

## Product datasheet for **MC223176**

### Ptk2b (NM\_001162365) Mouse Untagged Clone

#### Product data:

Product Type:	Expression Plasmids
Product Name:	Ptk2b (NM_001162365) Mouse Untagged Clone
Tag:	Tag Free
Symbol:	Ptk2b
Synonyms:	CADTK; CAKB; CAKbeta; E430023O05Rik; FADK2; FAK2; PYK2; Raftk
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)
Cell Selection:	Neomycin
Fully Sequenced ORF:	>MC223176 representing NM_001162365 Red=Cloning site Blue=ORF Orange=Stop codon

TTTTGTAATACGACTCACTATAGGGCGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
GCC**CGATCGCC**

ATGTCCGGGTGTCTGAGCCCTGAGCCGTGTAAAAGTGGGCACTTTACGCCGGCTGAGGGCCCCCAG  
AGCCCATGGTGGTACCAGTGGATGTGGAGAAGGAAGCGTGCATCCTCAAGTCTGCTTCTACAG  
CAACAGCTTCAACCCAGGAAGAAGTCAAGCTTGTCAAATGCACAGTGCAGACAGATCCAGGAGATC  
ATCACCTCCATCCTCCTGAGTGGGCGAATAGGGCCCAACATCCAGCTGGCTGAATGCTATGGGCTGAGGC  
TGAAGCATGAAGTCAAGCAGATCCACTGGCTGCACCCACAGATGACCGTGGGCGAAGTGCAGGACAA  
GTATGAATGTCTACAGTGAAGCTGAGTGGAGGTATGACCTTCAAATCCGCTACTTCCCGGAAGACTTC  
ATGGAGAGCCTGAAAGAAGACAGGACCACATTGCTGTACTTTTCAACAGCTCCGGAATGACTACATGC  
AACGCTACGCCAGCAAGGTCAAGTGAAGGCATGGCTCTGCAGCTGGGCTGTCTGGAGCTCAGGAGATTCTT  
CAAGGACATGCCCCACAATGCACTGGACAAAAAGTCAACTTTGAACTCCTGGAAAAAGAAGTCCGGTCTG  
GACCTGTTTTTCCCAAAGCAGATGCAGGAAAAGTAAAGCCCAAGCAGTCCGGAAGATCCAGCAGA  
CCTTCCAGCAGTATGCATCACTCCGGGAGGAAGAGTGTGTCATGAAATTTCAATACCTAGCGGGCTT  
TGCCAACATTGACCAGGAGACCTACCGCTGCGAACTCATTCAAGGATGGAACATTAAGTGGACCTGGTC  
ATCGGCCCTAAAGGCATCCGTCAGCTGACAAGTCAAGATACAAAGCCACCTGCCTGGCCGAGTTTAAAGC  
AGATCAAATCCATCAGGTGCCTCCCATTGGAAGAGACCCAGGCAGTCTGCAGCTGGGCATCGAGGGTGC  
CCCCAGTCTTGTCTATCAAACGTCGTCCTGGCAGAGGCTGAGAACATGGCTGACCTCATAGATGGC  
TACTGCAGGCTGCAAGGAGAACATAAGGGCTCTCTCATCATGCATGCCAAGAAAGATGGTGAAGAAGGA  
ACAGCCTGCCTCAGATCCCCACACTAACCTGGAGGCTCGCGGTGCACCTCTCAGAAAGCTGCAGCAT  
AGAGTCAAGATCTATGCGGAGATCCCGATGAGACCTGCGAAGACCAGGAGTCCACAGTACGGTGT  
GCCCGTGAAGAAGTAGTTCTTAACCGCATTCTGGGTGAAGGCTTCTTTGGGAGGTCTATGAAGGTGCT  
ACACGAACCACAAAGGGGAAAAAATTAATGTGGCCGTCAAGACCTGTAAGAAAGACTGTACCCAGGACAA  
CAAGGAGAAGTTCATGAGTGAAGCAGTGCATGAAGAATCTTGACCACCTCACATCGTGAAGCTGATT  
GGCATCATTGAAGAGGAACCCACCTGGATTATCATGGAAGTGTATCCTTATGGGAGCTGGGACACTACC



TGGAACGAAATAAAAACCTCCCTGAAGGTACCCACTCTGGTCCTGTACACCCTACAGATATGCAAAGCCAT  
GGCCTATCTGGAGAGCATCAACTGTGTGCACAGGGATATTGCTGTCCGGAACATCCTGGTGGCCTCTCT  
GAGTGTGTGAAGCTGGGGACTTTGGGCTCTCCCGGTACATTGAGGACGAAGACTATTACAAAGCCTCTG  
TGACCCGTCTACCCATCAAAATGGATGTCCCCGAGTCCATCAACTTCCGCCGCTTACAACCGCCAGTGA  
TGTCTGGATGTTTGTGTATGCATGTGGGAGATCCTCAGCTTTGGGAAGCAGCCTTTCTTCTGGCTCGAA  
AATAAGGATGTCATCGGAGTGTGGAGAAAGGGGACAGGCTGCCAAGCCCGAAGCTGTGCCGCTGTCC  
TTTACACACTCATGACTCGCTGCTGGGACTACGACCCAGTACCAGCCCGCTTACGGAGCTTGTGTG  
CAGCCTCAGTGACATTTATCAGATGGAGAAGGACATTGCCATAGAGCAAGAAAGGAATGCTCGTACCGA  
CCCCCAAATATTGGAGCTACTACCTTTTCAGGAACCCCAACCAAGCCAGCCGGCCCAAGTACAGAC  
CTCCTCCACAGACCAACCTGCTGGCTCCTAAGCTGCAGTTCAGGTCCCTGAGGGTCTGTGTGCCAGCTC  
TCTACGCTTACCAGCCCTATGGAGTATCCATCTCCAGTTAACTCGTACACACCCACCTCTCCACCGG  
CACAATGTCTTCAAGCGCCACAGCATGCGGGAGGAGGACTTCATCCGGCCAGTAGCCGAGAAGAGGCC  
AGCAGCTCTGGGAGGCAGAGAAGATCAAGATGAAGCAGGTCTAGAAAGACAGCAGAAGCAGATGGTGA  
AGATCCCAGTGGCTGAGGCGAGAGGAAAGATGCTTGGACCCTATGGTTTATATGAATGACAAGTCCCCA  
CTGACTCCAGAGAAGGAGCCGGCTACAGGCCCCACAGAAACCACCTCGCTCGGTGCACAGTCCATTC  
AGCCACAGCCAACCTGGACAGGACCGATGACCTCGTGTACCACAATGTCATGACCTGGTGGAGGCTGT  
GCTGGAACCTCAAGAAACAGCTTGCCAGTGTCCCCCTGAGGACTATGTGGTGGTGGTGAAGAACGTGGG  
CTGAACCTGCGGAAGCTCATCGGCAGTGTGGACGATCTTGGCCCTCCTTGCCGGCATCTTCGAGGACAG  
AGATTGAAGGGACCCAGAAACTGCTCAACAAAGACCTGGCAGAGCTCATCAACAAGATGAAGTTGGCTCA  
GCAGAACGCCGTGACGTCCCTGAGTGGGACTGCAAGCGGCAGATGCTCACAGCGTCCCATACCTGGCT  
GTGGATGCCAAGAACCTGCTGGATGCTGTGGACCAAGCAAGGTTGTGGCTAATCTGGCCACCCCGCTG  
CAGAGTGA

ACGCGTACGCGGCCGCTCGAGCAGAAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCCTGGATT  
ACAAGGATGACGACGATAAGGTTTAA

**Restriction Sites:** SgfI-MluI

**ACCN:** NM\_001162365

**Insert Size:** 3018 bp

**OTI Disclaimer:** Our molecular clone sequence data has been matched to the reference identifier above as a point of reference. Note that the complete sequence of our molecular clones may differ from the sequence published for this corresponding reference, e.g., by representing an alternative RNA splicing form or single nucleotide polymorphism (SNP).

**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\\_001162365.1](#), [NP\\_001155837.1](#)

**RefSeq Size:** 4039 bp

**RefSeq ORF:** 3018 bp

Locus ID: 19229

Cytogenetics: 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<sup>2+</sup> 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]

Transcript Variant: This variant (2) uses an alternate in-frame splice site in the 3' coding region compared to variant 1. This results in a shorter protein (isoform 2) compared to isoform 1.