

## Certificate of Analysis

### PKG1 $\beta$ , active

(Recombinant enzyme expressed in Sf21 insect cells)

Item # 14-650, 14-650-K, 14-650M

Parent Lot # 1593237

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:** N-terminal 6His-tagged, recombinant, full length PKG1 $\beta$  expressed by baculovirus in Sf21 insect cells. Purified using Ni<sup>2+</sup>-NTA agarose. Purity 66.2% by SDS-PAGE and Coomassie blue staining. MW = 81.6kDa.

**Specific Activity (Parent lot# 1593237):** 12500U/mg, where one unit of PKG1 $\beta$ , active activity is defined as 1nmol phosphate incorporated into 200 $\mu$ M PAKtide (RRRLSFAEPG) per minute at 30°C with a final ATP concentration of 100 $\mu$ M.

**Formulation:** 0.971mg/ml of enzyme in 50mM Tris/HCl pH7.5, 300mM NaCl, 0.1mM EGTA, 0.03% Brij-35, 270mM sucrose, 1mM benzamidine, 0.2mM PMSF, 0.1% 2-mercaptoethanol. Frozen solution.

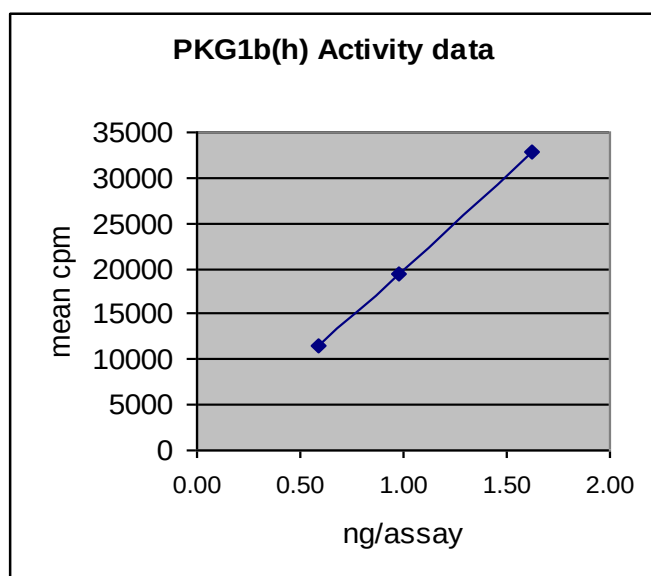
**Storage and Stability:** On receipt of material store at -70°C. Unopened reagent is stable for a minimum of 1 year from date of shipment when stored at recommended storage temperature. Avoid repeat freeze/thaw cycles. For maximum recovery of product, centrifuge original vial prior to removing the cap.

**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.

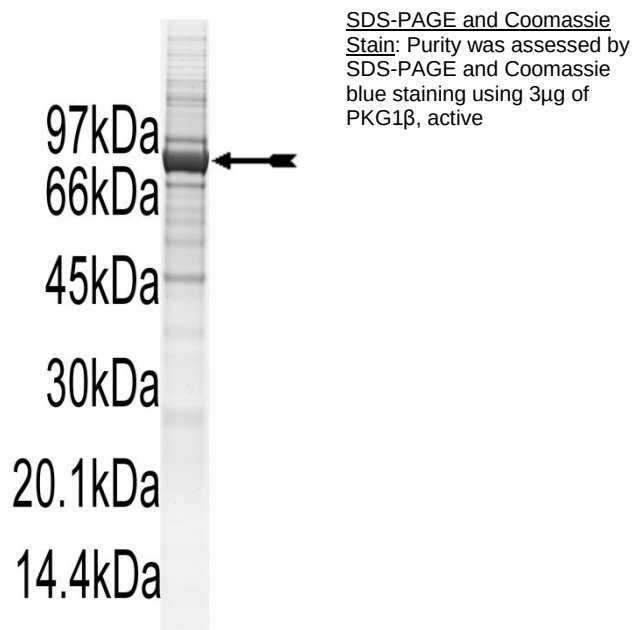
**FOR IN VITRO RESEARCH USE ONLY**  
**NOT FOR USE IN HUMANS OR ANIMALS**

### Quality Control Testing

**Kinase Assay:** 0.6–1.6ng of this lot of enzyme phosphorylated 200 $\mu$ M PAKtide (RRRLSFAEPG) in the assay described on page two. Assay background was subtracted from the actual counts to yield the results shown below.



**MS Tryptic Fingerprint:** Confirmed product identity as PKG1 $\beta$  with the translated native sequence listed on page three.



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### Kinase Assay Protocol

#### Stock Solutions:

1. **5 x Reaction Buffer:** 40mM MOPS/NaOH pH7.0, 1mM EDTA.
2. **PAKtide (RRRLSFAEPG):** Use at a final assay concentration of 200 $\mu$ M. Make a 2mM stock. Add 2.5 $\mu$ l of stock per assay point.
3. **cGMP:** Use at a final assay concentration of 10 $\mu$ M. Make a 100 $\mu$ M stock. Add 2.5 $\mu$ l of stock per assay point.
4. **PKG1 $\beta$  active:** Dilute with 20mM MOPS/NaOH pH7.0, 1mM EDTA, 0.01% Brij-35, 5% glycerol, 0.1% 2-mercaptoethanol, 1mg/ml BSA. Use 0.6–1.6ng per assay point.
5. **[ $\gamma$ -<sup>33</sup>P]ATP:** 2.5 x magnesium acetate/[ $\gamma$ -<sup>33</sup>P]ATP cocktail: 25mM MgAc and 0.25mM ATP to which is added [ $\gamma$ -<sup>33</sup>P]ATP (specific activity approximately 500 - 800cpm/pmol as required.)

#### Assay Procedure:

1. Add 5 $\mu$ l of 5 x reaction buffer per assay to wells.
2. Add 2.5 $\mu$ l of **PAKtide (RRRLSFAEPG)**.
3. Add 2.5 $\mu$ l of 100 $\mu$ M cGMP.
4. Add **2.5 $\mu$ l (0.6–1.6ng) PKG1 $\beta$ , active**.
5. Add 2.5 $\mu$ l of dH<sub>2</sub>O.
6. Add 10 $\mu$ l of diluted [ $\gamma$ -<sup>33</sup>P]ATP mixture.
7. Incubate for 10 minutes at 30°C.
8. Stop the reaction by adding 5 $\mu$ l of 3% phosphoric acid.
9. Transfer a 10 $\mu$ l aliquot onto the appropriate area of a **P30 Filtermat**.
10. Wash the filtermat three times for 5 minutes with 75mM phosphoric acid.
11. Wash the filtermat once for 2 minutes with methanol.
12. Transfer the filtermat to a sealable plastic bag and add 4ml of scintillation cocktail.
13. Read in a scintillation counter. Compare cpm of enzyme samples with cpm of control samples that contain all assay components plus 1 $\mu$ l of 30% phosphoric acid.

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## PKG1 $\beta$ Sequence Information

|                         |                                                                                 |
|-------------------------|---------------------------------------------------------------------------------|
| <b>Protein</b>          | Human PKG1 $\beta$                                                              |
| <b>Tags</b>             | N-terminal 6His                                                                 |
| <b>Native sequence</b>  | M31 of the recombinant protein is equivalent to M1 of native human PKG1 $\beta$ |
| <b>Accession number</b> | GenBank NM_006258                                                               |

### Recombinant PKG1 $\beta$ amino acid sequence:

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1 MSYYHHHHH DYDIPTTENL YFQGAMDPEF MGTLRDLQYA LQEKIEELRQ RDALIDELEL
61 ELDQKDELIQ KLQNELDKYR SVIRPATQQA QKQSASTLQG EPRTKRQAIK AEPTAFDIQD
121 LSHVTLFPYP KSPQSKDLIK EAILDNDFMK NLELSQIQEI VDCMYPVEYG KDSCIIKEGD
181 VGSLLVYVMD GKVEVTKGV KLCTMPGKV FGELAILYNC TRTATVKTLV NVKLWAIDRQ
241 CFQTIMMRTG LIKHTYMEF LKSVPTFQSL PEEILSKLAD VLEETHYENG EYIIRQGARG
301 DTFFIISKGT VNVTREDSPT EDPVFLRTLK KGDWFGKAL QGEDVRTANV IAAEAVTCLV
361 IDRDSFKHLI GGLDDVSNKA YEDAEAKAKY EAEAAFFANL KLSDFNIIDT LGVGGFGRVE
421 LVQLKSEESK TFAMKILKKR HIVDTRQQEH IRSEKQIMQG AHSDFIVRLY RTFKDSKYLY
481 MLMEACLGGE LWTILRDRGS FEDSTTRFYT ACVVEAFAYL HSKGIIYRDL KPENLILDHR
541 GYAKLVDFGF AKKIGFGKKT WFCGTPEYV APEIILNKGH DISADYWSLG ILMYELLTGS
601 PPFSGPDPMK TYNIILRGID MIEFPKKIAK NAANLIKKLC RDNPSERLGN LKNGVKDIQK
661 HKWFEGFNWE GLRKGTLTPP IIPSVASPTD TSNFDSFPED NDEPPPDNS GWDIDF

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### Recombinant PKG1 $\beta$ nucleotide sequence:

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1 atgtcgtact accatcacca tcaccatcac gattacgata tcccaacgac cgaaaacctg
61 tattttcagg gcgccatgga tccggaattc atgggcacct tgcgggattt acagtacgcg
121 ctccaggaga agatcgagga gctgaggcag cgggatgctc tcatcgacga gctggagctg
181 gaggttgata agaaggacga actgatccag aagctgcaga acgagctgga caagtaccgc
241 tcggtgatcc gaccagccac ccagcaggcg cagaagcaga gcgcgagcac cttgcagggc
301 gagccgcgca ccaagcggca ggcatctcc gccgagccca ccgccttcga catccaggat
361 ctacgcatg tgaccctgcc cttctacccc aagagcccac agtccaagga tcttataaag
421 gaagctatcc ttgacaatga ctttatgaag aacttggagc tgtcgcagat ccaggagatt
481 gtggattgta tgtacccggt ggagtatggc aaggacagtt gcatcatcaa agaaggagac
541 gtggggtcac tgggttatgt catggaagat ggtaagggtg aagttacaaa agaaggtgtg
601 aagttgtgta ccatgggtcc aggaaaagtg tttggggaat tggctattct ttacaactgt
661 acccggacag cgaccgtcaa gactcttgta aatgtaaaac tctgggcat tgatcgacaa
721 tgttttcaaa caataatgat gaggacagga ctcacaaagc ataccagta tatggaattt
781 ttaaaaagcg ttccaacatt ccagagcctt cctgaagaga tcctcagcaa gcttgctgat
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961 gaagaccag tctttcttag aactttagga aaaggagact ggtttgaga gaaagccttg
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1081 attgacagag actcttttaa acatttgatt ggagggtggt atgatgtttc taataaagca
1141 tatgaagatg cagaagctaa agcaaaatat gaagctgaag cggctttctt cgccaacctg
1201 aagctgtctg atttcaacat cattgatacc cttggagtgt gaggtttcgg acgagtagaa
1261 ctggtccagt tgaagagtga agaattcaaa acgtttgcaa tgaagattct caagaaacgt
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1381 gtcattccg atttcatagt gagactgtac agaacattta aggacagcaa atatttgtat
1441 atgttgatgg aagcttgtct aggtggagag ctctggacca ttctcaggga tagagggttcg
1501 tttgaagatt ctacaaccag attttacaca gcatgtgtgg tagaagcttt tgcctatctg
1561 cattccaaag gaatcattta cagggacctc aagccagaaa atctcatcct agatcaccga
1621 gggttatgcc aactgggtga ttttggcttt gcaaagaaaa taggatttgg aaagaaaaca

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## Certificate of Analysis

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1681 tggacttttt gtgggactcc agagtatgta gccccagaga tcatcctgaa caaaggccat
1741 gacatttcag ccgactactg gtcactggga atcctaattg atgaactcct gactggcagc
1801 ccacctttct caggcccaga tcctatgaaa acctataaca tcatattgag ggggattgac
1861 atgatagaat ttccaaagaa gattgccaaa aatgctgcta atttaattaa aaaactatgc
1921 agggacaatc catcagaaag attaggggaat ttgaaaaatg gagtaaaaga cattcaaaag
1981 cacaatatgt ttgagggcct taactgggaa ggcttaagaa aaggtacctt gacacctcct
2041 ataataccaa gtgttgcata acccacagac acaagtaatt ttgacagttt ccctgaggac
2101 aacgatgaac caccacctga tgacaactca ggatgggata tagacttcta a
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Reviewed and approved by site quality representative.

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