

# GP78-1 (F-3): sc-166358



The Power to Question

## BACKGROUND

GP78 is the autocrine motility factor (AMF) receptor. AMF (also known as neuroleukin or NLK) is a tumor-secreted cytokine that induces *in vivo* invasion and metastasis. AMF induces tumor cell motility *in vitro* through interaction with GP78. GP78 is distributed evenly across the membranes of normal cells but localizes to the leading and trailing edges of carcinoma cells. In gastric cancer, GP78 surface expression correlates to the pathologic stage and grade of tumor penetration. AMF and GP78 interactions may be involved in a synaptic mechanism for learning and memory formation. GP78 and AMF expression increases in the hippocampi of rats after maze learning. Specifically, GP78 is a RING finger-dependent ubiquitin protein ligase (E3) of the endoplasmic reticulum (ER). GP78 recruits UBC7, an ubiquitin-conjugating enzyme (E2). The E3 activity of GP78 suggests a possible link between metastasis and ubiquitin-mediated protein degradation. In humans, alternative splicing of the GP78 mRNA gives rise to two distinct isoforms, 1 and 2, a type I membrane protein and an integral membrane protein, respectively.

## CHROMOSOMAL LOCATION

Genetic locus: AMFR (human) mapping to 16q12.2; Amfr (mouse) mapping to 8 C5.

## SOURCE

GP78-1 (F-3) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 87-116 within an internal region of GP78-1 of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

GP78-1 (F-3) is available conjugated to agarose (sc-166358 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166358 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166358 PE), fluorescein (sc-166358 FITC), Alexa Fluor® 488 (sc-166358 AF488), Alexa Fluor® 546 (sc-166358 AF546), Alexa Fluor® 594 (sc-166358 AF594) or Alexa Fluor® 647 (sc-166358 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166358 AF680) or Alexa Fluor® 790 (sc-166358 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-166358 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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## STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

## APPLICATIONS

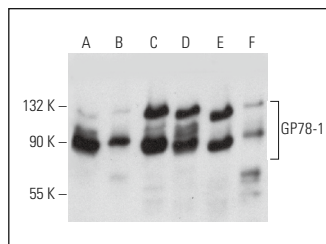
GP78-1 (F-3) is recommended for detection of GP78 isoform 1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for GP78 siRNA (h): sc-43809, GP78 siRNA (m): sc-44579, GP78 shRNA Plasmid (h): sc-43809-SH, GP78 shRNA Plasmid (m): sc-44579-SH, GP78 shRNA (h) Lentiviral Particles: sc-43809-V and GP78 shRNA (m) Lentiviral Particles: sc-44579-V.

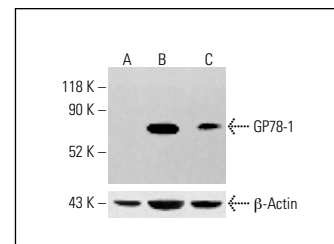
Molecular Weight of GP78-1: 78 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, Hep G2 cell lysate: sc-2227 or MCF7 whole cell lysate: sc-2206.

## DATA



GP78-1 (F-3): sc-166358. Western blot analysis of GP78-1 expression in Hep G2 (A), MCF7 (B), NIH/3T3 (C), C2C12 (D), KNRK (E) and L8 (F) whole cell lysates.



GP78-1 (F-3): sc-166358. Western blot analysis of GP78-1 expression in untreated HCT-116 (A), chemically-treated HCT-116 (B) and K-562 (C) whole cell lysates. Detection reagent used: m-IgG<sub>1</sub> BP-HRP: sc-525408. β-Actin (C4): sc-47778 used as loading control. Detection reagent used: m-IgG Fc BP-HRP: sc-525409.

## SELECT PRODUCT CITATIONS

- Mukherjee, R. and Chakrabarti, O. 2016. Ubiquitin-mediated regulation of the E3 ligase GP78 by MGRN1 in *trans* affects mitochondrial homeostasis. *J. Cell Sci.* 129: 757-773.
- Jiang, L.L., et al. 2019. Membralin deficiency dysregulates astrocytic glutamate homeostasis leading to ALS-like impairment. *J. Clin. Invest.* 129: 3103-3120.
- Yoon, Y.M., et al. 2020. Melatonin-stimulated exosomes enhance the regenerative potential of chronic kidney disease-derived mesenchymal stem/stromal cells via cellular prion proteins. *J. Pineal Res.* 68: e12632.
- Mookherjee, D., et al. 2021. RETREG1/FAM134B mediated autophagosomal degradation of AMFR/GP78 and OPA1—a dual organellar turnover mechanism. *Autophagy* 17: 1729-1752.
- Sha, L., et al. 2022. Pharmacological induction of AMFR increases functional EAAT2 oligomer levels and reduces epileptic seizures in mice. *JCI Insight* 7: e160247.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.