

Product datasheet for **MG222304**

Foxk1 (NM_199068) Mouse Tagged ORF Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	Foxk1 (NM_199068) Mouse Tagged ORF Clone
Tag:	TurboGFP
Symbol:	Foxk1
Synonyms:	A630048H08Rik; AI463295; ENSMUSG00000075577; Gm10868; Mnf
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-AC-GFP (PS100010)
E. coli Selection:	Ampicillin (100 ug/mL)



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ORF Nucleotide Sequence:

>MG222304 representing NM_199068
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC
 GCC**CGGATCGCC**

ATGGCCGAAGTCGGCGAGGACAGCGGGCCCGCCCTGTGGCGCTGCGCTCGGCTCCCTGCAGCCCCG
 TGCTATGCGCCGGCTGCGGCCCGCCCTTCCGGCCACTACGTCCCCCGCCGCCGGCGCAACCTCC
 ACCCGGGCCGCCGCGCTGCCCGCCGAGCCGGCCCCGGGCGGTGCCCTCCACCGTCGCCACTGCCACC
 ACCACCGCGCCCGCCCTGGTGGCCGCGCCGCTGCCTCCGTGCGCCAGAGCCCGGGCTGCCCTGGCTC
 GCCTGGAGGGTCGGGAGTTCGAGTTCCTGATGCGACAGCCAGCGTCACCATCGGCCGCAACTCGTCGA
 GGGCTCGTGGACCTAAGCATGGCCTGTCGAGCTTCATTTCCCGGCCACCTGCAGCTCAGCTTCCAG
 GAGCCTCACTTCTATCTTCGCTGTCTCGGAAGAACGGCGTCTTCGTGGACGGGGCTTCCAGAGGGCG
 GAGCGCCCGCCCTGCAGTACCCCAACAATGCACCTTCCGGTTCGGAGCACGGCCATCAAGATCCAGTT
 CACATCGCTATACCATAAAGAGGAGGCCAGCATCGCCCTGCGGCCACTCTACCCACAGATCTCCCCA
 CTGAAGATCCACATTCCGGAGCCGGATCTCCGGAGCCTCGTCAGCCCCATCCCTTCCCCAACCGGCCA
 TCAGTGTCCCAACTCCTGTCCAGCAAGTCTCGAGGGGCTGGTTCATCCAGTTATCGCTTTGTCCAGAA
 TGTGACCTCCGACCTTACGTGGCCGAGAGTTTGTGCGAAGGCCCGCTCCGAGCAGCAAGCAGATGCG
 TCTGGCGGAGACAGCCCCAAGGACGAGTCGAAGCCACCGTACTCCTATGCGCAGCTGATCGTGCAGGCCA
 TCTCCTCAGCCCAGGACAGGCAGCTAACCTAAGTGGCATCTACGCCACATCACCAACATTACCTTA
 CTACAGGACTGCCGACAAGGGCTGGCAGAACTCTATCCGACACAACCTCTCTTTAACCGCTACTTCATC
 AAAGTCCCTCGGTCCCAGGAGGAGCCTGGGAAGGGCTCTTTTGGCGAATAGACCCTGCCATCCGAAGCCA
 AGCTCGTGAACAAGCATTCCGAAAGCGGAGACAGAGAGGTGTCTCCTGCTTCCGACCCCTTCCGGCC
 TCTGTCTCACGGAGTGCTCCAGCTTCAACCACCCAGGGCTGATGTCCCCTCGTTCAGTGGCCTG
 CAGACCCAGAGTGCCTGTCTCGGGAGGGCTCCCCATTCCACATGATCCCGACTTGGGGTCAAAGTTAG
 CCTCTGTTCCAGAGTACCGCTATCCCAGAGTGGCCAGGCTCCCTGTGAGCGCCAGCCGGTATCAT
 GGCTGTCCCTCCCGACCTTCCAACCTAGTGGCTAAGCCTGTGCGCTACATGCCAGCTTCCATAGTGACC
 TCACAGCAGCCCTCAGGCCACGCCATCCATGTGGTCCAGCAGGCCCTACCGTACCATGGTGAGGGTGG
 TTACCACCTCTGCCAACTCAGCCAACGGGTACATCCTGGCTAGCCAGGGCTCGACTGGGACCTCCCACGA
 CACAGCAGGCACAGCCGTGTTGGACCTGGGCAATGAGGCTCGAGGTTTGAAGAGAAGCCCACCATAGCA
 TTTGCCACAATCCCGCAGCCAGCCGAGTTATCCAGACGGTCGCCAGCCAGATGGCCCCAGGAGTCCCCG
 GACACACAGTCACCATCCTACAGCCGGCTACACCAGTGACTATCGGGCAGCACCCTTCCGGTCCGGGC
 TGTCACTCAGAATGAAAAGCACGCTGTACCCACGAATAGCTTGACTGGCAATGCTTATGCCCTCAGCAGC
 CCCCTGCAGCTCCTGGCAGCCCAGGCAAGTTCATCCACTCCAGTGGTTCATCACCCGGGTGTGTGAGGTGG
 GGCTGAGGAGCCAGCAGCAGCCGTCTCAGTAGCCGCTAATGCAGCGCAACCCAGCCGCTCCACTAC
 CACATCTGCCTCTTCTAGCGGAGAGCCCGAGGTCAAGAGGTCCCGGGTAGAGGAACCCGGTGGGACAGCC
 ACCACACAGCCCACAGCTATGGCAGCCACCGCCCTCAGGGCCCGGGACCGCGGAG

ACGCGTACGCGGCCGCTCGAG - GFP Tag - GTTTAA

Protein Sequence: >MG222304 representing NM_199068
 Red=Cloning site Green=Tags(s)

MAEVGEDSGARALLALRSAPCSPVLCAAAAAAFPATTSPPPPAQPPPGPPALPAEPGPGVPSTVATAT
 TTAPALVAAAAASVRQSPGPALARLEGREFEFLMRQPSVTIGRNSSQGSVDLSMGLSSFISRRHLQLSFQ
 EPHFYLRCLGKNGVFDGAFQRRGAPALQLPQQCTFRFPSTAIIQFTSLYHKKEAPASPLRPLYPQISP
 LKIHIPEDLRSLVSPISPSTGTISVPNSCPASPRGAGSSSYRFVQNVTSDLQLAAEFAAKAASEQQADA
 SGGDSPKDESKPPYSYQLIVQAISSAQDRQLTLSGIYAHITKHYPYYRTADKGWQNSIRHNLNLNRYFI
 KVPRSQEPEGKGSFWRIDPASEAKLVEQAFRRRQRGVSCFRTPFGPLSSRSAPASPTHPLMSPRSSGL
 QTPECLSREGSPIPHDPDLGSKLASVPEYRYSQSAPGSPVSAQPVIMAVPPRPSNLVAKPVAYMPASIVT
 SQQPSGHAIHVVQQAQPTVTMVRVTTSSANSANGYILASQGSTGTSHDTAGTAVLDLGNARGLEEKPTIA
 FATIPAASRVIQTVASQMAPGVPGHVTILQPATPVTIGQHLLPVRAVTQNGKHAVPTNSLTGNAYALSS
 PLQLLAAQASSSTPVVITRVCEVGPEEPAAVSVAANAAPTPAASSTTSASSSGEPEVKRSRVEEPGGA
 TTQPTAMAATGPQGPGTGE

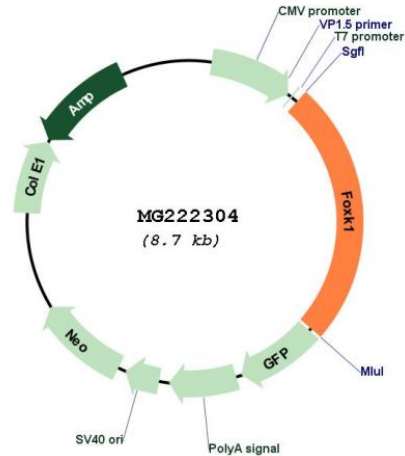
TRTRPLE - GFP Tag - V

Restriction Sites: SgfI-MluI

Cloning Scheme:

Cloning sites used for ORF Shutting:



Plasmid Map:


ACCN: NM_199068

ORF Size: 2157 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_199068.2](#), [NP_951031.2](#)

RefSeq Size: 7462 bp

RefSeq ORF: 2160 bp

Locus ID: 17425

UniProt ID: [P42128](#)

Cytogenetics: 5 81.53 cM

Gene Summary: Transcriptional regulator involved in different processes such as glucose metabolism, aerobic glycolysis, muscle cell differentiation and autophagy (PubMed:25402684, PubMed:29861159, PubMed:30700909). Recognizes and binds the forkhead DNA sequence motif (5'-GTAAACA-3') and can both act as a transcription activator or repressor, depending on the context (PubMed:25402684, PubMed:29861159, PubMed:30700909). Together with FOXK2, acts as a key regulator of metabolic reprogramming towards aerobic glycolysis, a process in which glucose is converted to lactate in the presence of oxygen (PubMed:30700909). Acts by promoting expression of enzymes for glycolysis (such as hexokinase-2 (HK2), phosphofructokinase, pyruvate kinase (PKLR) and lactate dehydrogenase), while suppressing further oxidation of pyruvate in the mitochondria by up-regulating pyruvate dehydrogenase kinases PDK1 and PDK4 (PubMed:30700909). Probably plays a role in gluconeogenesis during overnight fasting, when lactate from white adipose tissue and muscle is the main substrate (PubMed:30700909). Involved in mTORC1-mediated metabolic reprogramming: in response to mTORC1 signaling, translocates into the nucleus and regulates the expression of genes associated with glycolysis and downstream anabolic pathways, such as HIF1A, thereby regulating glucose metabolism (PubMed:29861159). Together with FOXK2, acts as a negative regulator of autophagy in skeletal muscle: in response to starvation, enters the nucleus, binds the promoters of autophagy genes and represses their expression, preventing proteolysis of skeletal muscle proteins (PubMed:25402684). Acts as a transcriptional regulator of the myogenic progenitor cell population in skeletal muscle (PubMed:8007964, PubMed:9271401, PubMed:12446708, PubMed:22956541). Binds to the upstream enhancer region (CCAC box) of myoglobin (MB) gene, regulating the myogenic progenitor cell population (PubMed:8007964, PubMed:9271401). Promotes muscle progenitor cell proliferation by repressing the transcriptional activity of FOXO4, thereby inhibiting myogenic differentiation (PubMed:12446708, PubMed:22956541). Involved in remodeling processes of adult muscles that occur in response to physiological stimuli (PubMed:9271401, PubMed:22956541). Required to correct temporal orchestration of molecular and cellular events necessary for muscle repair (PubMed:10792059). Represses myogenic differentiation by inhibiting MEFC activity (PubMed:22956541). Positively regulates Wnt/beta-catenin signaling by translocating DVL into the nucleus (By similarity). Reduces virus replication, probably by binding the interferon stimulated response element (ISRE) to promote antiviral gene expression (By similarity).[UniProtKB/Swiss-Prot Function]