

PI (4,5)P<sub>2</sub>, diC8 Final concentration: 0.05 mM

# Division of Signal Transduction Therapy

## Clone Data Sheet

### PI3 kinase alpha E545K [2 – 1068] / p85 [1 - 724]

**Protein** PI3 kinase alpha E545K [2 – 1068] / p85 [1 – 724]

**Clone number** DU 12812

**Species** Human

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

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

**Baculovirus expressed**  
**PI3 kinase alpha**

MHHHHHHPPRPSSGELWGIHLMPPRILVECLLPNGMIVTLECLREATLI  
TIKHELFKEARKYPLHQLLQDESSYIFVSVTQEAEREFFDETTRLCDL  
RLFQPFLLKVIIEPVGNREEKILNREIGFAIGMPVCEFDLVKDPEVQDFRR  
NILNVCKEAVDLRDLNSPHSRAMYVYPNVESSELPKHIYNKLDKGQI  
IVVIWVIVSPNNDKQKYTLKINHDCVPEQVIAEAIKKKTRSMLLSSEQL  
KLCVLEYQGYILKVCGCDEYFLEKYPLSQYKYIRSCIMLGRMPNMLM  
AKESLYSQLPMDCFMTSPYSRRISTATPYMNGETSTKSLWVINSALRIK  
ILCATYVNVNIRDIDKIYVRTGIYHGGEPLCDNVNTQRPVPCSNPRWNEW  
LNYDIYIPDLPRARLCLCSVKGKGAKEEHCPAWGNINLFDYTDI  
LVSGKMALNLWVPHGLEDLLNPIGVTGSNPNKETPCLELEFDWFSSVV  
KFPDMSVIEEHANWSVSREAGFSYSHAGLSNRLARDNELRENDKEQLKA  
ISTRDPLSEITKQEKDFLWSHRHYCVTIPEILPKLLLSVKWNSRDEVAQ  
MYCLVKDWPPIKPEQAMELLDCNYPDPMVRGFAVRCLEKYLTDKLSQY  
LIQLVQVLKYEQYLDNLLVRFLKALTNQRIGHFFFWHLKSEMHNKT  
SQRFGLLLESYCRACGMYLKHLNRQVEAMEKLINLTDILKQEKKDETQK  
VQMKFLVEQMRRPDFMDALQGFLSPLNPAHQGLNLRLEECRIMSSAKRP  
LWLNWENPDIMSELLFQNEIIFKNGDDLQDMLTLQIIRIMENIWQNO  
GLDLRMLPYGCLSIGDCVGLIEVVRNSHTIMQIQCKGGLKGALQFNSHT  
LHQWLKDKNKGEIYDAAIDLFTSCAGYCVATFILGIGDRHNSNIMVKD  
DGQLFHIDFGHFLDHKKKKFGYKRERVFPVLTQDFLIVISKGAQECTKT  
REFERFQEMCYKAYLAIRQHANLFINLFSMMLGSGMPELQSFDDIAYIR  
KTLALDKTEQEALEYFMKQMNDAHGGWTTKMDWIFHTIKQHALN

**Native sequence** Amino acids P2 – N1068 (end) of human PI3 kinase alpha.  
**PI3 kinase alpha** Residue P8 of the fusion protein is equivalent to P2 of the native enzyme.  
The enzyme has an E545K mutation to mimic the activation mutation  
found in many types of cancers. Residue E545 is equivalent to K551  
of the fusion protein. The His(6) tag is located at residues 2 – 7.

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### Baculovirus expressed P85

MSAEGYQYRALYDYKKEREEDIDLHLGDILTVNKGSLVALGFSDGQEAR  
PEEIGWLNGYNETTGERGDFPGTYVEYIGRKKISPPTPKPRPPRPLPVA  
PGSSKTEADVEQQALTLPDLAEQFAPPDIAPELLIKLVEAIEKKGLECS  
TLYRTQSSSNLAELRQLLDCTPSVDLEMIDVHVLADAFKRYLLDLPNP  
VIPAAVYSEMISLAPEVQSSEYIQLLKKLIRSPSIPHQYWLTLQYLLK  
HFFKLSQTSSKNLLNARVLSEIFSPMLFRFSAASSDNTENLIKVIEILI  
STEWNERQPAPALPPKPPKPTTVANNGMNNNMSLQDAEWYWGDISREEV  
NEKLRTADGTFLVRDASTKMHGDYTLTLRKGGNNKLIKIFHRDGKYGF  
SDPLTFSSVVELINHYRNESLAQYNPKLDVKLLYPVSKYQQDQVVKEDN  
IEAVGKKLHEYNTQFQEKREYDRLYEEYTRTSQEIQMKRTAIEAFNET  
IKIFEEQCQTQERYKEYIEKFKREGNEKEIQRIMHNYDKLKSRISEII  
DSRRRLEEDLKKQAAEYREIDKRMNSIKPDLIQLRKTRDQYLMWLTQKG  
VRQKKLNEWLGNENTEDQYSLVEDDEDLPHHDEKTWNVGSSNRNKAENL  
LRGKRDGTFLVRESSKQGCYACSVVVDGEVKHCVINKTATGYGFAEPYN  
LYSSLKELVLHYQHTSLVQHNDNLNVTLAYPVYAQQRR

### 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  
GGGGCATCCACTTGATGCCCCCAAGAATCCTAGTAGAATGTTTACTACC  
AAATGGAATGATAGTGACTTTTAGAATGCCTCCGTGAGGCTACATTAATA  
ACCATAAAGCATGAACTATTTAAAGAAGCAAGAAAATACCCCTCCATC  
AACTTCTTCAAGATGAATCTTCTTACATTTTTCGTAAGTGTTACTCAAGA  
AGCAGAAAGGGAAGAATTTTTTGTATGAAACAAGACGACTTTGTGACCTT  
CGGCTTTTTCAACCCTTTTTTAAAAGTAATTGAACCAGTAGGCAACCGTG  
AAGAAAAGATCCTCAATCGAGAAATTGGTTTTGTCTATCGGCATGCCAGT  
GTGTGAATTTGATATGGTTAAAGATCCAGAAGTACAGGACTTCCGAAGA  
AATATTCTGAACGTTTGTAAAGAAGCTGTGGATCTTAGGGACCTCAATT  
CACCTCATAGTAGAGCAATGTATGTCTATCCTCCAAATGTAGAATCTTC  
ACCAGAATTGCCAAAGCACATATATAATAAATTAGATAAAGGGCAAATA  
ATAGTGGTGATCTGGGTAATAGTTTCTCCAAATAATGACAAGCAGAAGT  
ATACTCTGAAAATCAACCATGACTGTGTACCAGAACAAGTAATTGCTGA  
AGCAATCAGGAAAAAACTCGAAGTATGTTGCTATCCTCTGAACAACCTA  
AACTCTGTGTTTTAGAAATATCAGGGCAAGTATATTTTAAAAGTGTGTG  
GATGTGATGAATACTTCCTAGAAAAATATCCTCTGAGTCAGTATAAGTA  
TATAAGAAGCTGTATAATGCTTGGGAGGATGCCCAATTTGATGTTGATG  
GCTAAAGAAAGCCTTTATTCTCAACTGCCAATGGACTGTTTTACAATGC  
CATCTTATTCCAGACGCATTTCCACAGCTACACCATATATGAATGGAGA  
AACATCTACAAAATCCCTTTGGGTTATAAATAGTGCACTCAGAATAAAA  
ATTCTTTGTGCAACCTACGTGAATGTAAATATTCGAGACATTGATAAGA  
TCTATGTTTCGAACAGGTATCTACCATGGAGGAGAACCCTTATGTGACAA  
TGTGAACACTCAAAGAGTACCTTGTTCCAATCCCAGGTGGAATGAATGG  
CTGAATTATGATATATACATTCCCTGATCTTCCTCGTGCTGCTCGACTTT  
GCCTTTCCATTTGCTCTGTAAAGGCCGAAAGGGTGCTAAAGAGGAACA  
CTGTCCATTGGCATGGGGAAATATAAACTTGTTTGATTACACAGACACT  
CTAGTATCTGGAAAAATGGCTTTGAATCTTTGGCCAGTACCTCATGGAT  
TAGAAGATTTGCTGAACCTATTGGTGTTACTGGATCAAATCCAAATAA  
AGAAACTCCATGCTTAGAGTTGGAGTTTGAAGTGGTTTTCAGCAGTGTGGTA  
AAGTTCCCAGATATGTCAGTGATTGAAGAGCATGCCAATTGGTCTGTAT  
CCCGAGAAGCAGGATTTAGCTATTCCCACGCAGGACTGAGTAACAGACT  
AGCTAGAGACAATGAATTAAGGGAAAAATGACAAAGAACAGCTCAAAGCA  
ATTTCTACACGAGATCCTCTCTCTGAAATCACTAAGCAGGAGAAAGATT  
TTCTATGGAGTCACAGACACTATTGTGTAATATCCCCGAAATTCTACC  
CAAATTGCTTCTGTCTGTAAATGGAATTCTAGAGATGAAGTAGCCCAG  
ATGTATTGCTTGGTAAAAGATTGGCCTCCAATCAAACCTGAACAGGCTA  
TGGAACCTTCTGGACTGTAATTACCCAGATCCTATGGTTCGAGGTTTTGC  
TGTTTCGGTGCTTGGAAAAATATTTAACAGATGACAACTTTCTCAGTAT  
TTAATTCAGCTAGTACAGGTCCTAAATATGAACAATATTTGGATAACT  
TGCTTGTGAGATTTTTTACTGAAGAAAGCATTGACTAATCAAAGGATTGG  
GCACTTTTTCTTTTGGCATTAAAATCTGAGATGCACAATAAAACAGTT  
AGCCAGAGGTTTGGCCTGCTTTTGGAGTCCTATTGTTCGTGCATGTGGGA  
TGTATTTGAAGCACCTGAATAGGCAAGTCGAGGCAATGAAAAGCTCAT  
TAACTTAACTGACATTCTCAAACAGGAGAAGAAGGATGAAACACAAAAG  
GTACAGATGAAGTTTTTGTAGTTGAGCAAATGAGGCGACCAGATTTTCATGG  
ATGCTCTACAGGGCTTTCTGTCTCCTCTAAACCTGCTCATCAACTAGG

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AAACCTCAGGCTTGAAGAGTGTCGAATTATGTCCTCTGCAAAAAGGCCA  
CTGTGGTTGAATTGGGAGAACCCAGACATCATGTCAGAGTTACTGTTTC  
AGAACAATGAGATCATCTTTAAAAATGGGGATGATTTACGGCAAGATAT  
GCTAACACTTCAAATTATTCGTATTATGGAAAATATCTGGCAAAATCAA  
GGTCTTGATCTTCGAATGTTACCTTATGGTTGTCTGTCAATCGGTGACT  
GTGTGGGACTTATTGAGGTGGTGCGAAATTCCTCACACTATTATGCAAAT  
TCAGTGCAAAGGCGGCTTGAAAGGTGCACTGCAGTTCAACAGCCACACA  
CTACATCAGTGGCTCAAAGACAAGAACAAAGGAGAAATATATGATGCAG  
CCATTGACCTGTTTACACGTTTCATGTGCTGGATACTGTGTAGCTACCTT  
CATTTTGGGAATTGGAGATCGTCACAATAGTAACATCATGGTGAAAGAC  
GATGGACAACCTGTTTCATATAGATTTTGGACACTTTTGGATCACAAGA  
AGAAAAAATTTGGTTATAAACGAGAACGTGTGCCATTTGTTTTGACACA  
GGATTTCTTAATAGTGATTAGTAAAGGAGCCCCAAGAATGCACAAAGACA  
AGAGAATTTGAGAGGTTTCAGGAGATGTGTTACAAGGCTTATCTAGCTA  
TTCGACAGCATGCCAATCTCTTCATAAATCTTTTCTCAATGATGCTTGG  
CTCTGGAATGCCAGAACTACAATCTTTTGATGACATTGCATACATTTCGA  
AAGACCCTAGCCTTAGATAAAACTGAGCAAGAGGCTTTGGAGTATTTCA  
TGAAACAAATGAATGATGCACATCATGGTGGCTGGACAACAAAAATGGA  
TTGGATCTTCCACACAATTAAACAGCATGCATTGAACtgaggtacc

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### **Complete nucleotide of sequence of P85**

ATGAGTGCTGAGGGGTACCAGTACAGAGCGCTGTATGATTATAAAAAGG  
AAAGAGAAGAAGATATTGACTTGCACTTGGGTGACATATTGACTGTGAA  
TAAAGGGTCCTTAGTAGCTCTTGATTAGTATGACAGGAAGCCAGG  
CCTGAAGAAATTGGCTGGTTAAATGGCTATAATGAAACCACAGGGGAAA  
GGGGGGACTTTCCGGGAACCTACGTAGAATATATTGGAAGGAAAAAAT  
CTCGCCTCCACACCAAAGCCCCGGCCACCTCGGCCTCTTCCTGTTGCA  
CCAGGTTCTTCGAAAACCTGAAGCAGATGTTGAACAACAAGCTTTGACTC  
TCCCGGATCTTGCAGAGCAGTTTGCCCCCTCCTGACATTGCCCCGCCTCT  
TCTTATCAAGCTCGTGAAGCCATTGAAAAGAAAGGTCTGGAATGTTCA  
ACTCTATACAGAACACAGAGCTCCAGCAACCTGGCAGAATTACGACAGC  
TTCTTGATTGTGATACACCCTCCGTGGACTTGGAATGATCGATGTGCA  
CGTTTTGGCTGACGCTTTCAAACGCTATCTCCTGGACTTACCAAATCCT  
GTCATTCCAGCAGCCGTTTACAGTGAAATGATTTCTTTAGCTCCAGAAG  
TACAAAGCTCCGAAGAATATATTGAGCTATTGAAGAAGCTTATTAGGTC  
GCCTAGCATACCTCATCAGTATTGGCTTACGCTTACAGTATTTGTTAAAA  
CATTTCTTCAAGCTCTCTCAAACCTCCAGCAAAAATCTGTTGAATGCAA  
GAGTACTCTCTGAAATTTTCAGCCCTATGCTTTTCAGATTCTCAGCAGC  
CAGCTCTGATAATACTGAAAACCTCATAAAAGTTATAGAAATTTTAATC  
TCAACTGAATGGAATGAACGACAGCCTGCACCAGCACTGCCTCCTAAAC  
CACCAAACCTACTACTGTAGCCAACAACGGTATGAATAACAATATGTC  
CTTACAAGATGCTGAATGGTACTGGGGAGATATCTCGAGGGAAGAAGTG  
AATGAAAACTTCGAGATACAGCAGACGGGACCTTTTTTGGTACGAGATG  
CGTCTACTAAAATGCATGGTGATTATACTCTTACACTAAGGAAAGGGG  
AAATAACAAATTAATCAAAATATTTTCATCGAGATGGGAAATATGGCTTC  
TCTGACCCATTAACCTTCAGTTCTGTGGTTGAATTAATAAACCACTACC  
GGAATGAATCTCTAGCTCAGTATAATCCCAAATTTGGATGTGAAATTACT  
TTATCCAGTATCCAAATACCAACAGGATCAAGTTGTCAAAGAAGATAAT  
ATTGAAGCTGTAGGGAAAAAATTACATGAATATAACACTCAGTTTCAAG  
AAAAAAGTCGAGAATATGATAGATTATATGAAGAATATACCCGCACATC  
CCAGGAAATCCAAATGAAAAGGACAGCTATTGAAGCATTTAATGAAACC  
ATAAAAATATTTGAAGAACAGTGCCAGACCCAAGAGCGGTACAGCAAAG  
AATACATAGAAAAGTTTAAACGTGAAGGCAATGAGAAAGAAATACAAAG  
GATTATGCATAATTATGATAAGTTGAAGTCTCGAATCAGTGAAATTATT  
GACAGTAGAAGAAGATTGGAAGAAGACTTGAAGAAGCAGGCAGCTGAGT  
ATCGAGAAATTGACAAACGTATGAACAGCATTAACCAGACCTTATCCA  
GCTGAGAAAGACGAGAGACCAATACTTGATGTGGTTGACTCAAAAAGGT  
GTTTCGGCAAAAGAAGTTGAACGAGTGGTTGGGCAATGAAAACACTGAAG  
ACCAATATTTCACTGGTGGAAGATGATGAAGATTTGCCCCATCATGATGA  
GAAGACATGGAATGTTGGAAGCAGCAACCGAAACAAAGCTGAAAACCTG  
TTGCGAGGGAAGCGAGATGGCACTTTTCTTGTCCGGGAGAGCAGTAAAC  
AGGGCTGCTATGCCTGCTCTGTAGTGGTGGACGGCGAAGTAAAGCATTG  
TGTCATAAAACAAAACAGCAACTGGCTATGGCTTTGCCGAGCCCTATAAC  
TTGTACAGCTCTCTGAAAGAACTGGTGCTACATTACCAACACACCTCCC  
TTGTGCAGCACAACGACTCCCTCAATGTCACACTAGCCTACCCAGTATA  
TGCACAGCAGAGGCGAtgaactagt