

Product datasheet for **RR202615**

Dyrk3 (NM_001024767) Rat Tagged ORF Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	Dyrk3 (NM_001024767) Rat Tagged ORF Clone
Tag:	Myc-DDK
Symbol:	Dyrk3
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)
Cell Selection:	Neomycin



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ORF Nucleotide Sequence:

>RR202615 representing NM_001024767
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC
 GCC**CGGATCGCC**

ATGGGAGGCGCAGCCCGCAGCGCGGGAGGAAGGACGCGCGCTGCCGGGGCCGGGCTCCCGCCGAGC
 AGCGGAGGTTGGGGATGGTGTCTATGATACCTTCATGATGATAGATGAAACCAAGTGCCACCCTATAC
 AACACACTTTGCAATCCCTCTGAAGCACCTGTCTCCAGAAGGCTAAATATTACCACTGAGCCATTCACG
 AGAGGCCACACTCAGCACTTCGTGAGTGGGGTGTGATGAAGGTGGAGCAACTGTTTCAAGAATTTGGCA
 GCAGAAGAACCAGTACTCTCCAGTCCGATGGCGTCAGCAACTCCGAAAAGTCTCTCCTGCTTCTCAGGG
 GAAGAGTTCAGACAGCCTGGGTACAGTGAAGTGCAGCCTCTCATCCAGACCATCTAAGGTGCTCCCGCTG
 ACTCCTGAGCAAGCTCTGAAGCAGTACAAGCACCTCACCGCCTACGAGAAGTGGAGATCATCAGCT
 ACCCAGAAATCTACTTCGTGGGCCGAATGCCAAGAAGCGGCAAGGATTATTGGTGGTCCCAATAACGG
 GGGTACGACGATGCGGACGGGGCTATATCCACGTGCCTCGAGACCATCTGGCTTACCCTATGAGGTG
 CTGAAAATTATTGGCAAGGGGAGTTTTGGACAGGTAGCCCGGCTACGATCACAAACTCCGACAGTACG
 TGGCCCTGAAAATGGTGCACAACGAGAAGCGCTTTCACCGCCAGGCAGCCGAGGAGATCCGATTCTGGA
 GCATCTTAAAAAGCAAGACAAAAGTGGGAGCATGAATGTCATCCACATGTTAGAAAAGCTTACCTCCGG
 AACCACGTGTGCATGGCCTTTGAGTTGCTAAGCATAGACCTGTACGAGCTCATAAAAAACAAGTTTC
 AGGGCTTCAGCGTCCAGTTGGTCCGGAAGTTCGCCAGTCCATCCTGCAGTCTTGGACGCCCTTACAA
 AAATAAGATCATTCACTGTGATCTGAAGCCTGAGAACATCTCCTGAAGCATCACGGACGGAGCGCGACC
 AAGGTCATTGACTTCGGTCCAGCTGTTTTGAGTATCAGAACTTACACGTACATCCAGTCCCGTTTCT
 ACAGAGCCCCGAAATCATCTTGGGTGCCGTACAGCACGCCAATTGACATATGGAGTTTTGGTTGCAT
 CCTCGCAGAACTTTTGACAGGACAGCCCTGTTCCAGGAGAGGATGAAGGAGACCAGTTGGCCTGCATG
 ATGGAGTTGCTAGGAATGCCACCACAGAACTTCTGGAGCAATCCAAACGTGCCAAGTACTTTATTAAGT
 CCAAAGGCTTGCCTCGATACTGCTCCGTAACACCCAGACGGACGGGAGGGTTGTGCTTCTCGGGGGCCG
 CTCACGCAGGGTAAAAAGCAGGGCCACCAGGCAGCAAAGACTGGGCAGCCGCGCTGAAGGGTGCAT
 GACTACTTGTTCATAGAGTTTCTGAAAAGGTGCCTTCAAGTGGGACCCCTCTGCCCGCTCACCCAGCTC
 AAGCATTAAAGACATCCTGGATTAGCAAGTCTGCACCCAGGCCCTCACCCAGGACAAGGTGTCAGGGAA
 ACGGGTAGTTAATCCTACAAATGCTTCCAGGGACTGGGCTCAAAGCTGCCTCCAGTCGTTGGAATCGCC
 AGTAAGCTTAAAGCTAACCTAATGTCGAAACCAGTGGTAGTATACCTCTGTGCAGTGTATTGCCAAGC
 TGATCAGC

ACGCGTACGCGGCCGCTCGAGCAGAAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCCTGGATT
 ACAAGGATGACGACGATAAGGTTTAA

Protein Sequence:

>RR202615 representing NM_001024767
 Red=Cloning site Green=Tags(s)

MGGAARERGRKDAALPGAGLPPQQRRLGDGVYDTFMMIDETKPPYTNTLCPNSEAPVSRRLNITTEPFT
 RGHTQHFVSGGVMKVEQLFQEFGRRTSTLQSDGVSNSEKSSPASQKSSDSLGTVKCSLSSRPSKVLPL
 TPEQALKQYKHHLTAYEKLEIISYPEIYFVGNPKKRQGVIGPNNGGYDDADGAYIHVPRDHLAYRYEV
 LKIIIGKSFQVARVYDHLRQYVALKMRNEKRFHRQAAEIRILEHLKKQDKTGSMNVIMHLESFTFR
 NHVCMAFELLSIDLIELKKNKFQGFVQLVRFKFAQSILQSLDALHKNKI IHCDLKPENILLKHHGRSAT
 KVIDFGSSCFEYQKLYTYIQSRFYRAPEIILGCRYSTPIDIWSFGCILAELLTGQPLFPGEDGDLACM
 MELLGMPPQKLEQSKRAKYFINSKGLPRYCSVTTQTDGRVLLGGRSRRGKRGPPGSKDWAALKGCD
 DYLFIEFLKRCLQWDPSARLTPAQLRHPWISKSAPRPLTTDKVSGKRNVNPTNAFQGLGSKLPPVVGIA
 SKLKANLMSETSGSIPLCSVLPKLIS

TRTRPLEQKLISEEDLAANDILDYKDDDDKV

Restriction Sites:

Sgfl-MluI

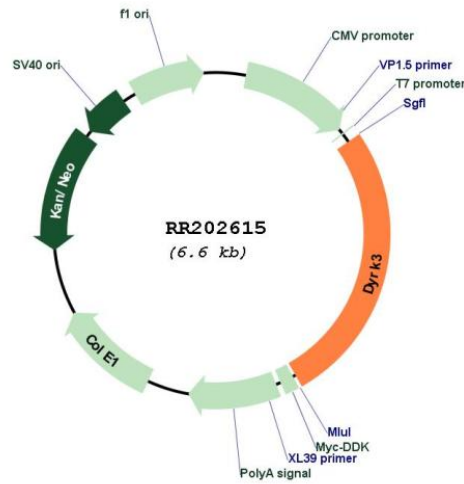
Cloning Scheme:

Cloning sites used for ORF Shuttling:



* The last codon before the Stop codon of the ORF

Plasmid Map:



ACCN:

NM_001024767

ORF Size:	1758 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:	<ol style="list-style-type: none">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_001024767.1 , NP_001019938.1
RefSeq Size:	2146 bp
RefSeq ORF:	1761 bp
Locus ID:	304775
UniProt ID:	Q4V8A3
Cytogenetics:	13q13
MW:	65.5 kDa

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. Dual-specificity tyrosine-regulated kinases (DYRKs) autophosphorylate a critical tyrosine residue in their activation loop and phosphorylate their substrate on serine and threonine residues. 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. Does not mediate disassembly of all membraneless organelles: disassembly of P-body and nucleolus is not regulated by DYRK3. 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. 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. 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. Also acts as a negative regulator of EPO-dependent erythropoiesis: may place an upper limit on red cell production during stress erythropoiesis. Inhibits cell death due to cytokine withdrawal in hematopoietic progenitor cells. Promotes cell survival upon genotoxic stress through phosphorylation of SIRT1: this in turn inhibits p53/TP53 activity and apoptosis.[UniProtKB/Swiss-Prot Function]