

## Product datasheet for **MG209158**

### Dyrk3 (NM\_145508) Mouse Tagged ORF Clone

#### Product data:

Product Type:	Expression Plasmids
Product Name:	Dyrk3 (NM_145508) Mouse Tagged ORF Clone
Tag:	TurboGFP
Symbol:	Dyrk3
Synonyms:	BC006704
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-AC-GFP (PS100010)
E. coli Selection:	Ampicillin (100 ug/mL)



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**ORF Nucleotide Sequence:**

>MG209158 representing NM\_145508  
 Red=Cloning site Blue=ORF Green=Tags(s)

GACGTTGTATACGACTCCTATAGGGCGGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
 GCCGGCGCGCC

ATGGGAGGCGCAGCCCGCATCGCGGGAGGAAGGACGCGCGCTGCCGGGGCCGGGCTCCCGCCGAGC  
 AGCGGAGGTTGGGGATGGTGTCTATGATACTTTCATGATGATAGATGAAACCAAGGCCCCACCCTATTC  
 GGACACATTTCAGCAACCCTCTGAAGCACCTGTCTCCAGAAGGCTAAATATTACCACTGAGCCACTCAGC  
 AGAGGCCACACTCAGCACTTTGTGAATGGAAGTGAGATGAAGGTGGAACAACCTGTTTCAAGAATTTGGCA  
 ACAGAAGATCCAATACTCTCCAGTCAGATGGCATCAGCAACTCGGAAAAGTCTTCTCCGGCTTCTCAGGG  
 GAAAAGTTCAGAAAAGCTGAGCGCGGTGAAGTGAACCTTCTCCAGGCCGTCTAAGGTGCTGCCGCTG  
 ACTCTGAGCAAGCGCTGAAGCAGTATAAACACCACCTCACTGCCTACGAGAAGCTGGAGATCGTCAGCT  
 ACCCAGAAATCTACTTTGTGGTCCGAATGCCAAAAGCGGCAGGGAGTTATTGGTGGTCCCAATAACGG  
 TGCTACGACGATGCGGATGGGGCTATATTCATGTGCCCGGGACCATCTGGCTTACCCTATGAGGTG  
 CTGAAAATCATCGCAAGGGGAGTTTTGGACAGGTAGCCCGGCTATGATCACAAAACCTCGGCAGTACG  
 TGGCCCTGAAAATGGTGCCAATGAGAAAACGCTTCCATCGCCAGGCAGCCGAGGAGATCCGGATCTTGGA  
 GCATCTTAAAAAGCAAGACAAAACCTGGTAGCATGAACGTCATCCACATGCTAGAAAAGTTTACCTTCCGG  
 AACCCAGTGTGCATGGCCTTTGAACTGTAAGCATAGACCTGTATGAGCTTATTAATAAAAAACAAGTTCC  
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 AAACAAGATCATCCACTGCGACCTGAAGCCGAAAACATCTCTGAAACACCACGGCCGAAGCGCCACC  
 AAGGTCATCGACTTTGGCTCCAGCTGCTTCGAGTATCAGAAGCTTACACGTATATCCAGTCCCGCTTCT  
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 CCTTGCAGAACTTTTACAGGACAGCCCTGTTCCCTGGAGAGGACGAAGGAGACCAGTTGGCTGCATG  
 ATAGAGTTGCTAGGAATGCCACCGCAGAAAACCTTGGAGCAATCCAAGCGTGCCAAGTACTTTTAACT  
 CCAAAGGCTTGCCTCGATACTGCTCCGATCTACCCAGACGGACGGGAGGGTGGTCTTCTCGGGGGTGC  
 CTCACGCAGGGTAAAAAGCGAGGCCCGCCAGGCAGAAAGACTGGCAACCGCACTGAAGGGCTGTGGT  
 GACTACTGTTCATAGAGTTTCTGAAACGATGCCTCCAGTGGGACCCCTCTGCCCGCTCACCCCGGCTC  
 AAGCATTAAGACATCCTGGATTAGCAAGTCTACACCAAACCTCTACCATGGACAAGGTGCCAGGGAA  
 GCGGGTAGTTAACCTACAAATGCTTCCAGGGACTGGGTCCAAGCTGCCTCCAGTCGTTGGGATAGCC  
 AGTAAGCTTAAAGCTAACCTAATGTCCGAAACCAGTGGTAGTATACCTCTGTGCAGTGTATTGCCAAGC  
 TGATTAGC

ACGCGTACGCGGCCGCTCGAG - GFP Tag - GTTTAA

**Protein Sequence:**

>MG209158 representing NM\_145508  
 Red=Cloning site Green=Tags(s)

MGGAARDRGRKDAALPGAGLPPQRRLDGQVYDTFMMIDETKGPYSDFSNPSEAPVSRRLNITTEPLT  
 RGHTQHFVNGSEMKEQLFQEFGNRRSNTLQSDGISNSEKSSPASQKSSSESLSAVKCNLSSRPSKVLPL  
 TPEQALKQYKHHLTAYEKLEIVSYPEIYFVGNPAKKRQGVIGGPNNGGYDDADGAYIHVPRDHLAYRYEV  
 LKIIIGKGSFGQVARVYDHLRQYVALKMVRNEKRFHRQAAEEIRILEHLKKQDKTGMNVIHMLSFTR  
 NHVCMAFELLSIDLIELKKNKQGFVQLVRKFAQSILQSLDALHKNKIIHCDLKPENILLKHHGRSAT  
 KVIDFGSSCFEYQKLYTYIQSRFYRAPEIILGCRYSTPIDIWSFGCILAELLTGQPLFPGEDEGDLACM  
 IELLMPPQKLLQSKRAKYFINSKGLPRYCSVSTQTDGRVLLGGRRRGGKRRGPPGSKDWATALKGCG  
 DYLFIEFLKRCLQWDPSARLTPAQALRHPWISKSTPKPLTMDKVPKRVVNPTNAFQGLGSKLPPVVGIA  
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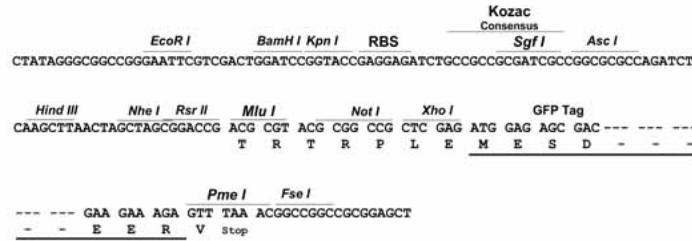
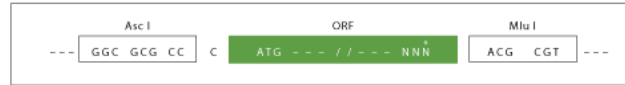
TRTRPLE - GFP Tag - V

**Restriction Sites:**

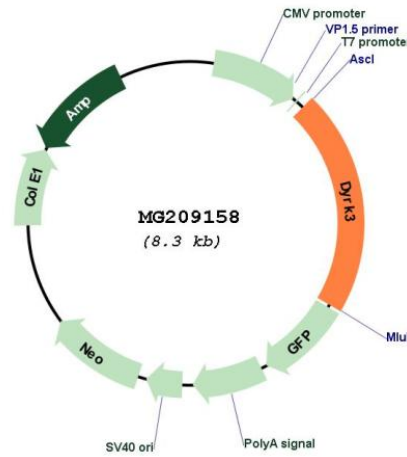
Ascl-MluI

Cloning Scheme:

Cloning sites used for ORF Shuttling:



Plasmid Map:



ACCN: NM\_145508

ORF Size: 1758 bp

<b>OTI Disclaimer:</b>	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. <a href="#">More info</a>
<b>OTI Annotation:</b>	This clone was engineered to express the complete ORF with an expression tag. Expression varies depending on the nature of the gene.
<b>Components:</b>	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).
<b>Reconstitution Method:</b>	<ol style="list-style-type: none"> <li>1. Centrifuge at 5,000xg for 5min.</li> <li>2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.</li> <li>3. Close the tube and incubate for 10 minutes at room temperature.</li> <li>4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.</li> <li>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.</li> </ol>
<b>RefSeq:</b>	<a href="#">NM_145508.1</a>
<b>RefSeq Size:</b>	2072 bp
<b>RefSeq ORF:</b>	1761 bp
<b>Locus ID:</b>	226419
<b>UniProt ID:</b>	<a href="#">Q922Y0</a>
<b>Cytogenetics:</b>	1 E4

**Gene Summary:**

Dual-specificity protein kinase that promotes disassembly of several types of membraneless organelles during mitosis, such as stress granules, nuclear speckles and pericentriolar material (By similarity). Dual-specificity tyrosine-regulated kinases (DYRKs) autophosphorylate a critical tyrosine residue in their activation loop and phosphorylate their substrate on serine and threonine residues (PubMed:12356771). Acts as a central dissolvase of membraneless organelles during the G2-to-M transition, after the nuclear-envelope breakdown: acts by mediating phosphorylation of multiple serine and threonine residues in unstructured domains of proteins, such as SRRM1 and PCM1 (By similarity). Does not mediate disassembly of all membraneless organelles: disassembly of P-body and nucleolus is not regulated by DYRK3 (By similarity). Dissolution of membraneless organelles at the onset of mitosis is also required to release mitotic regulators, such as ZNF207, from liquid-unmixed organelles where they are sequestered and keep them dissolved during mitosis (By similarity). Regulates mTORC1 by mediating the dissolution of stress granules: during stressful conditions, DYRK3 partitions from the cytosol to the stress granule, together with mTORC1 components, which prevents mTORC1 signaling (By similarity). When stress signals are gone, the kinase activity of DYRK3 is required for the dissolution of stress granule and mTORC1 relocation to the cytosol: acts by mediating the phosphorylation of the mTORC1 inhibitor AKT1S1, allowing full reactivation of mTORC1 signaling (By similarity). Also acts as a negative regulator of EPO-dependent erythropoiesis: may place an upper limit on red cell production during stress erythropoiesis (By similarity). Inhibits cell death due to cytokine withdrawal in hematopoietic progenitor cells (By similarity). Promotes cell survival upon genotoxic stress through phosphorylation of SIRT1: this in turn inhibits p53/TP53 activity and apoptosis (PubMed:20167603).[UniProtKB/Swiss-Prot Function]