

## Certificate of Analysis

### PI3 Kinase (p110δ/p85α)

(Recombinant enzyme expressed in Sf21 insect cells)

Item # 14-604, 14-604-K, 14-604M

Parent Lot # 2195161

The data presented in this document apply to the parent lot shown above and to all pack sizes derived from subsequent vialling runs of this parent lot. An alphabetical suffix after the parent lot number is used to denote each vialling run.

**Product Description:** Complex of *N*-terminal 6His-tagged recombinant, full-length, human p110δ and untagged, recombinant, full length, human p85α. Coexpressed by baculovirus in Sf21 insect cells. Purified using Ni<sup>2+</sup>/NTA-agarose. Purity 98.0% by SDS-PAGE and Coomassie blue staining. P110δ MW = 121.6kDa, p85α MW = 83.7kDa.

#### Specific Activity (Parent lot# 2195161):

293U/mg, where one unit of PI 3-kinase (p110δ/p85α) activity is defined as 1nmol phosphatidylinositol 3,4,5-trisphosphate formed per minute at 22°C with a final ATP concentration of 100μM.

**Formulation:** 2.734mg/ml of enzyme in 50mM Tris/HCl pH7.5, 300mM NaCl, 0.1mM EGTA, 0.03% Brij-35, 270mM sucrose, 0.2mM PMSF, 1mM benzamidine, 0.1% 2-mercaptoethanol. Frozen solution.

**Storage and Stability:** On receipt of material store at -70°C. Unopened reagent is stable for a minimum of 1 year from date of shipment when stored at recommended storage temperature. Avoid repeat freeze/thaw cycles. For maximum recovery of product, centrifuge original vial prior to removing the cap.

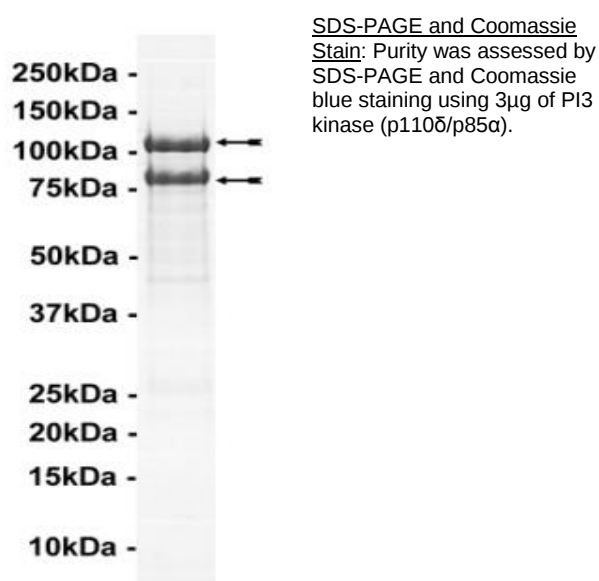
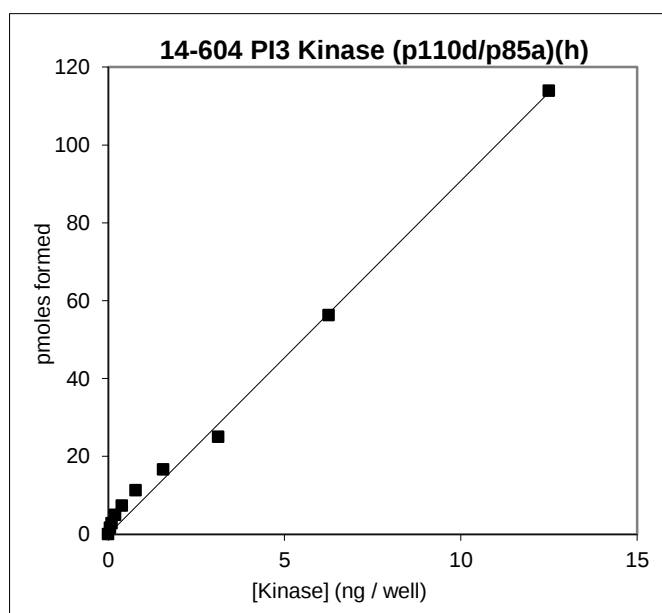
**Handling Recommendations:** Rapidly thaw the vial under cold water and immediately place on ice. Aliquot unused material into pre-chilled micro-centrifuge tubes and immediately snap-freeze the vials in liquid nitrogen prior to re-storage at -70°C.

**FOR IN VITRO RESEARCH USE ONLY  
NOT FOR USE IN HUMANS OR ANIMALS**

### Quality Control Testing

**Kinase Assay:** 0–13ng of this enzyme phosphorylated 10μM phosphatidylinositol 4, 5-bisphosphate in the assay referenced on page two.

**MS Tryptic Fingerprint:** Confirmed product identity as p110δ/p85α with the translated sequences listed on pages three and five.



## Certificate of Analysis

### Eurofins PI3 Kinase Homogeneous Time-resolved Fluorescence (HTRF) Class I Reagent Kits

The following Eurofins kits are suitable for use with this enzyme:

| Cat. No | Kit Description                                   |
|---------|---------------------------------------------------|
| 33-016  | PI3 Kinase 4-Step Assay Reagent 1-Plate Kit       |
| 33-017  | PI3 Kinase 4-Step Assay Reagent 5-Plate Kit       |
| 33-036  | PI3 Kinase 4-Step Assay Reagent Kit (10000 wells) |
| 33-037  | PI3 Kinase 4-Step Assay Reagent Kit (50000 wells) |
| 33-040  | PI3 Kinase 3-Step Assay Reagent Kit (384 wells)   |
| 33-041  | PI3 Kinase 3-Step Assay Reagent Kit (1920 wells)  |
| 33-047  | PI3 Kinase 3-Step Assay Reagent Kit (10000 wells) |

Kits 33-016, 33-017, 33-036 and 33-037 provide reagents and assay details for the Eurofins standard 4-step HTRF assay. This assay format is suitable for the majority of small and medium throughput screening work. The 3-step HTRF assay (kits 33-040, 33-041, 33-047) was introduced to reduce the number of assay steps to aid high throughput screening. Items 33-040 and 33-041 are intended as introductory kits for 3-step procedure work up. Please contact us for any further information regarding different kit formats ([discoveryservices@eurofins.com](mailto:discoveryservices@eurofins.com)).

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## P110δ Sequence Information

|                                |                                                                                                                                                                                                                                                |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b><u>Protein</u></b>          | Human p110δ                                                                                                                                                                                                                                    |
| <b><u>Tags</u></b>             | N-terminal 6His                                                                                                                                                                                                                                |
| <b><u>Native sequence</u></b>  | M16 of the recombinant protein is equivalent to M1 of human p110δ                                                                                                                                                                              |
| <b><u>Accession number</u></b> | GenBank NM_005026. The recombinant protein contains the amino acid substitution N253S with respect to this accession number. This conflict is reported in GenBank Y10055 and U57843. The residue coordinates in the native sequence are given. |

### Recombinant p110δ amino acid sequence:

```

1  MHHHHHHEFK  GLRRRMPPGV  DCPMEFWTKE  ENQSVVDFL  LPTGVYLNFP  VSRNANLSTI
61  KQLLWHRAQY  EPLFHMLSGP  EAYVFTCIHQ  TAEQQELEDE  QRRLCDVQPF  LPVLRLVARE
121 GDRVKKLINS  QISLLIGKGL  HEFDSLCDPE  VNDFRAKMCQ  FCEAAAARRQ  QLGWEAWLQY
181 SFPLQLEPSA  QTWPGGTLRL  PNRALLNVNK  FEGSEESFTF  QVSTKDVPLA  LMACALRKKA
241 TVFRQPLVEQ  PEDYTLQVNG  RHEYLYGSYP  LCQFQYICSC  LHSGLTPHLT  MVHSSSILAM
301 RDEQSNPAPQ  VQKPRAKPPP  IPAKKPSSVS  LWSLEQPFRI  ELIQGSKVNA  DERMKLVVQA
361 GLFHGNEMLC  KTVSSSEVS  CSEPVMKQRL  EFDINICDLP  RMARLCFALY  AVIEKAKKAR
421 STKKKSKKAD  CPIAWANLML  FDYKDQLKTG  ERCLYMWPSV  PDEKGELLNP  TGTVRSNPNT
481 DSAALLICL  PEVAPHPVYY  PALEKILELG  RHSECVHVTE  EEQLQLREIL  ERRGSGELYE
541 HEKDLVWKL  HEVQEHFPEA  LARLLLVTKW  NKHEDVAQML  YLLCSWPPEL  VLSALELLDF
601 SFPDCHVGSF  AIKSLRKLTD  DELFYQLLQL  VQVLKYESYL  DCELTKFLLD  RALANRKIGH
661 FLFWHLRSEM  HVPVALRFG  LILEAYCRGS  THMKVLMKQ  GEALSKLKAL  NDFVKLSSQK
721 TPKPQTKELM  HLCMRQEAYL  EALSHLQSPL  DPSTLLAECV  VEQCTFMDSK  MKPLWIMYSN
781 EEAGSGGSVG  IIFKNGDDL  QDMLTLQMIQ  LMDVLWKQEG  LDLRMTPTYG  C  LPTGDRGTGLI
841 EVVLRSDTIA  NIQLNKSNA  ATAANKDAL  LNLKSKNPG  EALDRAIEEF  TLSCAGYCVA
901 TYVLGIGDRH  SDNIMIRESG  QLFHIDFGHF  LGNFKTKFGI  NRERVPFILT  YDFVHVIQQG
961 KTNNSEKFER  FRGYCERAYT  ILRRHGLLFL  HLFALMRAAG  LPELSCSKDI  QYLKDSLALG
1021 KTEEEALKHF  RVKFNALRE  SWKTKVNWLA  HNVSKDNRQ

```

### Recombinant p110δ nucleotide sequence:

```

1  atgcatcatc  accatcacca  tgaattcaaa  ggcctacgtc  gacgaatgcc  ccctgggggtg
61  gactgcccc  tggaattctg  gaccaaggag  gagaatcaga  gcgttggtgt  tgacttcctg
121  ctgcccacag  gggctctacc  gaacttcctt  gtgtcccgca  atgccaacct  cagcaccatc
181  aagcagctgc  tgtggcaccg  cgcccagtat  gagccgctct  tccacatgct  cagtggcccc
241  gaggcctatg  tgttcacctg  catcaaccag  acagcggagc  agcaagagct  ggaggacgag
301  caacggcgtc  tgtgtgacgt  gcagcccttc  ctgcccgtcc  tgcgcctggt  ggcccgtgag
361  ggcgaccgcg  tgaagaagct  catcaactca  cagatcagcc  tcctcatcgg  caaaggcctc
421  cacgagtttg  actccttggt  cgaccagaaa  gtgaacgact  ttcgcgcaa  gatgtgcaa
481  ttctgcgagg  aggcggccgc  ccgcccgcag  cagctgggct  gggaggcctg  gctgcagtac
541  agtttcccc  tgcagctgga  gccctcggct  caaacctggg  ggcctggtac  cctgcggctc
601  ccgaaccggg  cccttctggt  caacgttaag  tttgagggca  gcgaggagag  cttcaccttc
661  caggtgtcca  ccaaggacgt  gccgctggcg  ctgatggcct  gtgccctgcg  gaagaaggcc
721  acagtgttcc  ggcagccgct  ggtggagcag  ccggaagact  acacgctgca  ggtgaacggc
781  aggcattgat  acctgtatgg  cagctaccgc  ctctgccagt  tccagtacat  ctgcagctgc
841  ctgcacagtg  ggttgacccc  tcactgacc  atggtccatt  cctcctccat  cctcgccatg
901  cgggatgagc  agagcaacc  tgccccccag  gtccagaaac  cgctgcca  accacctccc
961  attcctgcga  agaagccttc  ctctgtgtcc  ctgtggtccc  tggagcagcc  gttccgcatc
1021  gagctcatcc  agggcagcaa  agtgaacgcc  gacgagcgga  tgaagctggt  ggtgcaggcc
1081  gggcttttcc  acggcaacga  gatgctgtgc  aagacggtgt  ccagctcgga  ggtgagcgtg
1141  tgctcggagc  ccgtgtggaa  gcagcggctg  gagttcgaca  tcaacatctg  cgacctgccc

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```

1201 cgcatggccc gtctctgctt tgcgctgtac gccgtgatcg agaaagccaa gaaggctcgc
1261 tccaccaaga agaagtccaa gaaggcggac tgccccattg cctgggccaa cctcatgctg
1321 tttgactaca aggaccagct taagaccggg gaacgctgcc tctacatgtg gccctccgtc
1381 ccagatgaga agggcgagct gctgaacccc acgggcactg tgcgcagtaa ccccaacacg
1441 gatagcgccg ctgccctgct catctgcctg cccgaggtgg ccccgacccc cgtgtactac
1501 cccgccctgg agaagatcct ggagctgggg cgacacagcg agtgtgtgca tgtcaccgag
1561 gaggagcagc tgcagctgcg ggaaatcctg gagcggcggg ggtctgggga gctgtatgag
1621 cacgagaagg acctgggtgt gaagctgcgg catgaagtcc aggagcactt cccggaggcg
1681 ctagcccggc tgcctgctgt caccaagtgg aacaagcatg aggatgtggc ccagatgctc
1741 tacctgctgt gtcctggcc ggagctgccc gtcctgagcg ccctggagct gctagacttc
1801 agcttccccg attgcccagc aggtctcttc gccatcaagt cgctgcgga actgacggac
1861 gatgagctgt tccagtacct gctgcagctg gtgcaggtgc tcaagtacga gtcctactg
1921 gatgagcagc tgaccaaatt cctgtggac cgggccctgg ccaaccgaa gatcggccac
1981 ttctttttct ggcacctccg ctccgagatg cacgtgcctg cggtggccct gcgcttcggc
2041 ctcatcctgg aggcctactg caggcgagc acccaccaca tgaaggtgct gatgaagcag
2101 ggggaagcac tgagcaaact gaaggcctg aatgacttcg tcaagctgag ctctcagaag
2161 accccaagc cccagacca ggagctgatg cacttgtgca tgcggcagga ggcctacct
2221 gaggccctct cccacctgca gtccccactc gacccagca ccctgctggc tgaagtctgc
2281 gtggagcagt gcaccttcac ggactccaag atgaagcccc tgtgatcat gtacagcaac
2341 gaggagcgag gcagcggcgg cagcgtgggc atcatcttta agaacgggga tgacctccgg
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2461 ctggacctga ggatgacccc ctatggctgc ctccccaccg gggaccgcac aggcctcatt
2521 gaggtggtac tccgttcaga caccatcgcc aacatccaac tcaacaagag caacatggca
2581 gccacagccg ccttcaacaa ggatgccctg ctcaactggc tgaagtccaa gaaccggggg
2641 gaggccctgg atcgagccat tgaggagttc accctctcct gtgctggcta ttgtgtggcc
2701 acatatgtgc tgggcattgg cgatcggcac agcgacaaca tcatgatccg agagagtggg
2761 cagctgttcc acattgattt tggccacttt ctggggaatt tcaagaccaa gtttggaatc
2821 aaccgcgagc gtgtcccatt catcctcacc tacgactttg tccatgtgat tcagcagggg
2881 aagactaata atagtgagaa atttgaacgg ttccggggct actgtgaaag ggcctacacc
2941 atcctgcggc gccacgggct tctcttctc cacctctttg ccctgatgcg ggcggcaggc
3001 ctgcctgagc tcagctgctc caaagacatc cagtatctca aggactccct ggcactgggg
3061 aaaacagagg aggaggcact gaagcacttc cgagtgaagt ttaacgaagc cctccgtgag
3121 agctggaaaa ccaaagtga ctggctggcc cacaacgtgt ccaaagaca caggcagtag

```

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## P85α Sequence Information

|                                |                                                                 |
|--------------------------------|-----------------------------------------------------------------|
| <b><u>Protein</u></b>          | Human p85α                                                      |
| <b><u>Tags</u></b>             | Untagged                                                        |
| <b><u>Native sequence</u></b>  | M1 of the recombinant protein is equivalent to M1 of human p85α |
| <b><u>Accession number</u></b> | GenBank XM_043865                                               |

### Recombinant p85α amino acid sequence:

```

1 MSAEGYQYRA LYDYKKEREE DIDLHLGDIL TVNKGSLVAL GFSDGQEARP EEIGWLNGYN
61 ETTGERGDFP GTYVEYIGRK KISPPTPKPR PPRPLPVAPG SSKTEADVEQ QALTLPDLAE
121 QFAPPDIAPP LLIKLVIAIE KGLECSTLY RTQSSSNLAE LRQLLCDTP SVDLEMIDVH
181 VLADAFKRYL LDLPNPVIPA AVYSEMISLA PEVQSSEEIYI QLLKKLIRSP SIPHQYWLTL
241 QYLLKHFFKL SQTSSKNLLN ARVLSEIFSP MLFRFSAASS DNTENLIKVI EILISTEWNE
301 RQPAPALPPK PPKPTTVANN GMNNNMSLQD AEWYWGDISR EEVNEKL RDT ADGTFLVRDA
361 STKMHGDYTL TLRKGGNNKL IKIFHRDGKY GFSDPLTFSS VVELINHYRN ESLAQYNPKL
421 DVKLLYPVSK YQQDQVVKED NIEAVGKKLH EYNTQFQEK S REYDRLYEEY TRTSQEIQMK
481 RTAIEAFNET IKIFEEQCQT QERYSKEYIE KFKREGNEKE IQRIMHNYDK LKSRISEIID
541 SRRRLEEDLK KQAAEYREID KRMNSIKPDL IQLRKTRDQY LMWLTQKGVR QKKLNEWLGN
601 ENTEDQYSLV EDDEDLPHHD EKTWNVGSSN RNKAENLLRG KRDGTFLVRE SSKQGCYACS
661 VVDVGEVKHC VINKTATGYG FAEPYNYLYSS LKELVLHYQH TSLVQHNDL NVTLAYPVYA
721 QQRR

```

### Recombinant p85α nucleotide sequence:

```

1 atgagtgtctg aggggtacca gtacagagcg ctgtatgatt ataaaaagga aagagaagaa
61 gatattgact tgcacttggg tgacatatg actgtgaata aagggtcctt agtagctctt
121 ggattcagtg atggacagga agccaggcct gaagaaattg gctggttaaa tggctataat
181 gaaaccacag gggaaagggg ggactttccg ggaacttacg tagaatatat tggaaaggaaa
241 aaaatctcgc ctccacacc aaagccccgg ccacctcggc ctcttcctgt tgcaccaggt
301 tcttcgaaaa ctgaagcaga tgttgaacaa caagctttga ctctcccggg tcttgcagag
361 cagtttgccc ctcttgacat tgccccgcct cttcttatca agctcgtgga agccattgaa
421 aagaaaggtc tggaaatgtt aactctatac agaacacaga gctccagcaa cctggcagaa
481 ttacgacagc ttcttgattg tgatacacc tccgtggact tggaaatgat cgaatgtcac
541 gttttggctg acgctttcaa acgctatctc ctggacttac caaatcctgt cattccagca
601 gccgtttaca gtgaaatgat ttctttgact ccagaagtac aaagctccga gaatatattt
661 cagctattga agaagcttat taggtcgctt agcatacctc atcagtattg gcttacgctt
721 cagtatttgt taaaacattt cttcaagctc tctcaaacct ccagcaaaaa tctgttgaat
781 gcaagagtac tctctgaaat tttcagccct atgcttttca gattctcagc agccagctct
841 gataatactg aaaacctcat aaaagttata gaaattttta tctcaactga atggaatgaa
901 cgacagcctg caccagcact gcctcctaaa ccacaaaac ctactactgt agccaacaac
961 ggtatgaata acaatatgtc cttacaagat gctgaatggg actggggaga tatctcaggg
1021 gaagaagtga atgaaaaact tcgagataca gcagacggga cttttttggg acgagatgag
1081 tctactaaaa tgcattggtg ttatactctt aactaagga aagggggaaa taacaaatta
1141 atcaaaatat ttcatcgaga tgggaaatat ggcttctctg acccattaac cttcagttct
1201 gtggttgaat taataaacca ctaccggaat gaatctctag ctcaagtata tcccaaattg
1261 gatgtgaaat tactttatcc agtatccaaa taccaacagg atcaagttgt caaagaagat
1321 aatattgaag ctgtagggaa aaaattacat gaatataaca ctcaagtttca agaaaaaagt
1381 cgagaatatg atagattata tgaagaatat acccgacat cccaggaaat ccaaatgaaa
1441 aggacagcta ttgaagcatt taatgaaacc ataaaaatat ttgaagaaca gtgccagacc
1501 caagagcggg acagcaaaga atacatagaa aagtttaaac gtgaaggcaa tgagaaagaa
1561 atacaaagga ttatgcataa ttatgataag ttgaagtctc gaatcagtga aattattgac

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1621 agtagaagaa gattggaaga agacttgaag aagcaggcag ctgagtatcg agaaattgac
1681 aaacgtatga acagcattaa accagacctt atccagctga gaaagacgag agaccaatac
1741 ttgatgtggt tgactcaaaa aggtgttcgg caaaagaagt tgaacgagtg gttgggcaat
1801 gaaaacactg aagaccaata ttactgggtg gaagatgatg aagatttgcc ccatcatgat
1861 gagaagacat ggaatgttgg aagcagcaac cgaaacaaag ctgaaaacct gttgcgaggg
1921 aagcgagatg gcacttttct tgtccgggag agcagtaaac agggctgcta tgcctgctct
1981 gtagtggtgg acggcgaagt aaagcattgt gtcataaaca aaacagcaac tggctatggc
2041 ttgcccagc cctataactt gtacagctct ctgaaagaac tggtgctaca ttaccaacac
2101 acctcccttg tgcagcacia cgactccctc aatgtcacac tagcctaccc agtatatgca
2161 cagcagaggc gatga

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Reviewed and approved by site quality representative.

Unless otherwise stated in our catalogue or other company documentation accompanying the product(s), our products are intended for research use only and are not to be used for any other purpose, which includes but is not limited to, unauthorized commercial uses, in vitro diagnostic uses, ex vivo or in vivo therapeutic uses or any type of consumption or application to humans or animals.

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