

ZP3 (G-1): sc-398359



The Power to Question

BACKGROUND

The mammalian zona pellucida is composed of three major glycoproteins, ZP1, ZP2 and ZP3. ZP2 has been implicated as a secondary sperm receptor that binds sperm only after the induction of the sperm acrosome reaction. Both ZP2 and ZP3 are modified by the zona reaction; ZP2 undergoes a proteolytic cleavage and ZP3 loses its ability to induce the acrosome reaction and its sperm receptor activity. During the process of fertilization, the initial interaction between male and female gametes is mediated by a sperm receptor, ZP3, which resides in the extracellular glycoprotein matrix (zona pellucida) surrounding the oocyte. The sperm receptor function of the ZP3 molecule plays a key role in the first step of the fertilization process. Following sperm-oocyte binding, ZP3 triggers the sperm acrosome reaction that releases the protein machinery, enabling a spermatozoon to penetrate the zona pellucida.

CHROMOSOMAL LOCATION

Genetic locus: ZP3 (human) mapping to 7q11.23; Zp3 (mouse) mapping to 5 G2.

SOURCE

ZP3 (G-1) is a mouse monoclonal antibody raised against amino acids 23-322 mapping within an extracellular domain of ZP3 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

ZP3 (G-1) is available conjugated to agarose (sc-398359 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-398359 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-398359 PE), fluorescein (sc-398359 FITC), Alexa Fluor® 488 (sc-398359 AF488), Alexa Fluor® 546 (sc-398359 AF546), Alexa Fluor® 594 (sc-398359 AF594) or Alexa Fluor® 647 (sc-398359 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-398359 AF680) or Alexa Fluor® 790 (sc-398359 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

ZP3 (G-1) is recommended for detection of ZP3 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 ZP3 siRNA (h): sc-72115, ZP3 siRNA (m): sc-72116, ZP3 shRNA Plasmid (h): sc-72115-SH, ZP3 shRNA Plasmid (m): sc-72116-SH, ZP3 shRNA (h) Lentiviral Particles: sc-72115-V and ZP3 shRNA (m) Lentiviral Particles: sc-72116-V.

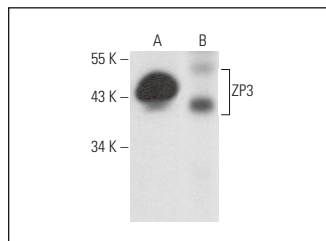
Molecular Weight of ZP3: 47 kDa.

Positive Controls: human ovary extract: sc-363769, mouse placenta extract: sc-364247 or human placenta extract: sc-363772.

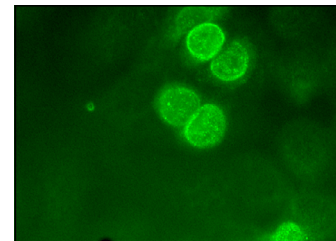
STORAGE

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

DATA



ZP3 (G-1): sc-398359. Western blot analysis of ZP3 expression in human ovary (A) and mouse placenta (B) tissue extracts.



ZP3 (G-1): sc-398359. Immunofluorescence staining of formalin-fixed A-431 cells showing nuclear membrane localization in dividing cells.

SELECT PRODUCT CITATIONS

- Costa, J., et al. 2018. Structural and molecular analysis of the cancer prostate cell line PC3: oocyte zona pellucida glycoproteins. *Tissue Cell* 55: 91-106.
- Xiong, J., et al. 2019. Proteomic analysis of mouse ovaries during the prepubertal stages. *Exp. Cell Res.* 377: 36-46.
- Dai, C., et al. 2019. ZP1 mutations are associated with empty follicle syndrome: evidence for the existence of an intact oocyte and a zona pellucida in follicles up to the early antral stage. A case report. *Hum. Reprod.* 34: 2201-2207.
- Li, H., et al. 2020. DPAGT1-mediated protein N-glycosylation is indispensable for oocyte and follicle development in mice. *Adv. Sci.* 7: 2000531.
- Chen, Y., et al. 2021. Case report: a novel heterozygous ZP3 deletion associated with empty follicle syndrome and abnormal follicular development. *Front. Genet.* 12: 690070.
- Zeng, L., et al. 2022. Zuogui pills maintain the stemness of oogonial stem cells and alleviate cyclophosphamide-induced ovarian aging through Notch signaling pathway. *Phytomedicine* 99: 153975.
- Yu, X., et al. 2023. Oocyte arrested at metaphase II stage were derived from human pluripotent stem cells *in vitro*. *Stem Cell Rev. Rep.* 19: 1067-1081.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.