

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: 005

Description: Human PIK3CB, full length, amino acids M₁-S₁₀₇₀ (as in [NCBI/Protein](#) entry NP_006210.1), N-terminal GST-HIS₆ fusion protein with a 3C cleavage site and PIK3R1 full length, amino acids M₁-R₇₂₄ (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 005, was confirmed as PIK3CB wt/PIK3R1 by mass spectroscopy LC-ESI-MS/MS

Theoretical MW_{GST-PIK3CB}: 151,267 Da

Theoretical MW_{PIK3R1}: 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: 0.103 µg/µl

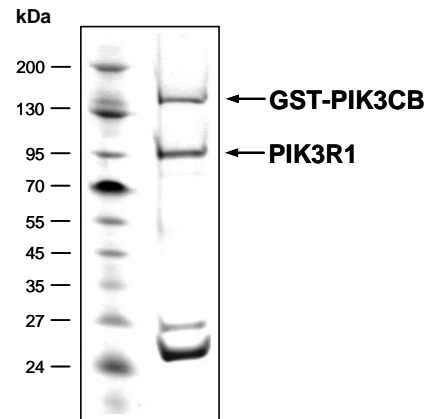
(Bradford method using BSA [Sigma, cat# A-7638, Lot 79H7641] as standard protein)

Biochemical Parameters:

Specific kinase activity (P_i transfer): 1584 pmol/µg × min

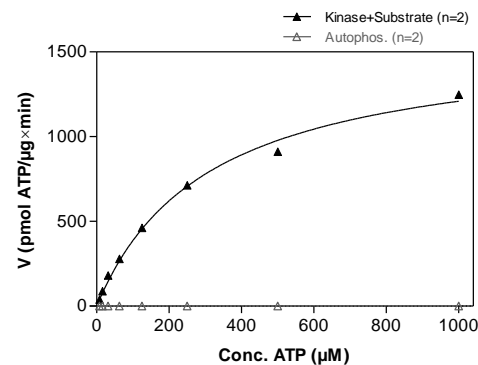
ATP-K_M: 310 µM

PIK3CB/PIK3R1 Lot 005:
Coomassie stain



4 µg GST-PIK3CB/PIK3R1

PIK3CB/PIK3R1 Lot 005:
Determination of V_{max} and K_M value for ATP



Determination of K_M value & Specific activity:

• Assay conditions:

50 mM HEPES-NaOH, pH 7.5

3 mM MgCl₂

1 mM EGTA

100 mM NaCl

0.03% CHAPS

2 mM DTT

ATP (variable)

1 % (v/v) DMSO

Substrate: PIP₂: 50 µM / PS: 950 µM

PIP₂: 08:0 PI(4,5)P₂ (1,2-Dioctanoyl-sn-Glycero-3-(Phosphoinositol-4,5-Bisphosphate)

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

PIK3CB/PIK3R1: 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 HHHHHG	RDS LEVLFCG	240
241	PLAMVMCFSF	IMPPAMADIL	DIWAVDSQIA	SDGSIPVDFL	LPTGIYIQLE	VPREATISYI	300
301	KQMLWKQVHN	YPMFNLLMDI	DSYMFACVNQ	TAVYEELEDE	TRRLCDVRPF	LPVLKLVTRS	360
361	CDPGEKLSK	IGVLIGKGLH	EFDSLKDPEV	NEFRRKMRKF	SEEKILSLVG	LSWMDWLKQT	420
421	YPPEHEPSIP	ENLEDKLYGG	KLIVAVHFEN	CQDVFSFQVS	PNMNPIKVNE	LAIQKRLTIH	480
481	GKEDEVSPYD	YVLQVSGRVE	YVFGDHPLIQ	FQYIRNCVMN	RALPHFILVE	CCKIKKMYEQ	540
541	EMIAIEAAIN	RNSSNLPLPL	PPKKTRII SH	VWENNNPFQI	VLVKGNKLN T	EETVKVHVRA	600
600	GLFHGTELLC	KTIVSSEVSG	KNDHIWNEPL	EFDINICDLP	RMARLCFAVY	AVLDKVKTKK	660
661	STKTINQSPY	QTRIKAGKVH	YPVAWNTMV	FDFKQGLRTG	DIILHSWSSF	PDELEMLNP	720
721	MGTVQTNPYT	ENATALHVKF	PENKKQPYYY	PPFDKIEKA	AEIASSDSAN	VSSRGGKKFL	780
781	PVLKEILDRD	PLSQLCENEM	DLIWTLRQDC	REIFPQSLPK	LLLSIKWNKL	EDVAQLQALL	840
841	QIWPKLPPRE	ALELLDFNYP	DQYVREYAVG	CLRQMSDEEL	SOYLLQLVQV	LKYEPFLDCA	900
901	LSRFL LERAL	GNRRIGQFLF	WHLRSEVHIP	AVSVQFGVIL	EAYCRGSGVH	MKVLSKQVEA	960
961	LNKLKTLSNL	IKLNAVKLN R	AKGKEAMHTC	LKQSAYREAL	SDLQSP LNPC	VILSELYVEK	1020
1021	CKYMDSKMKP	LWL VYNNKVF	GEDSVGVIFK	NGDDL RQDML	TLQMLRLMDL	LWKEAGLDLR	1080
1081	MLPYGCLATG	DRSLGIEVVS	TSETIADIQL	NSSNVA AAAA	FNKDALLNWL	KEYNSGDDLD	1140
1141	RAIEEFTLSC	AGYCVASYVL	GIGDRHSDNI	MVKKTGQLFH	IDFGHILGNF	KSKFGIKRER	1200
1201	VPFILTYDFI	HVIQQGKTGN	TEKFGRFRQC	CEDAYLILRR	HGNL FITLFA	LMLTAGLPEL	1260
1261	TSVKDIQYLK	DSLALGKSEE	EALKQFKQKF	DEALRESWTT	KVNWMAHTVR	KDYRS	1320

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

PIK3CB wt ¹ Amino Acid Sequence							
1	MCFSFIMPPA	MADILDIWAV	DSQIASD GSI	PVDFLLPTGI	YIQLEVPREA	TISYIKQLW	60
61	KQVHNYPMFN	LLMDIDSYMF	ACVNQTAVYE	ELEDETRRLC	DVRPFLPVLK	LVTRSCDPGE	120
121	KLDSKIGVLI	GKGLHEFDSL	KDPEVNEFRR	KMRKFSEEKI	LSLVGLSWMD	WLKQTYPPEH	180
181	EPSIPENLED	KLYGGKLIVA	VHFENCQDVF	SFQVSPNMNP	IKVNELAIQK	RLTIHGKEDE	240
241	VSPYDYVLQV	SGRVEYVFGD	HPLIQFYIR	NCVMNRALPH	FILVECKIK	KMYEQEMIAI	300
301	EAAINRNSSN	LPLPLPPKKT	RIISHVWENN	NPFQIVLVKG	NKLNTEETVK	VHVRAGLFHG	360
361	TELLCKTIVS	SEVSGKNDHI	WNEPLEFDIN	ICDLPRMARL	CFAVYAVLDK	VKTKKSTKI	420
421	NPSKYQTIRK	AGKVHPVAW	VNTMVDFDKG	QLRTGDIILH	SWSSFPDELE	EMLNPMGTVQ	480
481	TNPYTENATA	LHVKFPENKK	QPYYPFFDK	IEKAAEIAS	SDSANVSSRG	GKKFLPVLKE	540
541	ILDRDPLSQL	CENEMDLIWT	LRQDCREIFP	QSLPKLLLSI	KWNKLEDVAQ	LQALLQIWPK	600
601	LPPREALELL	DFNYPDQYVR	EYAVGCLRQM	SDEELSQYLL	QLVQVLKYE P	FLDCALSREL	660
661	LERALGNRRI	GQFLFWHLRS	EVHIPAVSVQ	FGVILEAYCR	GSVGHMKVLS	KQVEALNKLK	720
721	TLNSLIKLNA	VKLNRAKGE	AMHTCLKQSA	YREALSDLOS	PLNPCVILSE	LYVECKYMD	780
781	SKMKPLWL VY	NNKVFGE SV	GVIFKNGDIN	RQDMLTLQML	RIMDLLWKEA	GLDLRMLPYG	840
841	CLATGDRSGL	IEVVSTSETI	ADIQLNSSNV	AAAAAFNKDA	LLNWLKEYNS	GDDLDR AIEE	900
901	FTLSCAGYCV	ASYVLGIGDR	HSDNIMVKKT	GQLFHIDFGH	ILGNFKSKFG	IKRERVPFIL	960
961	TYDFIHVIQQ	GKTGNTKFKG	RFRQCCEDAY	LILRRHGNLF	ITL FALMLTA	GLPELTSVKD	1020
1021	IQYLKDSLAL	GKSEEEALQ	FKQKFDEALR	ESWTTKVNWM	AHTVRKDYRS		1080

blue: PIK3CB sequence expressed in recombinant protein

¹[NCBI/Protein](https://www.ncbi.nlm.nih.gov/Protein/NP_006210.1) accession number NP_006210.1

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MYC-PIK3R1 Recombinant Fusion Protein Amino Acid Sequence

1	MEEQKLISEE	DL	PMVMSAEG	YQYRALYDYK	KEREEDIDLH	LGDILTVMKG	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	EQCQTQERY	KEYIEKFKRE	GNEKEIQRIM	540
541	HNYDKLKSRI		SEIIDSRRRL	EEDLKKQAAE	YREIDKRMNS	IKPDLIQLRK	TRDQYLMWLT	600
601	QKQVTRQKLN		EYLVNEDTED	QYSLVEDDED	LPHHDEKTN	VGSSNRNKAE	NLLRKRDRGT	660
661	FLVRESSKQG		CYACSVVDG	EVKHCVINKT	ATGYGFAEY	NLYSSLKELV	LHYQHTSLVQ	720
721	HNDLNLVTLA		YPVYAQQRR					780

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

PIK3R1 wt² 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	LDLNPVIPA	AVYSEMISLA	PEVQSSEEYI	QLLKKLIRSP	SIPHQYWLTL	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	YQDQVVKED	NIEAVGKKLH	EYNTQFQEK	REYDRLYEY	TRTSQEIOMK	480
481	RTAIEAFNET	IKIFEEQCQT	QERYKEYIE	KFKREGNEKE	IQRIMHNYDK	LKSRISEIID	540
541	SRRLEEDLK	QAAEYREID	KRMNSIKPDL	IQLRKRTRDQY	LMWLTQKQV	QKKLNEWLGN	600
601	ENTEDQYSLV	EDDEDLPHHD	EKTWNVGSN	RNKAENLLRG	KRDGTFVRE	SSKQGCYACS	660
661	VVDGQVVKHC	VINKTATGYG	FAEPYNLYSS	LKELVLHYQH	TSLVQHNDL	NVTLAYPVYA	720
721	QQRR						780

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

²[NCBI/Protein](https://www.ncbi.nlm.nih.gov/protein/NP_852664.1) accession number NP_852664.1
E451K: SNP variation see [NCBI/dbSNP](https://www.ncbi.nlm.nih.gov/snp/rs17852841) ID: rs17852841

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