

## Product datasheet for MR221649

### Setd2 (NM\_001081340) Mouse Tagged ORF Clone

#### Product data:

Product Type:	Expression Plasmids
Product Name:	Setd2 (NM_001081340) Mouse Tagged ORF Clone
Tag:	Myc-DDK
Symbol:	Setd2
Synonyms:	4921524K10Rik; BC031601; KMT3A
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)
ORF Nucleotide Sequence:	>MR221649 representing NM_001081340, <b>codon optimized</b> . <b>Due to the complexity of NM_001081340, the ORF clone is codon optimized for mammalian Expression.</b> <b>The nucleotide sequence differs from the reference sequence, yet the amino acid sequence remains identical.</b>

Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
GCC**CGGATCGCC**

ATGAAACCCCTCCCTCCAGCAGCCTCCTCCAAGATGGGGATTTCTACGACCCTGAGCATCCCACCC  
CTGAGGAGGAGGAGAACGAAGCTAAAATTGAGAACGTACAAAAGACCGGCTTCATAAAAGGGCTGTATT  
TAAGGGCGTGGCTTCCAGTCGATTCTCGCTAAGGGGACGAAGACAAAGGTCAACCTGGAGGAGCAGGGT  
CGACAAAAGTGTCTTTTCTTCTCATTACGAAGAAGACCCTGCAAAATCGATTCTGACGGCCCTGT  
CCAACGAGAAGCAGTCCGACTCTCCGAACAGTCCCGCACCTCCCTGCAGGTAGACTCCAACCCAAAAGT  
CAAGATGGACGCCGGAGATACTTCCCTGCGACAGAGGAGTCTCCACCTAAATCCCAGTAGAACTG  
GGGAGAATCCATTTTAAGAAGCATCTGCTCCATGTAACCAAGTGCACCACAGTTGGCCGCTCCACTACAG  
CAGCCAGCCCCCTGCCCAACACACAGCTCCCTGCCGTGCTCGCTGAGAGCATGATTGATTTCCACCC  
ATCCAGTCCACCTCCCCCTCCACCCCTCCACAGGCCAGTTCACCTAGCCCCCGCTCAGATTTCTGAA  
CCCGTGGCCCTTCCGACGCTCCTGCCACCGCTCTGATGACATCCCTCCTGGACCACTGCCCGGTGATG  
TCGCTGTGCGAGCCAAAAGGAGAGTCCAGTTAAGAGCGGCCCGAAGTCTCGAAGTGCACACTAAACA  
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GATTTCAAGAAGAGCAGTGCCCCCTCAAATCTGAAGACCTCGGAAAGTCATCCAGGTCTAAGACCGAGC



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GCGATGACCGATATTGCTCATATAGTAAGCTGGAACGCGATACTCGCTACGTTTCTCCAGGTGTAGATC  
 CGAGCGGGACCGAAGAAGATCCCCTCTCGCTCACGGTCCGACCGGGCAAGCCGAACCAGTCTGTATAT  
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 TTCGACAGAGATTGCAAGACAGAAACATCTACCTTGAGATGGAGCGGCGAGGCAAGTACTAGTAAAC  
 TTGAGAGAGAGTCCAACGAACAAGCGAACACGAGACGATCAAGCGATGCTGCTACCCCCAACGAGCT  
 GGGCTTTCGGCGAGGCAGCTCCTATAGTAAACATGACAATTCACCAGCAGATACAAGTCCGCCCTGTCA  
 AAGAGCATATCTAAAAACGATAAATTCAAAAACCTCCTTCTGCTGTACCGAACTGAACGAGGAAAAACAAAC  
 AGTCACACAGCTTCAGTCTTCAAACCCCTGCTCCAAGGGCAGCGAGCTGAGGACCATTAACAAGATCAG  
 TGAGAGAGAGAAAAACAGGATCCCGACCCCAAGTAACCAGCTTAACGATTCCTCCACTTTTAAGAACTG  
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 AACTGAAGCCGATGTGGCTACATTTGCACAAGCAAGACAGATGCCATTAGTATGACATCCGACGACAGT  
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 GTCGGTGTCCGGAGCGGATTCAGACGATACGTGCCGCCAGCATAATACCAGCAAGTCTCCTTTCAGAGA  
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 CCGTACGACCTCAACCTTACCATGGAGGACTCTGACGGCATTACGTACACGCTGAAGTGTGACTCCTCAG  
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GATAATAGATGCCACTCAAAAAGGGAATTGCTCTCGTTTCATGAATCATAGCTGTGAACCAAAGTGTGAA  
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CAACTGCCGGGGCTACTTGGGAGGAGAAAAAGAGTCAAGTATCAGAGCTGCAGGAGGGAAGATGAAAAAG  
GAACGCTCTCGAAAGAAGGATTCAGTGGATGGAGAAGTGAAGCACTGATGGAAGTGGTGAAGGCTCT  
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CTGTCTTAAGCTCATTGAGAACACACACTCACAGTCTGCCTCAAGTCATTTCTGGAACGTCATGGGTTG  
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CCTTTGACTCTCTGGGATATAATGCCTCTCATCACCCCTTTGCTGGGTACCCACCAGGTTACCCCATGCA  
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CCTGAAAGATTTCAAGCACCTCGCCGAAAGCTGACTCATGGAGTTATGAATAAGGAGCTGAAGTACTG  
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ACGCGTACGCGGCCGCTCGAGCAGAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCCTGGATT  
ACAAGGATGACGACGATAAGGTTTAA

**Protein Sequence:** >MR221649 representing NM\_001081340  
 Red=Cloning site Green=Tags(s)

MKPLPSQQPPPKMGDFYDPEHPTPEEEENEAKIENVQKTGF IKGPVFKGVASSRFLPKGKTKVNLEEQQ  
 RQKVSFSFSTKKTLQNRFLTAL SNEKQSDSPNSPAPPLQVDSNPVKVMDAGDTFPATEESSPPKSRVEL  
 GRIHFKKHLLHVT SRPQLAASSTAASPLPPTTQLPAVLAESMIDSPSSPPPPPPPPQASSPSPAQISE  
 PVALPQPATALMTSPPGPLPGDVAVRAQKESPVKSGPEVLEVDTKQDI VSNLEEHTVQTLKEQADHLL  
 QKEDSHIGKEEVSDGSKISLSK KASSKKSSQFEGTFLGSEDEDSVRTSSSQRSHDLKSSSTSIDKER  
 DFKKSSAPSKSEDLGKSSRSKTERDDRYCSYKLERDTRYVSSRCRSEDRRRRSRSDRASRTSLSY  
 SRSERSHYDSERRYHRSSPYRERTRYSRPYTDNRARESSDSEDEYKTYPRRTSAHSYRDLRTSSSYSK  
 FDRDCKTETSYLEMERRGKYTSKLERESKRTSEHETIKRCCSPPNELGFRGSSYSKHNDNSTRYKSALS  
 KSISKNDKFKNSFCCTELNEENKQSHSFLQTPCSKSGSELRTINKISEREKTGSPTPSNQLNDSPTFKKL  
 DESPVLKPEFIGHDGRESIKELELSKVKNQDLNFC SIELNVNGSPETEADVATFCTSKTDAISMTSDDS  
 VTGSEVSPLIKACMLSSNGFQNVGRCRERDSDDTCRQHNTSKSPFREMEPLLSPHHDKLMSLPVKTIDYP  
 KTLIKEPVDKRHSCKTKDSDIYCSPNENPEAENAEPSAMTISSHSFVNVHLESKTVICDNREPTDRHSE  
 NTCDEYKQSIGSTSSASHNHFDGLYEPIGSSGISLQSPPSGIRCEENTSPTLDAVESKKGIDFLKYARK  
 ETDVGSALPDSGKGSWENRHNNVLSGQSLQEAQEEGNSILHERRGRPEIPLDEEQRGHTHISDDSEVVF  
 PYDLNLTMEDSDGITYTLKCDSSGNAPEIVSTVHEDYSGSSASSDSESDTESDDSSIPRNLQSVVV  
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 QQSTEHYGGTHNYWQNGYWDPRSAGRPPGTGLAYDRIQQQVPSLTDREEEHWDQSRGSHFSSPSNK  
 FFFHQKDKGSVQAPEISSNSIKDALVMNERKDFSKNF EKNDIKERGPPKRRQLESDSESDGELQARKK  
 VRVEMEQQESSVPOHSELMGPSCAMDDFRDPQRWKEFAKLGKMPCYFDLIEENVYLTERKKNKSHRDIKR  
 MQCECTPLSKDERAQGEVACGEDCLNRLMI ECSSRCPNGDYCSNRRFQRKQHADVVEVILTEKKGWLRA  
 AKDLPNSFTVLEYCGEVL DHKEFKARVKEYARNKNIHYFMALKNDEIIDATQKGNCSR FMHNSCEPNCE  
 TQKWTVNGQLRVGFFTTKLVPSGSELTFDYQFQRYGKEAQKCFCSANCRGYLGGENRVSIRAAGGKMKK  
 ERSRKKDSVDGELEALMENGELSDKNQVLSLRLMVIETLEQKLTCLKLIQNTHSQSCLKSFLERHGL  
 SLLWIWMAELGDGRESNQKLQEEI IKTLEHLPIPTKNMLEESKVLPIIQRWSQTKTAVPQLSEG DYSSE  
 NTSRAHTPLNTPDPSAKPSTEMDTPKLI FRRLKIISENSMDSAVSDVTSELECKDGKEDLDQLETVT  
 VEDEELQSQQLLPQQLCESKVESEATIEVSKLPTSEPEADTETEPKDSNGTKLEETIAEETPSQDEEEG  
 VSDVESERSQEPDKTVDISDLATKLLDSWKDLKEVYRIPKKSQTEKESTVAERGRDAAAFRDQTA PKTP  
 NRSRERDPDKQSQNKERKRKRRGSLSPSSAYERGTKRPPDRYDTPTSKKKVRIKDRNKLSTEERRKLF EQ  
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 YHVITRQTQWDPPTWESPGDDASLEHEAEMDLGTPTYDENPMKTSKKPKTAEADTSELAKKSKEVFRKE  
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 MQKF GAVYKPKEDTELE

TRTRPLEQKLISEEDLAANDILDYKDDDDKV

**Restriction Sites:** SgfI-MluI

**Cloning Scheme:**


**ACCN:** NM\_001081340

**ORF Size:** 7611 bp

**OTI Disclaimer:** The molecular sequence of this clone aligns with the gene accession number as a point of reference only. However, individual transcript sequences of the same gene can differ through naturally occurring variations (e.g. polymorphisms), each with its own valid existence. This clone is substantially in agreement with the reference, but a complete review of all prevailing variants is recommended prior to use. [More info](#)

**OTI Annotation:** This clone was engineered to express the complete ORF with an expression tag. Expression varies depending on the nature of the gene.

**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\\_001081340.2](#), [NP\\_001074809.2](#)

**RefSeq Size:** 8350 bp

**RefSeq ORF:** 7614 bp

**Locus ID:** 235626

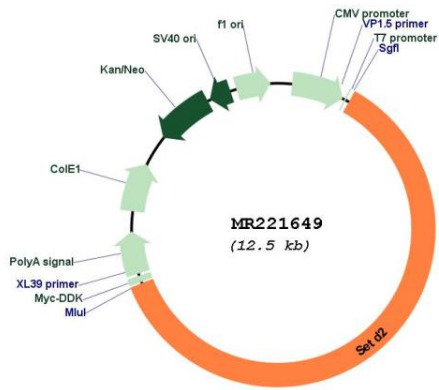
**UniProt ID:** [E9Q5F9](#)

**Cytogenetics:** 9 F2

**MW:** 285.7 kDa

**Gene Summary:** Histone methyltransferase that specifically trimethylates 'Lys-36' of histone H3 (H3K36me3) using dimethylated 'Lys-36' (H3K36me2) as substrate (PubMed:18157086, PubMed:20133625). Represents the main enzyme generating H3K36me3, a specific tag for epigenetic transcriptional activation (PubMed:18157086, PubMed:20133625). Plays a role in chromatin structure modulation during elongation by coordinating recruitment of the FACT complex and by interacting with hyperphosphorylated POLR2A (By similarity). Acts as a key regulator of DNA mismatch repair in G1 and early S phase by generating H3K36me3, a mark required to recruit MSH6 subunit of the MutS alpha complex: early recruitment of the MutS alpha complex to chromatin to be replicated allows a quick identification of mismatch DNA to initiate the mismatch repair reaction (By similarity). Required for DNA double-strand break repair in response to DNA damage: acts by mediating formation of H3K36me3, promoting recruitment of RAD51 and DNA repair via homologous recombination (HR) (By similarity). Acts as a tumor suppressor (By similarity). H3K36me3 also plays an essential role in the maintenance of a heterochromatic state, by recruiting DNA methyltransferase DNMT3A (By similarity). H3K36me3 is also enhanced in intron-containing genes, suggesting that SETD2 recruitment is enhanced by splicing and that splicing is coupled to recruitment of elongating RNA polymerase (By similarity). Required during angiogenesis (PubMed:20133625). Required for endoderm development by promoting embryonic stem cell differentiation toward endoderm: acts by mediating formation of H3K36me3 in distal promoter regions of FGFR3, leading to regulate transcription initiation of FGFR3 (PubMed:25242323). In addition to histones, also mediates methylation of other proteins, such as tubulins and STAT1 (PubMed:27518565). Trimethylates 'Lys-40' of alpha-tubulins such as TUBA1B (alpha-TubK40me3); alpha-TubK40me3 is required for normal mitosis and cytokinesis and may be a specific tag in cytoskeletal remodeling (PubMed:27518565). Involved in interferon-alpha-induced antiviral defense by mediating both monomethylation of STAT1 at 'Lys-525' and catalyzing H3K36me3 on promoters of some interferon-stimulated genes (ISGs) to activate gene transcription (By similarity).[UniProtKB/Swiss-Prot Function]

Product images:



Circular map for MR221649