

## Certificate of Analysis

### IRAK1, active

(Recombinant enzyme expressed in Sf21 insect cells)

Item # 14-684, 14-684-K, 14-684M

Parent Lot # 1906801

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, human IRAK1 amino acids 194–end, expressed by baculovirus in Sf21 insect cells. Purified using Ni<sup>2+</sup>/NTA agarose. Purity 65.8% by SDS-PAGE and Coomassie blue staining. MW = 59.7kDa.

**Specific Activity (Parent lot# 1906801):** 478U/mg, where one unit of IRAK1, active activity is defined as 1nmol phosphate incorporated into 0.33mg/ml myelin basic protein (MBP) per minute at 30°C with a final ATP concentration of 100µM.

**Formulation:** 0.786mg/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.

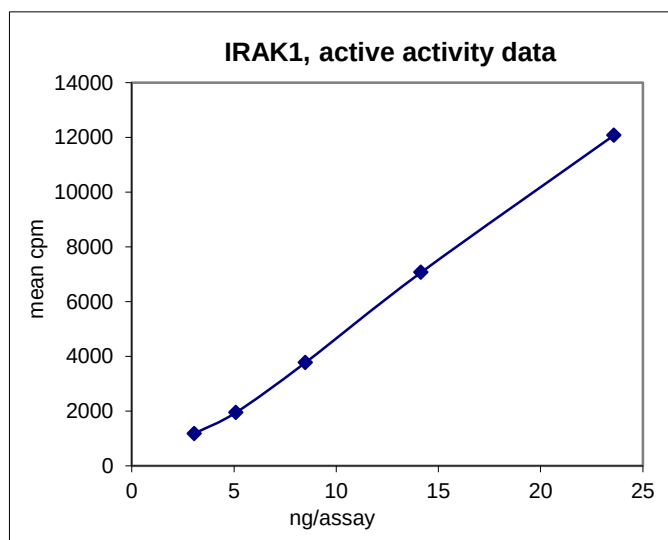
**Storage and Stability:** On receipt of material store at -70°C. Unopened reagent is stable for a minimum of 1 year from date of shipment when stored at recommended storage temperature. Avoid repeat freeze/thaw cycles. For maximum recovery of product, centrifuge original vial prior to removing the cap.

**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.

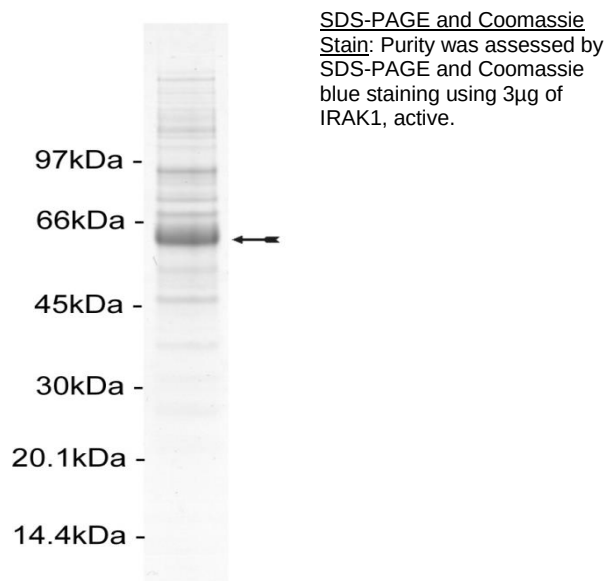
**FOR IN VITRO RESEARCH USE ONLY  
NOT FOR USE IN HUMANS OR ANIMALS**

### Quality Control Testing

**Kinase Assay:** 3.1–23.6ng of this lot of enzyme phosphorylated 0.33mg/ml MBP 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 identity as IRAK1 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. **Myelin Basic Protein (MBP):** Use at a final concentration of 0.33mg/ml. Make a 3.3mg/ml stock. Add 2.5µl of stock per assay point.
3. **IRAK1, active:** Dilute with 20mM MOPS NaOH pH7.0, 1mM EDTA, 0.01% Brij-35, 5% glycerol, 0.1% 2-mercaptoethanol, 1mg/ml BSA. Use 3.1-23.6ng per assay point.
4. **[ $\gamma$ -<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 (96 well plate format):

1. Add 5µl of 5 x reaction buffer per assay to wells.
2. Add 2.5µl of 0.33mg/ml **MBP**.
3. Add **2.5µl (3.1–23.6ng) IRAK1, active**.
4. Add 5µl of dH<sub>2</sub>O.
5. Add 10µl of diluted [ $\gamma$ -<sup>33</sup>P]ATP mixture.
6. Incubate for 10 minutes at 30°C.
7. Stop the reaction by adding 5µl of 3% phosphoric acid.
8. Transfer a 10µl aliquot onto the appropriate area of a **P30 Filtermat**.
9. Wash the filtermat three times for 5 minutes with 75mM phosphoric acid.
10. Wash the filtermat once for 2 minutes with methanol.
11. Transfer the filtermat to a sealable plastic bag and add 4ml of scintillation cocktail.
12. Read in a scintillation counter. Compare cpm of enzyme samples with cpm of control samples that contain all assay components plus 1µl of 30% phosphoric acid.

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## IRAK1 Sequence Information

|                         |                                                                        |
|-------------------------|------------------------------------------------------------------------|
| <b>Protein</b>          | Human IRAK1                                                            |
| <b>Tags</b>             | N-terminal 6His                                                        |
| <b>Native sequence</b>  | R31 of recombinant protein is equivalent to R194 of native human IRAK1 |
| <b>Accession number</b> | GenBank NM_001569                                                      |

### Recombinant IRAK1 amino acid sequence:

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1 MSYYHHHHH DYDIPTTENL YFQGAMDPEF RSPFCWPLC EISRGTHNFS EELKIGEGGF
61 GCVYRAVMRN TVYAVKRLKE NADLEWTAVK QSFLTEVEQL SRFRHPNIVD FAGYCAQNGF
121 YCLVYGFLPN GSLEDRLHCQ TQACPLSWP QRLDILLGTA RAIQFLHQDS PSLIHGDIKS
181 SNVLLDERLT PKLGDFGLAR FSRFAGSSPS QSSMVARTQT VRGTLAYLPE EYIKTGRLAV
241 DTDTSFSGVV VLETLAQORA VKTHGARTKY LKDLVEEEAE EAGVALRSTQ STLQAGLAAD
301 AWAAPIAMQI YKKHLDPRPG PCPELGLGL GQLACCCLHR RAKRRPPMTQ VYERLEKLQA
361 VVAGVPGHLE AASCIPPSPQ ENSYVSSTGR AHSGAAPWQP LAAPSGASAQ AAEQLQRGPN
421 QPVESDESLG GLSAAALRSWH LTPSCPLDPA PLREAGCPQG DTAGESSWGS GPGSRPTAVE
481 GLALGSSASS SSEPPQIIIN PARQKMVQKL ALYEDGALDS LQLLSSSSLP GLGLEQDRQG
541 PEESDEFQS

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### Recombinant IRAK1 nucleotide sequence:

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1 atgtcgtact accatcacca tcaccatcac gattacgata tcccaacgac cgaaaacctg
61 tatttttcagg gcgccatgga tccggaattc cggccctctc cgttttgctg gcccctctgt
121 gagatttccc ggggcaccca caacttctcg gaggagctca agatcgggga ggggtggcttt
181 ggggtgcgtgt accggcggtg gatgaggaa acgggtgatg ctgtgaagag gctgaaggag
241 aacgctgacc tggagtggac tgcagtgaag cagagcttcc tgaccgaggt ggagcagctg
301 tccaggtttc gtcacccaaa cattgtggac tttgctggct actgtgctca gaacggcttc
361 tactgcctgg tgtacggctt cctgcccaac ggctccttgg aggaccgtct cactgccag
421 acccaggcct gccacacctt ctctggcct cagcgactgg acatccttct ggggtacagcc
481 cgggcaattc agtttctaca tcaggacagc cccagcctca tccatggaga catcaagagt
541 tccaacgtcc ttctggatga gaggctgaca cccaagctgg gagactttgg cctggcccgg
601 ttacgcccgt ttcggggc cagcccagc cagagcagca tgggtggccc gacacagaca
661 gtgcggggca cctggccta cctggccgag gagtacatca agacgggaag gctggctgtg
721 gacacggaca ccttcagctt tgggggtgta gtgctagaga ccttggctgg tcagagggct
781 gtgaagacgc acggtgccag gaccaagtat ctgaaagacc tgggtggaaga ggaggctgag
841 gaggctggag tggctttgag aagcaccag agcacactgc aagcaggtct ggctgcagat
901 gcctgggctg ctcccatcgc catgcagatc tacaagaagc acctggacc caggcccggg
961 ccctgcccac ctgagctggg cctgggcctg ggccagctgg cctgctgctg cctgcaccgc
1021 cgggcaaaaa ggaggcctcc tatgaccag gtgtacgaga ggctagagaa gctgcaggca
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1141 gagaactcct acgtgtccag cactggcaga gccacagtg gggctgctcc atggcagccc
1201 ctggcagcgc catcaggagc cagtggccag gcagcagagc agctgcagag agggcccaac
1261 cagcccgtgg agagtgcaga gaggctaggc ggccctctct ctgccctgcg ctctggcac
1321 ttgactccaa gctgccctct ggaccagca cccctcaggg agggcggtg tcctcagggg
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1441 ggactggccc ttggcagctc tgcacatcg tcgtcagagc caccgcagat tatcatcaac
1501 cctgcccgac agaagatggt ccagaagctg gccctgtacg aggatggggc cctggacagc
1561 ctgcagctgc tgtcgtccag ctccctcca ggcttgggccc tggaacagga caggcagggg
1621 cccgaagaaa gtgatgaatt tcagagctga

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