

Product Information

AXL (473-end), active, His-tagged human PRECISIO® Kinase

recombinant, expressed in baculovirus infected Sf9 cells

Catalog Number **A4736**
Lot Number 051M0818
Storage Temperature $-70\text{ }^{\circ}\text{C}$

Synonyms: UFO, JTK11

Product Description

AXL is a member of the receptor tyrosine kinase family, which has oncogenic potential and is implicated in human myeloid leukemia.¹ AXL is a member of a complex signaling network that is involved in the control of cell proliferation and differentiation. Overexpression of AXL cDNA in NIH 3T3 cells induces neoplastic transformation of these cells with the concomitant appearance of a 140 kDa AXL tyrosine-phosphorylated protein.² Expression of AXL cDNA in the baculovirus system results in the expression of the appropriate recombinant protein that is recognized by antiphosphotyrosine antibodies, confirming the AXL protein is tyrosine phosphorylated.

This recombinant product was expressed by baculovirus in Sf9 insect cells using an N-terminal His-tag. The gene accession number is NM 021913. It is supplied in 50 mM sodium phosphate, pH 7.0, with 300 mM NaCl, 150 mM imidazole, 0.2 mM DTT, 0.1 mM PMSF, and 25% glycerol.

Molecular mass: ~55 kDa

Purity: $\geq 70\%$ (SDS-PAGE, see Figure 1)

Specific Activity: 88–120 nmole/min/mg (see Figure 2)

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

The product ships on dry ice and storage at $-70\text{ }^{\circ}\text{C}$ is recommended. After opening, aliquot into smaller quantities and store at $-70\text{ }^{\circ}\text{C}$. Avoid repeated handling and multiple freeze/thaw cycles.

Figure 1.
SDS-PAGE Gel of Lot Number 051M0818
>90% (densitometry)

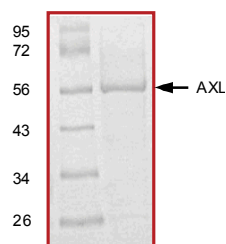
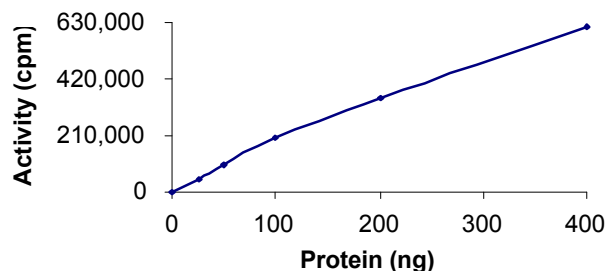


Figure 2.
Specific Activity of Lot Number 051M0818:
104 nmole/min/mg



Procedure

Preparation Instructions

Kinase Assay Buffer – 25 mM MOPS, pH 7.2, 12.5 mM glycerol 2-phosphate, 25 mM MgCl_2 , 5 mM EGTA, and 2 mM EDTA. Just prior to use, add DTT to a final concentration of 0.25 mM.

Kinase Dilution Buffer – Dilute the Kinase Assay Buffer 5-fold with water.

Kinase Solution – Dilute the active AXL (0.1 µg/µl) with Kinase Dilution Buffer to the desired concentration.

Note: The lot-specific specific activity plot may be used as a guideline (see Figure 2). It is recommended the researcher perform a serial dilution of active AXL kinase for optimal results.

10 mM ATP Stock Solution – Dissolve 55 mg of ATP in 10 ml of Kinase Assay Buffer. Store in 200 µl aliquots at –20 °C.

γ-³²P-ATP Assay Cocktail (250 µM) – Combine 5.75 ml of Kinase Assay Buffer, 150 µl of 10 mM ATP Stock Solution, 100 µl of γ-³²P-ATP (1 mCi/100 µl). Store in 1 ml aliquots at –20 °C.

Substrate Solution – Dissolve the synthetic peptide substrate (KKS RGDYMTMQIG) in water at a final concentration of 1 mg/ml.

1% phosphoric acid solution – Dilute 10 ml of concentrated phosphoric acid to a final volume of 1 L with water.

Kinase Assay

This assay involves the use of the ³²P radioisotope. All institutional guidelines regarding the use of radioisotopes should be followed.

1. Thaw the active AXL, Kinase Assay Buffer, Substrate Solution, and Kinase Dilution Buffer on ice. The γ-³²P-ATP Assay Cocktail may be thawed at room temperature.
2. In a pre-cooled microcentrifuge tube, add the following solutions to a volume of 20 µl:
 - 10 µl of Kinase Solution
 - 5 µl of Substrate Solution
 - 5 µl of cold water (4 °C)
3. Set up a blank control as outlined in step 2, substituting 5 µl of cold water (4 °C) for the Substrate Solution.
4. Initiate each reaction with the addition of 5 µl of the γ-³²P-ATP Assay Cocktail, bringing the final reaction volume to 25 µl. Incubate the mixture in a water bath at 30 °C for 15 minutes.
5. After the 15 minute incubation, stop the reaction by spotting 20 µl of the reaction mixture onto an individually pre-cut strip of phosphocellulose P81 paper.

6. Air dry the pre-cut P81 strip and sequentially wash in the 1% phosphoric acid solution with constant gentle stirring. It is recommended the strips be washed a total of 3 times of ~10 minutes each.
7. Set up a radioactive control to measure the total γ-³²P-ATP counts introduced into the reaction. Spot 5 µl of the γ-³²P-ATP Assay Cocktail on a pre-cut P81 strip. Dry the sample for 2 minutes and read the counts. Do not wash this sample.
8. Count the radioactivity on the P81 paper in the presence of scintillation fluid in a scintillation counter.
9. Determine the corrected cpm by subtracting the blank control value (see step 3) from each sample and calculate the kinase specific activity

Calculations:

1. Specific Radioactivity (SR) of ATP (cpm/nmole)

$$SR = \frac{\text{cpm of 5 } \mu\text{l of } \gamma\text{-}^{32}\text{P-ATP Assay Cocktail}}{\text{nmole of ATP}}$$

cpm – value from control (step 7)

nmole – 1.25 nmole (5 µl of 250 µM ATP Assay Cocktail)

2. Specific Kinase Activity (SA) (nmole/min/mg)

$$\text{nmole/min/mg} = \frac{\Delta\text{cpm} \times (25/20)}{SR \times E \times T}$$

SR = specific radioactivity of the ATP (cpm/nmole ATP)

Δcpm = cpm of the sample – cpm of the blank (step 3)

25 = total reaction volume

20 = spot volume

T = reaction time (minutes)

E = amount of enzyme (mg)

References

1. O'Bryan, J.P. et al., Axl, a transforming gene isolated from primary human myeloid leukemia cells, encodes a novel receptor tyrosine kinase. *Mol Cell Biol.*, **11**, 5016-5031 (1991).
2. Janssen, J.W. et al., A novel putative tyrosine kinase receptor with oncogenic potential. *Oncogene*, **6**, 2113-2120 (1991).

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