

## PIK3CB wt/PIK3R1

phosphatidylinositol-4,5-bisphosphate 3-kinase catalytic subunit beta

Recombinant Human Active Lipid Kinase

HGNC Symbol: PIK3CB

**Synonyms PIK3CB:** P110BETA, PI3K, PI3KBETA, PI3K-beta, PIK3C1

**Synonyms PIK3R1:** GRB1, p85, p85-ALPHA

**Lipid Kinase Family:** PI3K Class I

(according to: Phylogenomics of phosphoinositide lipid kinases: perspectives on the evolution of second messenger signaling and drug discovery: James R Brown & Kurt R Auger; BMC Evolutionary Biology 11, 4-14 (2011))

**Product No.:** 1168-1165-1

**Lot:** 009

**Description:** Human PIK3CB, full length, amino acids M<sub>1</sub>-S<sub>1070</sub> (as in [NCBI/Protein](#) entry NP\_006210.1), N-terminal GST-HIS<sub>6</sub> fusion protein with a 3C cleavage site and PIK3R1 full length, amino acids M<sub>1</sub>-R<sub>724</sub> (as in [NCBI/Protein](#) entry NP\_852664.1), N-terminal fused to a MYC-tag, coexpressed in Sf9 insect cells

**Product identity:** PIK3CB wt/PIK3R1 Lot 009, was confirmed as PIK3CB wt/PIK3R1 by mass spectroscopy LC-ESI-MS/MS

**Theoretical MW<sub>GST-PIK3CB</sub>:** 151,267 Da

**Theoretical MW<sub>PIK3R1</sub>:** 85,371 Da

**Expression host:** Sf9 insect cells

**Purification:** GST-Affinity Chromatography

**Activation:** This kinase was not activated by special procedures

**Storage buffer:** 50 mM HEPES pH 7.5, 100 mM NaCl, 5 mM DTT, 15 mM reduced glutathione, 0.1 % Triton X-100, 20% glycerol

**Storage temperature:** -80°C

For complete recovery, mix well and spin before use. Product must not be stored in diluted solutions, aliquots below 10µl are not advisable. Avoid repeated freeze-thaw cycles!

**Protein concentration:** 0.178 µg/µl

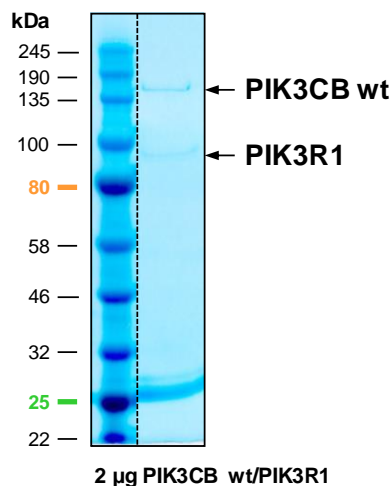
(Bradford method using BSA [Sigma, cat# A-7638, Lot 79H7641] as standard protein)

**Biochemical Parameters:**

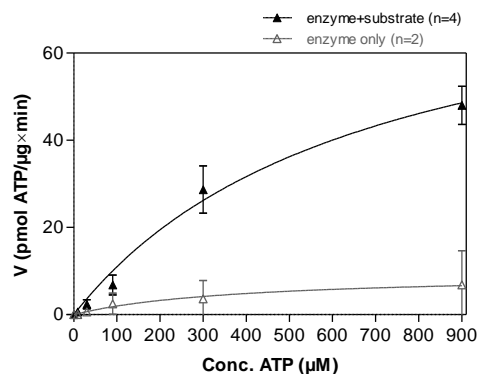
Specific kinase activity (P<sub>i</sub> transfer): 85 pmol/µg × min

ATP-K<sub>M</sub>: 673 µM

**PIK3CB/PIK3R1 Lot 009:**  
Coomassie stain



**PIK3CB/PIK3R1 Lot 009:**  
Determination of V<sub>max</sub> and K<sub>M</sub> value for ATP



**Determination of K<sub>M</sub> value & Specific activity:**

• Assay conditions:

50 mM HEPES-NaOH, pH 7.5

3 mM MgCl<sub>2</sub>

1 mM EGTA

100 mM NaCl

0.03% CHAPS

2 mM DTT

ATP (variable)

1 % (v/v) DMSO

Substrate: PIP<sub>2</sub>: 50 µM/PS: 950 µM

PIP<sub>2</sub>: 08:0 PI(4,5)P<sub>2</sub> (1,2-Dioctanoyl-sn-Glycero-3-(Phosphoinositol-4,5-Bisphosphate))

PS: 1-Palmitoyl-2-Oleoyl-sn-Glycero-3-(Phospho-L-Serine)

Kinase: 1 µg/ml

• Assay technology:

ADP-Glo (Promega)

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# PIK3CB wt/PIK3R1

Product No.: 1168-1165-1

GST-PIK3CB wt Recombinant Fusion Protein Amino Acid Sequence							
1	MSPILGYWKI	KGLVQPTRL	LEYLEEKYEE	HLYERDEGDK	WRNKKFELGL	EFPNLPYYID	60
61	GDVKLTQSMA	IIRYIADKHN	MLGGCPKERA	EISMLEGAVL	DIRYGVSRIA	YSKDFETLKV	120
121	DFLSKLP EML	KMFEDRLCHK	TYLNGDHVTH	PDFMLYDALD	VVLYMDPMCL	DAFPKLVCFK	180
181	KRIEAI PQID	KYLKSSKYIA	WPLQGWQATF	GGGDHPPKSD	PMG <b>HHHHHG</b>	RDS <b>LEVLFCG</b>	240
241	<b>PLAMVMCFSF</b>	<b>IMPPAMADIL</b>	<b>DIWAVDSQIA</b>	<b>SDGSIPVDFL</b>	<b>LPTGIYIQLE</b>	<b>VPREATISYI</b>	300
301	<b>KQMLWKQVHN</b>	<b>YPMFNLLMDI</b>	<b>DSYMFACVNQ</b>	<b>TAVYEELEDE</b>	<b>TRRLCDVRPF</b>	<b>LPVLKLVTRS</b>	360
361	<b>CDPGEKLSK</b>	<b>IGVLIGKGLH</b>	<b>EFDSLKDPEV</b>	<b>NEFRRKMRKF</b>	<b>SEEKILSLVG</b>	<b>LSWMDWLKQT</b>	420
421	<b>YPPEHEPSIP</b>	<b>ENLEDKLYGG</b>	<b>KLIVAVHFEN</b>	<b>CQDVFSFQVS</b>	<b>PNMNPIKVNE</b>	<b>LAIQKRLTIH</b>	480
481	<b>GKEDEVSPYD</b>	<b>YVLQVSGRVE</b>	<b>YVFGDHPLIQ</b>	<b>FQYIRNCVMN</b>	<b>RALPHFILVE</b>	<b>CCKIKKMYEQ</b>	540
541	<b>EMIAIEAAIN</b>	<b>RNSSNLPLPL</b>	<b>PPKKTRII SH</b>	<b>VWENNNPFQI</b>	<b>VLVKGNKLN T</b>	<b>EETVKVHVRA</b>	600
600	<b>GLFHGTELLC</b>	<b>KTIVSSEVSG</b>	<b>KNDHIWNEPL</b>	<b>EFDINICDLP</b>	<b>RMARLCFAVY</b>	<b>AVLDKVKTKK</b>	660
661	<b>STKTINQSPY</b>	<b>QTRIKAGKVH</b>	<b>YPVAWNTMV</b>	<b>FDFKGLQRTG</b>	<b>DIILHSWSSF</b>	<b>PDELEMLNP</b>	720
721	<b>MGTVQTNPYT</b>	<b>ENATALHVKF</b>	<b>PENKKQPYYY</b>	<b>PPFDKIEKA</b>	<b>AEIASSDSAN</b>	<b>VSSRGGKKFL</b>	780
781	<b>PVLKEILDRD</b>	<b>PLSQLCENEM</b>	<b>DLIWTLRQDC</b>	<b>REIFPQSLPK</b>	<b>LLLSIKWNKL</b>	<b>EDVAQLQALL</b>	840
841	<b>QIWPKLPPRE</b>	<b>ALELLDFNYP</b>	<b>DQYVREYAVG</b>	<b>CLRQMSDEEL</b>	<b>SOYLLQLVQV</b>	<b>LKYEPFLDCA</b>	900
901	<b>LSRFL LERAL</b>	<b>GNRRIGQFLF</b>	<b>WHLRSEVHIP</b>	<b>AVSVQFGVIL</b>	<b>EAYCRGSGVH</b>	<b>MKVL SKQVEA</b>	960
961	<b>LNKLKTLSNL</b>	<b>IKLNAVKLN R</b>	<b>AKGKEAMHTC</b>	<b>LKQSAYREAL</b>	<b>SDLQSP LNPC</b>	<b>VILSELYVEK</b>	1020
1021	<b>CKYMDSKMKP</b>	<b>LWL VYNNKVF</b>	<b>GEDSVGVIFK</b>	<b>NGDDL RQDML</b>	<b>TLQMLRLMDL</b>	<b>LWKEAGLDLR</b>	1080
1081	<b>MLPYGCLATG</b>	<b>DRSLGIEVVS</b>	<b>TSETIADIQL</b>	<b>NSSNVA AAAA</b>	<b>FNKDALLNWL</b>	<b>KEYNSGDDLD</b>	1140
1141	<b>RAIEEFTLSC</b>	<b>AGYCVASYVL</b>	<b>GIGDRHSDNI</b>	<b>MVKKTGQLFH</b>	<b>IDFGHILGNF</b>	<b>KSKFGIKRER</b>	1200
1201	<b>VPFILTYDFI</b>	<b>HVIQQGKTGN</b>	<b>TEKFGRFRQC</b>	<b>CEDAYLILRR</b>	<b>HGNLFITLFA</b>	<b>LMLTAGLPEL</b>	1260
1261	<b>TSVKDIQYLK</b>	<b>DSLALGKSEE</b>	<b>EALKQFKQKF</b>	<b>DEALRESWTT</b>	<b>KVNWMAHTVR</b>	<b>KDYRS</b>	1320

1-218: GST Red: HIS6-tag Green: 3C cleavage site blue: PIK3CB

PIK3CB wt <sup>1</sup> Amino Acid Sequence							
1	<b>MCFSFIMPPA</b>	<b>MADILDIWAV</b>	<b>DSQIASD GSI</b>	<b>PVDFLLPTGI</b>	<b>YIQLEVPREA</b>	<b>TISYIKQLW</b>	60
61	<b>KQVHNYP MFN</b>	<b>LLMDIDSYMF</b>	<b>ACVNQTAVYE</b>	<b>ELEDETRRLC</b>	<b>DVRPFLPVLK</b>	<b>LVTRSCDPGE</b>	120
121	<b>KLDSKIGVLI</b>	<b>GKGLHEFDSL</b>	<b>KDPEVNEFRR</b>	<b>KMRKFSEEKI</b>	<b>LSLVGLSWMD</b>	<b>WLKQTY PPEH</b>	180
181	<b>EPSIPENLED</b>	<b>KLYGGKLIVA</b>	<b>VHFENCQDVF</b>	<b>SFQVSPNMNP</b>	<b>IKVNELAIQK</b>	<b>RLTIHGKEDE</b>	240
241	<b>VSPYDYVLQV</b>	<b>SGRVEYVFGD</b>	<b>HPLIQFQYIR</b>	<b>NCVMNRALPH</b>	<b>FILVECKIK</b>	<b>KMYEQEMIAI</b>	300
301	<b>EAAINRNSSN</b>	<b>LPLPLPPKKT</b>	<b>RIISHVWENN</b>	<b>NPFQIVLVKG</b>	<b>NKLNTEETVK</b>	<b>VHVRAGLFHG</b>	360
361	<b>TELLCKTI VS</b>	<b>SEVSGKNDHI</b>	<b>WNEPLEFDIN</b>	<b>ICDLPRMARI</b>	<b>CFAVYAVLDK</b>	<b>VKTKKSTKI</b>	420
421	<b>NPSKYQTIRK</b>	<b>AGKVHPVAW</b>	<b>VNTMVDFDKG</b>	<b>QLRTGDIILH</b>	<b>SWSSFPDELE</b>	<b>EMLNPMGTVQ</b>	480
481	<b>TNPYTENATA</b>	<b>LHVKFPENKK</b>	<b>QPYYP PFDK</b>	<b>IIEKAAEIAS</b>	<b>SDSANVSSRG</b>	<b>GKKFLPVLKE</b>	540
541	<b>ILDRDPLSQL</b>	<b>CENEMDLIWT</b>	<b>LRQDCREIFP</b>	<b>QSLPKLLLSI</b>	<b>KWNKLEDVAQ</b>	<b>LQALLQIWPK</b>	600
601	<b>LPPREALELL</b>	<b>DFNYPDQYVR</b>	<b>EYAVGCLRQM</b>	<b>SDEELSQYLL</b>	<b>QLVQVLKYE P</b>	<b>FLDCALSREL</b>	660
661	<b>LERALGNRRI</b>	<b>GQFLFWHLRS</b>	<b>EVHIPAVSVQ</b>	<b>FGVILEAYCR</b>	<b>GSVGHMKVLS</b>	<b>KQVEALNKLK</b>	720
721	<b>TLNSLIK LNA</b>	<b>VKLNRAKGE</b>	<b>AMHTCLKQSA</b>	<b>YREALSDLOS</b>	<b>PLNPCVILSE</b>	<b>LYVECKYMD</b>	780
781	<b>SKMKPLWL VY</b>	<b>NNKVFGE SV</b>	<b>GVIFKNGDIN</b>	<b>RQDMLTLQML</b>	<b>RLMDLLWKEA</b>	<b>GLDLRMLPYG</b>	840
841	<b>CLATGDRSGL</b>	<b>IEVVSTSETI</b>	<b>ADIQLNSSNV</b>	<b>AAAAAFNKDA</b>	<b>LLNWLKEYNS</b>	<b>GDDLDR AIEE</b>	900
901	<b>FTLSCAGYCV</b>	<b>ASYVLGIGDR</b>	<b>HSDNIMVKK T</b>	<b>GQLFHIDFGH</b>	<b>ILGNFKSKFG</b>	<b>IKRERV PFIL</b>	960
961	<b>TYDFIHVIQQ</b>	<b>GKTGNT EKFG</b>	<b>RFRQCCEDAY</b>	<b>LILRRHGNLF</b>	<b>ITLFALMLTA</b>	<b>GLPELTSVKD</b>	1020
1021	<b>IQYLKDSLAL</b>	<b>GKSEEEALQ</b>	<b>FKQKFDEALR</b>	<b>ESWTTKVNWM</b>	<b>AHTVRKDYRS</b>		1080

blue: PIK3CB sequence expressed in recombinant protein

<sup>1</sup>[NCBI/Protein](https://www.ncbi.nlm.nih.gov/Protein) accession number NP\_006210.1

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**MYC-PIK3R1 Recombinant Fusion Protein Amino Acid Sequence**

1	MEEQKLISEE	DL	PMVMSAEG	YQYRALYDYK	KEREEDIDLH	LGDILTVNKG	SLVALGFSDG	60
61	QEARPEEIGW		LNGYNETTGE	RGDFPGTYVE	YIGRKKISPP	TPKPRPPRPL	PVAPGSSKTE	120
121	ADVEQQALTL		PDLAEQFAPP	DIAPPLLIK	VEAIEKKGLE	CSTLYRTQSS	SNLAELRQLL	180
181	DCDTPSVGLE		MIDVHVLADA	FKRYLLDLPN	PVIPAAYVSE	MISLAPEVQS	SEEYIQLLKK	240
241	LIRSPSIPHQ		YWLTLQYLLK	HFFKLSQTSS	KNLLNARVLS	EIFSPMLFRF	SAASSDNTEN	300
301	LIKVIEILIS		TEWNERQPAP	ALPPKPPKPT	TVANNGMNNN	MSLQDAEWYW	GDISREEVNE	360
361	KLRDTADGTF		LVRDASTKMH	GDYTLTLRKG	GNNKLIKIFH	RDGKYGFSDP	LTFSVVVELI	420
421	NHYRNESLAQ		YNPKLDVKLL	YPVSKYQQDQ	VVKEDNIEAV	GKKLHKYNTQ	FQEKRSREYDR	480
481	LYEEYTRTSQ		EIQMKRTAIE	AFNETIKIFE	EQCQTQERYE	KEYIEKFKRE	GNEKEIQRIM	540
541	HNYDKLKSRI		SEIIDSRRRL	EEDLKKQAAE	YREIDKRMNS	IKPDLIQLRK	TRDQYLMWLT	600
601	QKQVTRQKLN		EYLVNEDTED	QYSLVEDDED	LPHHDEKTNW	VGSSNRNKAE	NLLRKRDRGT	660
661	FLVRESSKQG		CYACSVVDG	EVKHCVINKT	ATGYGFAEPE	NLYSSLKELV	LHYQHTSLVQ	720
721	HNDLNLVTLA		YPVYAQQRR					780

1-218: GST Red: MYC-tag blue: PIK3R1 boxed: variation from RefSeq

**PIK3R1 wt<sup>2</sup> Amino Acid Sequence**

1	MSAEGYQYRA	LYDYKKEREE	DIDLHLGDIL	TVNKGSLVAL	GFSQGQEARP	EEIGWLNQYN	60
61	ETTGERGDFP	GTIVEYIGRK	KISPPTPKPR	PPRPLPVAPG	SSKTEADVEQ	QALTLPLDLAE	120
121	QFAPPDIAPP	LLIKLVEAIE	KGLEECSTLY	RTQSSSNLAE	LRQLLDCDTP	SVDLEMIDVH	180
181	VLADAFKRYL	LDLNPVPIPA	AVYSEMISLA	PEVQSSEEYI	QLLKKLIRSP	SIPHQYWLT	240
241	QYLLKHFFKL	SQTSSKNLLN	ARVLSEIFSP	MLFRFSAASS	DNTENLIKVI	EILISTEWNE	300
301	RQPAPALPPK	PPKPTTVANN	GMNNMSLQD	AEWYWGDISR	EEVNEKLRDT	ADGTFVLRDA	360
361	STKMHGDYTL	TLRKGGNKLN	IKIFHRDGKY	GFSQDPLTFSS	VVELINHYRN	ESLAQYNPKL	420
421	DVKLLYPVSK	YQQDQVVKED	NIEAVGKKLH	EYNTQFQEK	REYDRLYEY	TRTSQEIOMK	480
481	RTAIEAFNET	IKIFEEQCQT	QERYKEYIE	KFKREGNEKE	IQRIMHNYDK	LKSRISEIID	540
541	SRRLEEDLK	QAAEYREID	KRMNSIKPDL	IQLRKTRDQY	LMWLTQKQV	QKKLNEWLGN	600
601	ENTEDQYSLV	EDDEDLPHHD	EKTWNVGSN	RNKAENLLRG	KRDGTFVRE	SSKQGCYACS	660
661	VVDGGEVKHC	VINKTATGYG	FAEPYNYLSS	LKELVLHYQH	TSLVQHNDL	NVTLAYPVYA	720
721	QQRR						780

blue: PIK3R1 sequence expressed in recombinant protein Red: variant in recombinant protein

<sup>2</sup>NCBI/Protein accession number NP\_852664.1  
E451K: SNP variation see NCBI/dbSNP ID: rs17852841

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