



*Division of Signal Transduction Therapy*

**Clone Data Sheet**

**PI3 kinase alpha E542K [2 – 1068] / p85 [1 - 724]**

**Protein** PI3 kinase alpha [2 – 1068] / p85 [1 – 724]

**Clone number** DU 12756

**Species** Human

**Accession number** PI3 kinase alpha U79143 / p85 NM\_181523

**Tags** N-terminal His(6)

**Baculovirus  
expressed  
PI3 kinase alpha**

MHHHHHPPRPSSGELWGIHLMPPRILVECLLPNGMIVTLECLREATLI  
TIKHELKFKEARKYPLHQLLQDESSYIFVSVTQEAEREFFDETRRLCDL  
RLFQPFVKVIEPVGNRREEKILNREIGFAIGMPVCEFDLVKDEPVQDFRR  
NILNVCKEAVDLRDLNSPHSRAMYVYPPNVESPELPHKIYNKLDKGOI  
IVVIWVIVSPNNDKQKYTLKINHDCVPEQVIAEAIKKKTRSMLLSSEQL  
KLCVLEYQGYILKVCGCDEYFLEKYPLSQYKIRSCIMLGRMPNMLM  
AKESLYSQLPMDCFMPSYSRRISTATPYMNGETSTKSLWVINSALRIK  
ILCATYVNVNIRDIDKIYVRTGIYHGGEPLCDNVNTQRPVCSNPRWNEW  
LNYDIYIPDLPRAARLCLSVKGRKGAKEEHCPLAWGNINLFDYTDI  
LVSGKMALNLWPVPHGLEDLLNPIGVTGSPNPKETPCLELEFDWFSSV  
KFPDMSVIEEHANWSVSREAGFSYSHAGLSNRLARDNELRENDKEQLKA  
ISTRDPLSKITEQEKDFLWSHRHYCVTIPEILPKLLLSVKWNSRDEVAQ  
MYCLVKDWPPKPEQAMELLDCNYPDPMVRGFAVRCLEKYLTDKLSQY  
LIQVLQVLKYEQYLDNLLVRFLLKALTNQRIHFFFVHLKSEMHNKT  
SQRFGLLLESYCRACGMYLKHLNRQVEAMEKLINLTDILKQEKKDETQK  
VQMKFLVEQMRRPDFMDALQGFLSPLNPAHQGLNLRLEECRIMSSAKRP  
LWLNWENPDIMSELLFQNEIIFKNGDDLQDMLTLQIIRIMENIWQNO  
GLDLRMLPYGCLSIGDCVGLIEVVRNSHTIMQIQCKGGLKGALQFNSHT  
LHQWLKDKNKGEIYDAAIDLFTTRSCAGYCVATFILGIGDRHNSNIMVKD  
DGQLFHIDFGHFLDHKKKFGYKRERVPFVLTQDFLIVISKGAQECTKT  
REFERFQEMCYKAYLAIRQHANLFINLFSMMLGSGMPELQSFDDIAYIR  
KTLALDKTEQEALEYFMKQMNDAHHGGWTTKMDWIFHTIKQHALN

**Native sequence  
PI3 kinase alpha**

Amino acids P2 – N1068 (end) of human PI3 kinase alpha.  
Residue P8 of the fusion protein is equivalent to P2 of the native enzyme.  
The enzyme has a E542K mutation to mimic the activation mutation  
found in many types of cancers. Residue E542 is equivalent to K548  
of the fusion protein. The His(6) tag is located at residues 2 – 7.

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**Baculovirus  
expressed  
P85**

MSAEGYQYRALYDYKKEREEDIDLHLGDILTVNKGSLVALGFSDGQEAR  
PEEIGWLNGYNETTGERGDFPGTYVEYIGRKKISPPTPKPRPPRPLPVA  
PGSSKTEADVEQQALTLPLDLAEQFAPPDIAPPLLIKLVIAIEKKGLECS  
TLYRTQSSSNLAELRQLLDLDCDTPSVDLEMIDVHVLADAFKRYLLDLNP  
VIPAAVYSEMI SLAPEVQSSEYIQLLKKLIRSPSIPHQYWLTLQYLLK  
HFFKLSQTSSKNLLNARVLSEIFSPMLFRFSAASSDNTENLIKVIEILI  
STEWNERQPAPALPPKPPKPTTVANNGMNNMSLQDAEWYWGDISREEV  
NEKLRDTADGTFLVRDASTKMHGDYTLTLRKGGNNKLIKIFHRDGKYGF  
SDPLTFSSVVELINHYRNESLAQYNPKLDVKLLYPVSKYQQDQVVKEDN  
IEAVGKKLHEYNTQFQEKREYDRLYEEYTRTSQEIQMKRTAIEAFNET  
IKIFEEQCQTQERYKEYIEKFKREGNEKEIQRIMHNYDKLKSRISEII  
DSRRLEEDLKKQAAEYREIDKRMNSIKPDLIQLRKTRDQYLMWLTQKG  
VRQKKLNEWLGNENTEDQYSLVEDDEDLPHHDEKTWNVGSSNRNKAENL  
LRGKRDGTFLVRESSKQGCYACSVVVDGEVKHCVINKTATGYGFAEPYN  
LYSSLKELVLHYQHTSLVQHNSLNVTLAYPVYAQQRR

**Native sequence  
P85**

Amino acids M1 – R724 (end) of human P85.

**Cloning sites**

*Xho*1 and *Kpn*1 (insert 1, PI3 kinase alpha) and  
*Bam*H1 and *Spe*1 (insert 2, P85) sites of pFastBAC Dual

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**Complete  
nucleotide  
of sequence of PI3  
kinase alpha**

ATGCACCATCACCATCACCATCCTCCAAGACCATCATCAGGTGAACTGT  
GGGCATCCACTTGATGCCCCCAAGAATCCTAGTAGAATGTTTACTACC  
AAATGGAATGATAGTGACTTTAGAATGCCTCCGTGAGGCTACATTAATA  
ACCATAAAGCATGAACTATTTAAAGAAGCAAGAAAATACCCCTCCATC  
AACTTCTTCAAGATGAATCTTCTTACATTTTTCGTAAGTGTTACTCAAGA  
AGCAGAAAGGGAAGAATTTTTTGATGAAACAAGACGACTTTGTGACCTT  
CGGCTTTTTCAACCCTTTTTAAAAGTAATTGAACCAGTAGGCAACCGTG  
AAGAAAAGATCCTCAATCGAGAAATTGGTTTTGCTATCGGCATGCCAGT  
GTGTGAATTTGATATGGTTAAAGATCCAGAAGTACAGGACTTCCGAAGA  
AATATTCTGAACGTTTTGTAAGAAGCTGTGGATCTTAGGGACCTCAATT  
CACCTCATAGTAGAGCAATGTATGTCTATCCTCCAATGTAGAATCTTC  
ACCAGAATTGCCAAAGCACATATATAATAAATTAGATAAAGGGCAAATA  
ATAGTGGTGATCTGGGTAATAGTTTCTCCAATAATGACAAGCAGAAGT  
ATACTCTGAAAATCAACCATGACTGTGTACCAGAACAAGTAATTGCTGA  
AGCAATCAGGAAAAAACTCGAAGTATGTTGCTATCCTCTGAACAACCTA  
AACTCTGTGTTTTAGAATATCAGGGCAAGTATATTTTAAAAGTGTGTG  
GATGTGATGAATACTTCCTAGAAAAATATCCTCTGAGTCAGTATAAGTA  
TATAAGAAGCTGTATAATGCTTGGGAGGATGCCAATTTGATGTTGATG  
GCTAAAGAAAGCCTTTATTCTCAACTGCCAATGGACTGTTTTACAATGC  
CATCTTATTCCAGACGCATTTCCACAGCTACACCATATATGAATGGAGA  
AACATCTACAAAATCCCTTTGGGTTATAAATAGTGCCTCAGAATAAAA  
ATTCTTTGTGCAACCTACGTGAATGTAAATATTCGAGACATTGATAAGA  
TCTATGTTTCGAACAGGTATCTACCATGGAGGAGAACCCTTATGTGACAA  
TGTGAACACTCAAAGAGTACCTTGTTCCAATCCCAGGTGGAATGAATGG  
CTGAATTATGATATATACATTCCTGATCTTCCTCGTGCTGCTCGACTTT  
GCCTTTCCATTTGCTCTGTAAAGGCCGAAAGGGTGCTAAAGAGGAACA  
CTGTCCATTGGCATGGGGAATATAAACTTGTTTTGATTACACAGACACT  
CTAGTATCTGAAAAAATGGCTTTGAATCTTTGGCCAGTACCTCATGGAT  
TAGAAGATTTGCTGAACCTATTGGTGTACTGGATCAAATCCAAATAA  
AGAAACTCCATGCTTAGAGTTGGAGTTTACTGTTTCCAGCAGTGTGGTA  
AAGTTCCAGATATGTCAGTGATTGAAGAGCATGCCAATTGGTCTGTAT  
CCCGAGAAGCAGGATTTAGCTATTTCCACGCAGGACTGAGTAACAGACT  
AGCTAGAGACAATGAATTAAGGGAAAATGACAAAGAACAGCTCAAAGCA  
ATTTCTACACGAGATCCTCTCTCTAAAATCACTGAGCAGGAGAAAGATT  
TTCTATGGAGTCACAGACACTATTTGTGTAACTATCCCCGAAATTTCTACC  
CAAATTGCTTCTGTCTGTAAATGGAATTTCTAGAGATGAAGTAGCCCAG  
ATGTATTGCTTGGTAAAAGATTGGCCTCCAATCAAACCTGAACAGGCTA  
TGGAACCTTCTGGACTGTAATTACCAGATCCTATGGTTCGAGGTTTTGC  
TGTTCCGGTGCTTGGAAAAATATTTAACAGATGACAACTTTCTCAGTAT  
TTAATTCAGCTAGTACAGTCCCTAAAATATGAACAATATTTGGATAACT  
TGCTTGTGAGATTTTTACTGAAGAAAGCATTGACTAATCAAAGGATTGG  
GCACTTTTTCTTTTGGCATTAAAATCTGAGATGCACAATAAAACAGTT  
AGCCAGAGGTTTGGCCTGCTTTTGGAGTCTTATTGTTCGTGCATGTGGGA  
TGTATTTGAAGCACCTGAATAGGCAAGTCGAGGCAATGAAAAGCTCAT  
TAACTTAACTGACATTTCTCAAACAGGAGAAGAAGGATGAAACACAAAAG  
GTACAGATGAAGTTTTTAGTTGAGCAAATGAGGCGACCAGATTTTCATGG  
ATGCTCTACAGGGCTTTCTGTCTCCTCTAAACCTGCTCATCAACTAGG

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AAACCTCAGGCTTGAAGAGTGTCGAATTATGTCCTCTGCAAAAAGGCCA  
CTGTGGTTGAATTGGGAGAACCCAGACATCATGTCAGAGTTACTGTTTC  
AGAACAATGAGATCATCTTTAAAAATGGGGATGATTTACGGCAAGATAT  
GCTAACACTTCAAATTATTCGTATTATGGAAAATATCTGGCAAATCAA  
GGTCTTGATCTTCGAATGTTACCTTATGGTTGTCTGTCAATCGGTGACT  
GTGTGGGACTTATTGAGGTGGTGCGAAATCTCACACTATTATGCAAAT  
TCAGTGCAAAGGCGGCTTGAAAGGTGCACTGCAGTTCAACAGCCACACA  
CTACATCAGTGGCTCAAAGACAAGAACAAAGGAGAAATATATGATGCAG  
CCATTGACCTGTTTACACGTTTCATGTGCTGGATACTGTGTAGCTACCTT  
CATTTTGGGAATTGGAGATCGTCACAATAGTAACATCATGGTGAAAGAC  
GATGGACAACCTGTTTCATATAGATTTTGGACACTTTTTGGATCACAAGA  
AGAAAAAATTTGGTTATAAACGAGAACGTGTGCCATTTGTTTTGACACA  
GGATTTCTTAATAGTGATTAGTAAAGGAGCCCAAGAATGCACAAAGACA  
AGAGAATTTGAGAGGTTTCAGGAGATGTGTTACAAGGCTTATCTAGCTA  
TTCGACAGCATGCCAATCTCTTCATAAATCTTTTCTCAATGATGCTTGG  
CTCTGGAATGCCAGAACTACAATCTTTTGATGACATTGCATACATTCTGA  
AAGACCCTAGCCTTAGATAAAACTGAGCAAGAGGCTTTGGAGTATTTCA  
TGAAACAAATGAATGATGCACATCATGGTGGCTGGACAACAAAATGGA  
TTGGATCTTCCACACAATTAACAGCATGCATTGAACTgaggtacc

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**Complete  
nucleotide  
of sequence of P85**

ATGAGTGCTGAGGGGTACCAGTACAGAGCGCTGTATGATTATAAAAAGG  
AAAGAGAAGAAGATATTGACTTGCACCTTGGGTGACATATTGACTGTGAA  
TAAAGGGTCCTTAGTAGCTCTTGGATTCAGTGATGGACAGGAAGCCAGG  
CCTGAAGAAATTGGCTGGTTAAATGGCTATAATGAAACCACAGGGGAAA  
GGGGGGACTTTCCGGGAACTTACGTAGAATATATTGGAAGGAAAAAAT  
CTCGCCTCCACACCAAAGCCCCGGCCACCTCGGCCTCTTCCTGTTGCA  
CCAGGTTCTTCGAAAACCTGAAGCAGATGTTGAACAACAAGCTTTGACTC  
TCCCGGATCTTGCAGAGCAGTTTGCCCCCTCCTGACATTGCCCCGCCTCT  
TCTTATCAAGCTCGTGGAAAGCCATTGAAAAGAAAGGTCTGGAATGTTCA  
ACTCTATACAGAACACAGAGCTCCAGCAACCTGGCAGAATTACGACAGC  
TTCTTGATTGTGATACACCCTCCGTGGACTTGGAATGATCGATGTGCA  
CGTTTTGGCTGACGCTTTCAAACGCTATCTCCTGGACTTACCAAATCCT  
GTCATTCCAGCAGCCGTTTACAGTGAAATGATTTCTTTAGCTCCAGAAG  
TACAAAGCTCCGAAGAATATATTCAGCTATTGAAGAAGCTTATTAGGTC  
GCCTAGCATACCTCATCAGTATTGGCTTACGCTTCAGTATTTGTTAAAA  
CATTTCTTCAAGCTCTCTCAAACCTCCAGCAAAAATCTGTTGAATGCAA  
GAGTACTCTCTGAAATTTTCAGCCCTATGCTTTTCAGATTCTCAGCAGC  
CAGCTCTGATAATACTGAAAACCTCATAAAAGTTATAGAAATTTTAATC  
TCAACTGAATGGAATGAACGACAGCCTGCACCAGCACTGCCTCCTAAAC  
CACAAAACCTACTACTGTAGCCAACAACGGTATGAATAACAATATGTC  
CTTACAAGATGCTGAATGGTACTGGGGAGATATCTCGAGGGAAGAAGTG  
AATGAAAACTTCGAGATACAGCAGACGGGACCTTTTTTGGTACGAGATG  
CGTCTACTAAAATGCATGGTGATTATACTCTTACACTAAGGAAAGGGG  
AAATAACAAATTAATCAAAATATTTTCATCGAGATGGGAAATATGGCTTC  
TCTGACCCATTAACCTTCAGTTCTGTGGTTGAATTAATAAACCCTACC  
GGAATGAATCTCTAGCTCAGTATAATCCCAAATGGATGTGAAATTACT  
TTATCCAGTATCCAAATACCAACAGGATCAAGTTGTCAAAGAAGATAAT  
ATTGAAGCTGTAGGGAAAAAATTACATGAATATAACACTCAGTTTCAAG  
AAAAAAGTCGAGAATATGATAGATTATATGAAGAATATACCCGCACATC  
CCAGGAAATCCAAATGAAAAGGACAGCTATTGAAGCATTTAATGAAACC  
ATAAAAATATTTGAAGAACAGTGCCAGACCCAAGAGCGGTACAGCAAAG  
AATACATAGAAAAGTTTAAACGTGAAGGCAATGAGAAAAGAAATACAAAG  
GATTATGCATAATTATGATAAGTTGAAGTCTCGAATCAGTGAAATTATT  
GACAGTAGAAGAAGATTGGAAGAAGACTTGAAGAAGCAGGCAGCTGAGT  
ATCGAGAAATTGACAAACGTATGAACAGCATTAAACCAGACCTTATCCA  
GCTGAGAAAGACGAGAGACCAATACTTGATGTGGTTGACTCAAAAAGGT  
GTTTCGGCAAAGAAGTTGAACGAGTGGTTGGGCAATGAAAACACTGAAG  
ACCAATATTTCACTGGTGGAAAGATGATGAAGATTTGCCCATCATGATGA  
GAAGACATGGAATGTTGGAAGCAGCAACCGAAACAAAGCTGAAAACCTG  
TTGCGAGGGAAGCGAGATGGCACTTTTCTTGTCCGGGAGAGCAGTAAAC  
AGGGCTGCTATGCCTGCTCTGTAGTGGTGGACGGCGAAGTAAAGCATTG  
TGTCATAAACAAAACAGCAACTGGCTATGGCTTTGCCGAGCCCTATAAC  
TTGTACAGCTCTCTGAAAGAACTGGTGCTACATTACCAACACACCTCCC  
TTGTGCAGCACAACGACTCCCTCAATGTCACACTAGCCTACCCAGTATA  
TGCACAGCAGAGGCGatgaactagt