

## Recombinant APPL1 with His-tag (Human)

<b>Type:</b>	Recombinant	<b>Cat. No.:</b>	41130
<b>Tag:</b>	His	<b>Size:</b>	0.1 mg
<b>Source:</b>	E.Coli	<b>Purity:</b>	>90%
<b>Other names:</b>	APPL, DIP13alpha,	<b>Species:</b>	Human

### Introduction to the Molecule

APPL1, an adaptor protein containing an NH<sub>2</sub>-terminal Bin/Amphiphysin/Rvs (BAR) domain, a central pleckstrin homology (PH) domain and a COOH-terminal phosphotyrosine binding (PTB) domain [1], was originally identified as an interacting partner of Akt in a yeast two-hybrid assay using Akt2 as a bait [2]. APPL1 binds to a number of cell surface receptors (TrkA[3, 4], DCC[5], adiponectin [6, 7], FSH[8]) and intracellular signaling molecules (small GTPase Rab5[9], GIPC[4] and inositol 5-phosphatase[10], suggesting that APPL1 may act as a common relay to coordinate diverse signaling cascades. APPL1 potentiates insulin-mediated Akt activation by counteracting the effect of the Akt inhibitor TRB3 [11].

### Description

Total 739 AA, Mw: 83.2 kDa (calculated). N-terminal His-tag and TEV cleavage site, 31 extra AA (highlighted).

### Amino Acid Sequence

<b>MSYYHHHHHH</b>	<b>DYDIPTTENL</b>	<b>YFQGAMGSGI</b>	<b>QPGIDKLP</b> IE	ETLEDSPQTR
SLLGVFEEDA	TAISNYMNQL	YQAMHRIYDA	QNELSAATHL	TSKLLKEYEK
QRFPLGGDDE	VMSSTLQQFS	KVIDELSSCH	AVLSTQLADA	MMFPITQFKE
RDLKEILTLK	EVFQIASNDH	DAAINRYSRL	SKKRENDKVK	YEVTEDEVYTS
RKKQHQTMMH	YFCALNTLQY	KKKIALLEPL	LGYMQAQISF	FKMGSENLE
QLEEFLANIG	TSVQNVREEM	DSDIETMQQT	IEDLEVASDP	LYVPDPDPTK
FPVNRNLTRK	AGYLNARNKT	GLVSSTWDRQ	FYFTQGGNLM	SQARGDVAGG
LAMDIDNCSV	MAVDCEDRRY	CFQITSFDGK	KSSILQAESK	KDHEEWICTI
NNISKQIYLS	ENPEETAARV	NQSALEAVTP	SPSFQQRHES	LRPAAGQSRP
PTARTSSSGS	LGSESTNLAA	LSLDSLVPD	TPIQFDIISP	VCEDQPGQAK
AFGQGGRTN	PFGESGGSTK	SETEDSILHQ	LFIVRFLGSM	EVKSDDHPDV
VYETMRQILA	ARAIHNIFRM	TESHLLVTCD	CLKLIDPQTQ	VTRLTFPLPC
VVLYATHQEN	KRLFGFVLR	SSGRSESNLS	SVCYIFESNN	EGEKICDSVG
LAKQIALHAE	LDRRASEKQK	EIERVKEKQQ	KELNKQKQIE	KDLEEQSRLI
AASSRPNQAS	SEGQFVVLSS	SQSEESDLGE	GGKKRESEA	

### Formulation

Lyophilized in 1 mg/mL in PBS.

## Reconstitution

Add deionized water to prepare a working stock solution of approximately 1 mg/mL and let the lyophilized pellet dissolve completely.

## Storage

Store lyophilized protein at  $-20^{\circ}\text{C}$ . Aliquot reconstituted protein and store at  $-80^{\circ}\text{C}$ . Avoid repeated freezing /thawing cycles.

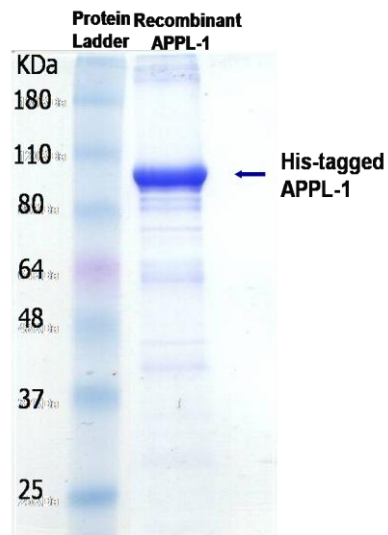
## Quality Control Test

BCA to determine quantity of the protein.  
SDS PAGE to determine purity of the protein.

## Applications

ELISA and Western blotting.

## SDS-PAGE gel



## Reference:

1. Hosch, S.E., J.M. Olefsky, and J.J. Kim, *APPL*ed mechanics: uncovering how adiponectin modulates insulin action. *Cell Metab*, 2006. **4**(1): p. 5-6.
2. Mitsuuchi, Y., et al., Identification of a chromosome 3p14.3-21.1 gene, *APPL*, encoding an adaptor molecule that interacts with the oncoprotein-serine/threonine kinase AKT2. *Oncogene*, 1999. **18**(35): p. 4891-8.
3. Lin, D.C., et al., *APPL1* associates with *TrkA* and *GIPC1*, and is required for NGF-mediated signal transduction. *Mol Cell Biol*, 2006. **25**: p. 25.
4. Varsano, T., et al., *GIPC* is recruited by *APPL* to peripheral *TrkA* endosomes and regulates *TrkA* trafficking and signaling. *Mol Cell Biol*, 2006. **26**(23): p. 8942-52.
5. Liu, J., et al., Mediation of the DCC apoptotic signal by *DIP13 alpha*. *J Biol Chem*, 2002. **277**(29): p. 26281-5. Epub 2002 May 14.
6. Cheng, K.K., et al., Adiponectin-induced endothelial nitric oxide synthase activation and nitric oxide production are mediated by *APPL1* in endothelial cells. *Diabetes*, 2007. **56**(5): p. 1387-94.
7. Mao, X., et al., *APPL1* binds to adiponectin receptors and mediates adiponectin signalling and function. *Nat Cell Biol*, 2006. **8**(5): p. 516-23. Epub 2006 Apr 16.
8. Nechamen, C.A., et al., Human follicle-stimulating hormone (FSH) receptor interacts with the adaptor protein *APPL1* in HEK 293 cells: potential involvement of the *PI3K* pathway in FSH signaling. *Biol Reprod*, 2004. **71**(2): p. 629-36. Epub 2004 Apr 7.
9. Miaczynska, M., et al., *APPL* proteins link *Rab5* to nuclear signal transduction via an endosomal compartment. *Cell*, 2004. **116**(3): p. 445-56.
10. Erdmann, K.S., et al., A role of the Lowe syndrome protein *OCRL* in early steps of the endocytic pathway. *Dev Cell*, 2007. **13**(3): p. 377-90.
11. Cheng, K.K., et al., *APPL1* potentiates insulin-mediated inhibition of hepatic glucose production and alleviates diabetes via *Akt* activation in mice. *Cell Metab*, 2009. **9**(5): p. 417-27.