

# TIGAR (G-2): sc-74577

## BACKGROUND

TIGAR (TP53 (tumor protein 53)-induced glycolysis and apoptosis regulator), also known as C12orf5, is a 270 amino acid protein induced by the p53 tumor suppressor pathway that functions to protect against oxidative stress. TIGAR shares sequence similarity with the bisphosphate domain of the fructose-2,6-bisphosphate degrading enzyme (fructose bisphosphatase or FBPase) of the glycolysis pathway and can thus lower the intracellular levels of fructose-2,6-bisphosphate. TIGAR specifically functions to block glycolysis, leading the pathway to the pentose phosphate shunt and decreasing the intracellular concentration of reactive oxygen species. This suggests a role for TIGAR in protecting cells from reactive oxygen species that can be DNA damaging and lead to apoptosis.

## REFERENCES

1. Schneider, A. and Whitcomb, D.C. 2002. Hereditary pancreatitis: a model for inflammatory diseases of the pancreas. *Best Pract. Res. Clin. Gastroenterol.* 16: 347-363.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 610775. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

## CHROMOSOMAL LOCATION

Genetic locus: TIGAR (human) mapping to 12p13.32; Tigar (mouse) mapping to 6 F3.

## SOURCE

TIGAR (G-2) is a mouse monoclonal antibody raised against amino acids 91-210 mapping within an internal region of TIGAR of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## STORAGE

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

## APPLICATIONS

TIGAR (G-2) is recommended for detection of TIGAR 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 TIGAR siRNA (h): sc-76662, TIGAR siRNA (m): sc-76663, TIGAR shRNA Plasmid (h): sc-76662-SH, TIGAR shRNA Plasmid (m): sc-76663-SH, TIGAR shRNA (h) Lentiviral Particles: sc-76662-V and TIGAR shRNA (m) Lentiviral Particles: sc-76663-V.

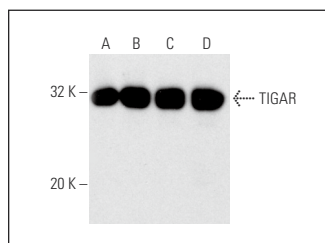
Molecular Weight of TIGAR: 30 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, HeLa whole cell lysate: sc-2200 or Hep G2 cell lysate: sc-2227.

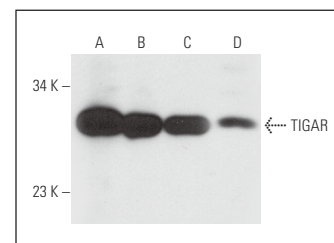
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## DATA



TIGAR (G-2): sc-74577. Western blot analysis of TIGAR expression in Jurkat (A), HeLa (B), Hep G2 (C) and Saos-2 (D) whole cell lysates.



TIGAR (G-2): sc-74577. Western blot analysis of TIGAR expression in U-2 OS (A), HeLa (B), Hep G2 (C) and KNRK (D) whole cell lysates.

## SELECT PRODUCT CITATIONS

1. Zawacka-Pankau, J., et al. 2011. Inhibition of glycolytic enzymes mediated by pharmacologically activated p53: targeting Warburg effect to fight cancer. *J. Biol. Chem.* 286: 41600-41615.
2. Lee, P., et al. 2015. P53- and p73-independent activation of TIGAR expression *in vivo*. *Cell Death Dis.* 6: e1842.
3. Romeo, M., et al. 2018. The human T-cell leukemia virus type-1 p30<sup>l</sup> protein activates p53 and induces the TIGAR and suppresses oncogene-induced oxidative stress during viral carcinogenesis. *Virology* 518: 103-115.
4. Hutchison, T., et al. 2018. The TP53-induced glycolysis and apoptosis regulator mediates cooperation between HTLV-1 p30<sup>l</sup> and the retroviral oncoproteins Tax and HBZ and is highly expressed in an *in vivo* xenograft model of HTLV-1-induced lymphoma. *Virology* 520: 39-58.
5. Hanson, R.L., et al. 2019. Protein stability of p53 targets determines their temporal expression dynamics in response to p53 pulsing. *J. Cell Biol.* 218: 1282-1297.
6. Sood, A., et al. 2023. Sphingosine 1 phosphate lyase inhibition rescues cognition in diabetic mice by promoting anti-inflammatory microglia. *Behav. Brain Res.* 446: 114415.
7. Farook, M.R., et al. 2024. Loss of mitochondrial pyruvate carrier 1 supports proline-dependent proliferation and collagen biosynthesis in ovarian cancer. *Mol. Metab.* 81: 101900.

## RESEARCH USE

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