

## Product datasheet for **MG227424**

### Ptk2b (NM\_001162366) Mouse Tagged ORF Clone

#### Product data:

Product Type:	Expression Plasmids
Product Name:	Ptk2b (NM_001162366) Mouse Tagged ORF Clone
Tag:	TurboGFP
Symbol:	Ptk2b
Synonyms:	CADTK; CAKB; CAKbeta; E430023O05Rik; FADK2; FAK2; PYK2; Raftk
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-AC-GFP (PS100010)
E. coli Selection:	Ampicillin (100 ug/mL)
ORF Nucleotide Sequence:	>MG227424 representing NM_001162366 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
GCC**CGATCGCC**

ATGTCCGGGGTGTCTGAGCCCTTGAGCCGTGTAAAAGTGGGCACTTTACGCCGCCTGAGGGCCCCCAG  
AGCCCATGGTGGTACCAGTGGATGTGGAGAAGGAAGACGTGCGCATCCTCAAGGTCTGCTTCTACAG  
CAACAGCTTCAACCCAGGAAGAAGTCAAGCTTGTCAAATGCACAGTGCAGACAGATCCAGGAGATC  
ATCACCTCCATCCTCCTGAGTGGGCGAATAGGGCCCAACATCCAGCTGGTGAATGCTATGGGCTGAGGC  
TGAAGCAGATGAAGTCAGACGAGATCCACTGGCTGCACCCACAGATGACCGTGGGCGAAGTGCAGGACAA  
GTATGAATGTCTACACGTGGAAGCTGAGTGGAGGTATGACCTTCAAATCCGCTACTTGCCGGAAGACTTC  
ATGGAGAGCCTGAAAGAAGACAGGACCACATTGCTGTACTTTTATCAACAGCTCCGGAATGACTACATGC  
AACGCTACGCCAGCAAGGTCAAGTGAAGGCATGGCTCTGCAGCTGGGCTGTCTGGAGCTCAGGAGATTCTT  
CAAGGACATGCCCCACAATGCACTGGACAAAAAGTCCAACCTTTGAACTCCTGGAAAAAGAAGTCGGTCTG  
GACCTGTTTTTCCCAAAGCAGATGCAGGAAAACTAAAGCCCAAGCAGTTCGGAAGATGATCCAGCAGA  
CCTTCCAGCAGTATGCATCACTCCGGGAGGAAGAGTGTGTATGAAATCTTCAATACCTAGCGGGCTT  
TGCCAACATTGACCAGGAGACCTACCGCTGCGAACTCATTCAAGGATGGAACATTACTGTGGACCTGGTC  
ATCGGCCCTAAAGGCATCCGTGAGTGCAGTCAAGTCAAGATACAAAGCCACCTGCCTGGCCGAGTTAAGC  
AGATCAGATCCATCAGGTGCCTCCATTGGAAGAGACCCAGGCAGTCTGCAGCTGGGCATCGAGGGTGC  
CCCCAGTCCCTGTCTATCAAAACGTCGCTCCCTGGCAGAGGCTGAGAACATGGCTGATCTCATAGATGGC  
TACTGCAGGCTGCAAGGAGAACATAAAGGCTCTCTCATCATGCATGCCAAGAAAGATGGTGAAGAAGGA  
ACAGCCTGCCTCAGATCCCCACACTAAACCTGGAGGCTCGCGGTGCGACCTCTCAGAAAGCTGCAGCAT  
AGAGTCAGACATCTATGCGGAGATTCCCGATGAGACCTGCGAAGACCAGGAGTCCACAGTACGGTGT  
GCCCGTGAAGAAGTAGTTCTTAACCGATTCTGGGTGAAGGCTTCTTTGGGGAGGCTATGAAGGTGTCT  
ACAGCAACCACAAAGGGGAAAAAATTAATGTGGCCGTCAAGACCTGTAAGAAAGACTGTACCCAGGACAA  
CAAGGAGAAGTTCATGAGTGAGGCAGTGCATGAAGAATCTTGACCACCTCACATCGTGAAGCTGATT



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GGCATCATTGAAGAGGAACCCACCTGGATTATCATGGAAGTGTATCCTTATGGGGAGCTGGGACACTACC  
 TGGAACGAAATAAAAACCTCCCTGAAGGTACCCACTCTGGTCTGTACACCTACAGATATGCAAAGCCAT  
 GGCCTATCTGGAGAGCATCAACTGTGTGCACAGGGATATTGCTGTCCGGAACATCCTGGTGGCCTCTCT  
 GAGTGTGTGAAGCTGGGGGACTTTGGGCTCTCCCGGTACATTGAGGACGAAGACTATTACAAAGCCTCTG  
 TGACACGTCTACCCATCAAATGGATGTCCCCGAGTCCATCAACTCCGCCGCTTACAACCGCCAGTGA  
 TGCTGGATGTTTGTGTATGCATGTGGGAGATCCTCAGCTTTGGGAAGCAGCCTTTCTTCTGGCTCGAA  
 AATAAGGATGTCATCGGAGTGTGGAGAAAGGGACAGGCTGCCAAGCCCGAAGCTGTCCGCTGTCC  
 TTTACACACTCATGACTCGCTGCTGGGACTACGACCCAGTGACCGGCCCGCTTACGGAGCTTGTGTG  
 CAGCCTCAGTGACATTTATCAGATGGAGAAGGACATTGCCATAGAGCAAGAAAGGAATGCTCGTACCGA  
 CCCCCTAAAATATTGGAGCCTACTACCTTTAGGAACCCCAACCCAGCCAGCCGCGCCCAAGTACAGAC  
 CTCCTCCACAGACCAACCTGCTGGCTCCTAAGCTGCAGTTCAGGTCCCTGAGGGTCTGTGTGCCAGCTC  
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 CACAATGTCTTCAAGCGCCACAGCATGCGGGAGGAGGACTTATCCGGCCAGTAGCCGAGAAGAGGCC  
 AGCAGCTCTGGGAGGCAGAGAAGATCAAGATGAAGCAGGTCTAGAAAGACAGCAGAAGCAGATGGTGA  
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 CTGACTCCAGAGAAGGAGCCGGCTACACGGAGTTCACAGGGCCCCACAGAAACCACTCGGCTCGGTG  
 CACAGTCCATTACGCCCACAGCCAACTGGACAGGACCGATGACCTCGTGTACCAATGTCATGACCCCT  
 GGTGGAGGCTGTGCTGGAAGTCAAGAACAAGCTTGGCCAGTTGCCCCCTGAGGACTATGTGGTGGTGGT  
 AAGAAGCTGGGGCTGAACCTGCGGAAGCTCATCGGCAGTGTGGACGATCTCTTGCCTCCTTGCAGCAT  
 CTTGAGGACAGAGATTGAAGGGACCCAGAAATGCTCAACAAAGACCTGGCAGAGCTCATCAACAAGAT  
 GAAGTTGGCTCAGCAGAACGCCGTGACGTCCCTGAGTGGAGCTGCAAGCGGCAGATGCTCACAGCGTCC  
 CATACCTGGCTGTGGATGCCAAGAACCTGCTGGATGCTGTGGACCAAGCAAGGTTGTGGCTAATCTGG  
 CCCACCCGCTGCAGAG

ACGCGTACGCGGCCGCTCGAG - GFP Tag - GTTTAA

**Protein Sequence:**

>MG227424 representing NM\_001162366  
 Red=Cloning site Green=Tags(s)

MSGVSEPLSRVKVGLRPEGPPEPMVVPVDVEKEDVRIKVKCFYSNSFNPKNFKLKCTVQTEIQEI  
 ITSILLSGRIGPNIQLAECYGLRLKHKMSDEIHWLHPQMTVGEVQDKYECLHVEAEWRYDLQIRYLPEDF  
 MESLKEDRTLLLYFYQQLRNDYMQRYASKVSEGMALQLGCLELRRFFKDMPHNALDKSNFELLEKEVGL  
 DLFFPKMQENLKPQFRKMIQQTFQYASLREEECVMKFFNTLAGFANIDQETYRCELIQGWNITVDLV  
 IGPKGIRQLTSQDTKPTCLAEFKQIRSIKPLLEETQAVLQLGIEGAPQSLSIKTSLLAEENMADLIDG  
 YCRLQGEHKGSLIMHAKKDGEKRNSLPQIPTLNLEARRSHLSESCSIESDIYAEIPDETLRRPGGPQYGV  
 AREEVVLRILGEGFFGEVYEGVYTNHKGEKINVAVKTCCKDCTQDNKEKFMSEAVIMKNLDHPHIVKLI  
 GIIEEPTWIIIMELYPYGELGHYLERKNKSLKVPTLVLYTLQICKAMAYLESINCVHRDIAVRNIVAS  
 PPKILEPTTFQEPKPSRPKYRPPQTNLLAPKLQFQVPEGLCASSPTLTSPMEYSPVNSLHTPPLHR  
 HNVFKRHSREEDFIRPSSREEAQLWEAEKIKMKQVLERQKQMVEDSQWLRREERCLDPMVYMNDKSP  
 LTPEKEAGYTEFTGPPQKPPRLGAQSIQPTANLDRDLDL VYHNVMTLVEAVLELKNKLGQLPPEDYVVVV  
 KNVGLNLRKLGSDVDDLPSLPASSRTEIEGTQKLLNKDLAELINKMKLAQQNAVTSLEDCKRQMLTAS  
 HTLAVDAKNLLDAVDQAKVVANLAHPPAE

TRTRPLE - GFP Tag - V

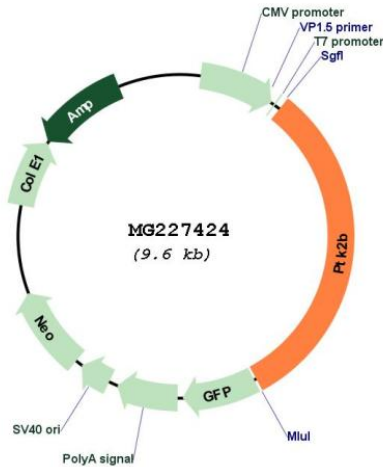
**Restriction Sites:**

Sgfl-MluI

Cloning Scheme:



Plasmid Map:



ACCN: NM\_001162366

ORF Size: 3027 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](#)

<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>	<u><a href="#">NM_001162366.1</a></u> , <u><a href="#">NP_001155838.1</a></u>
<b>RefSeq Size:</b>	3881 bp
<b>RefSeq ORF:</b>	3030 bp
<b>Locus ID:</b>	19229
<b>UniProt ID:</b>	<u><a href="#">Q9QVP9</a></u>
<b>Cytogenetics:</b>	14 34.36 cM

**Gene Summary:**

Non-receptor protein-tyrosine kinase that regulates reorganization of the actin cytoskeleton, cell polarization, cell migration, adhesion, spreading and bone remodeling. Plays a role in the regulation of the humoral immune response, and is required for normal levels of marginal B-cells in the spleen and normal migration of splenic B-cells. Required for normal macrophage polarization and migration towards sites of inflammation. Regulates cytoskeleton rearrangement and cell spreading in T-cells, and contributes to the regulation of T-cell responses. Promotes osteoclastic bone resorption; this requires both PTK2B/PYK2 and SRC. May inhibit differentiation and activity of osteoprogenitor cells. Functions in signaling downstream of integrin and collagen receptors, immune receptors, G-protein coupled receptors (GPCR), cytokine, chemokine and growth factor receptors, and mediates responses to cellular stress. Forms multisubunit signaling complexes with SRC and SRC family members upon activation; this leads to the phosphorylation of additional tyrosine residues, creating binding sites for scaffold proteins, effectors and substrates. Regulates numerous signaling pathways. Promotes activation of phosphatidylinositol 3-kinase and of the AKT1 signaling cascade. Promotes activation of NOS3. Regulates production of the cellular messenger cGMP. Promotes activation of the MAP kinase signaling cascade, including activation of MAPK1/ERK2, MAPK3/ERK1 and MAPK8/JNK1. Promotes activation of Rho family GTPases, such as RHOA and RAC1. Recruits the ubiquitin ligase MDM2 to P53/TP53 in the nucleus, and thereby regulates P53/TP53 activity, P53/TP53 ubiquitination and proteasomal degradation. Acts as a scaffold, binding to both PDPK1 and SRC, thereby allowing SRC to phosphorylate PDPK1 at 'Tyr-9', 'Tyr-373', and 'Tyr-376' (By similarity). Promotes phosphorylation of NMDA receptors by SRC family members, and thereby contributes to the regulation of NMDA receptor ion channel activity and intracellular Ca(2+) levels. May also regulate potassium ion transport by phosphorylation of potassium channel subunits. Phosphorylates SRC; this increases SRC kinase activity. Phosphorylates ASAP1, NPHP1, KCNA2 and SHC1. Promotes phosphorylation of ASAP2, RHOU and PXN; this requires both SRC and PTK2/PYK2 (By similarity).  
[UniProtKB/Swiss-Prot Function]