGGCTGAACAGAGAAGCTCTGGCAC  
 CATTACAGGGTTATTGCATCCGTAAAGGAGACCATATCCAGCTCGGTGTGCCGCTGGAAAGCAGGGAGAC  
 GGCGGAGTATGAATACGAAGTCATTGAAGAAGACTGGGAGAGTCTGGCTCCCTGCCTGCCCGAAGAAT  
 GACCAGAGAATGGAAAAACATAAAGGCTCGAGAATAAGAGGAAATTCAGTTCGCCTGGGTTAGAGAATC  
 TTCCAGCCGAGGGCTCCTCAGATCTCAGATGCCACTGGCTAATGTCGCCAGTAAACCCATTGAGCCAGA  
 GAAGTTGCATGGCAAAGGTGACGCATCGAGTCAGTCTGGGATGCTTGTCTGGGCTGACTTCTCTG  
 AAGGCGAGTGAGAGGGCCGCCGGCCTCATGCTTGTCTGCTCTTCCAAAGGTCCTGGAACTCAGTTGTC  
 CTAAGAAGCAGAAGGCCCTGCAGACCATCAGCATCTCAGAACAGCTTAGAACTGTTTAAAGGTGACCATGTC  
 CAGGATGCTGAAGCTGAAAAACAGATGCAGGAGAAGCAGATAGCTGTCCCTAAACGTCAAGAGACAGACT  
 CGGAAGGGGAGCTCAAAGAAGATCGTGAGGATGGAGAAGGAGCTGCGAAACTTACAGTCTCAGCTGTATG  
 CAGAGCAGGCTCAGCAGCAAGCCAGAGTGGAGCAGCTGGAGAAGACTTCCAGGAGGAGGCACATTACCT  
 CCAGGGTTTGGAGAAAGCAAGGAGAGTGCAGCTGAAGCAACAGCTGGTGCAGGCCCTGCAGGAGCAT  
 CAGGCTCTAATGGAAGAATAAATGCAGCAAGAAGGACTTTGAGAAAATCATTCAAGCCAAGAACAAG  
 AATTGGAGCAGACCAAGGAAGAAAGGACAAGGTGCAAGCGCAGAAGGAGGAGGTTCTCAGCCACATGAA  
 CGACTTGCTGGAGAACGAGCTCCAGTGCAATTATCTGCTCGGAGTACTTTATTGAGGCTGTACCCCTGAAC  
 TGTGCCACAGTTTCTGCTCCTTCTGTATCAATGAATGGATGAAACGGAAGTAGAGTGTCCATTTGTC  
 GAAAGGACATTGAGTCCAGAACCACTCCCTGGTTCTGGACAACGCAATTAGTAAGATGGTGATAACCT  
 AAGCTCAGACGTGAAGGAAGAAGAAGTGTCTTATTAGGGAACGGAGAGCAAAGAGACTGTCA**TGA**

**ACGCGT**ACGCGGCCGCTCGAGCAGAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCCTGGATT  
 ACAAGGATGACGACGATAAGGTTTAA

**Restriction Sites:** SgfI-MluI

**ACCN:** NM\_021419

**Insert Size:** 1467 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\\_021419.2, NP\\_067394.1](#)  
RefSeq Size: 2096 bp  
RefSeq ORF: 1467 bp  
Locus ID: 58230  
UniProt ID: [Q8VC56](#)  
Cytogenetics: 17 A3.3

**Gene Summary:**

E3 ubiquitin-protein ligase that plays a key role in DNA damage signaling via 2 distinct roles: by mediating the 'Lys-63'-linked ubiquitination of histones H2A and H2AX and promoting the recruitment of DNA repair proteins at double-strand breaks (DSBs) sites, and by catalyzing 'Lys-48'-linked ubiquitination to remove target proteins from DNA damage sites. Following DNA DSBs, it is recruited to the sites of damage by ATM-phosphorylated MDC1 and catalyzes the 'Lys-63'-linked ubiquitination of histones H2A and H2AX, thereby promoting the formation of TP53BP1 and BRCA1 ionizing radiation-induced foci (IRIF). Also controls the recruitment of UIMC1-BRCC3 (RAP80-BRCC36) and PAXIP1/PTIP to DNA damage sites. Also recruited at DNA interstrand cross-links (ICLs) sites and catalyzes 'Lys-63'-linked ubiquitination of histones H2A and H2AX, leading to recruitment of FAAP20 and Fanconi anemia (FA) complex, followed by interstrand cross-link repair. H2A ubiquitination also mediates the ATM-dependent transcriptional silencing at regions flanking DSBs in cis, a mechanism to avoid collision between transcription and repair intermediates. Promotes the formation of 'Lys-63'-linked polyubiquitin chains via interactions with the specific ubiquitin-conjugating UBE2N/UBC13 and ubiquitinates non-histone substrates such as PCNA. Substrates that are polyubiquitinated at 'Lys-63' are usually not targeted for degradation. Also catalyzes the formation of 'Lys-48'-linked polyubiquitin chains via interaction with the ubiquitin-conjugating UBE2L6/UBCH8, leading to degradation of substrate proteins such as CHEK2, JMJD2A/KDM4A and KU80/XRCC5: it is still unclear how the preference toward 'Lys-48'- versus 'Lys-63'-linked ubiquitination is regulated but it could be due to RNF8 ability to interact with specific E2 specific ligases. For instance, interaction with phosphorylated HERC2 promotes the association between RNF8 and UBE2N/UBC13 and favors the specific formation of 'Lys-63'-linked ubiquitin chains. Promotes non-homologous end joining (NHEJ) by promoting the 'Lys-48'-linked ubiquitination and degradation of KU80/XRCC5. Following DNA damage, mediates the ubiquitination and degradation of JMJD2A/KDM4A in collaboration with RNF168, leading to unmask H4K20me2 mark and promote the recruitment of TP53BP1 at DNA damage sites. Following DNA damage, mediates the ubiquitination and degradation of POLD4/p12, a subunit of DNA polymerase delta. In the absence of POLD4, DNA polymerase delta complex exhibits higher proofreading activity. In addition to its function in damage signaling, also plays a role in higher-order chromatin structure by mediating extensive chromatin decondensation. Involved in the activation of ATM by promoting histone H2B ubiquitination, which indirectly triggers histone H4 'Lys-16' acetylation (H4K16ac), establishing a chromatin environment that promotes efficient activation of ATM kinase. Required in the testis, where it plays a role in the replacement of histones during spermatogenesis (PubMed:20153262, PubMed:28552346). At uncapped telomeres, promotes the joining of deprotected chromosome ends by inducing H2A ubiquitination and TP53BP1 recruitment, suggesting that it may enhance cancer development by aggravating telomere-induced genome instability in case of telomeric crisis. Promotes the assembly of RAD51 at DNA DSBs in the absence of BRCA1 and TP53BP1 Also involved in class switch recombination in immune system, via its role in regulation of DSBs repair. May be required for proper exit from mitosis after spindle checkpoint activation and may regulate cytokinesis. May play a role in the regulation of RXRA-mediated transcriptional activity. Not involved in RXRA ubiquitination by UBE2E2.[UniProtKB/Swiss-Prot Function]