

ZP1 (D-4): sc-365435



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: ZP1 (human) mapping to 11q12.2; Zp1 (mouse) mapping to 19 A.

SOURCE

ZP1 (D-4) is a mouse monoclonal antibody raised against amino acids 40-271 mapping near the N-terminus of ZP1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

ZP1 (D-4) is available conjugated to agarose (sc-365435 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365435 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365435 PE), fluorescein (sc-365435 FITC), Alexa Fluor® 488 (sc-365435 AF488), Alexa Fluor® 546 (sc-365435 AF546), Alexa Fluor® 594 (sc-365435 AF594) or Alexa Fluor® 647 (sc-365435 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365435 AF680) or Alexa Fluor® 790 (sc-365435 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

ZP1 (D-4) is recommended for detection of ZP1 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 ZP1 siRNA (h): sc-61831, ZP1 siRNA (m): sc-41134, ZP1 shRNA Plasmid (h): sc-61831-SH, ZP1 shRNA Plasmid (m): sc-41134-SH, ZP1 shRNA (h) Lentiviral Particles: sc-61831-V and ZP1 shRNA (m) Lentiviral Particles: sc-41134-V.

Molecular Weight of glycosylated ZP1: 132 kDa.

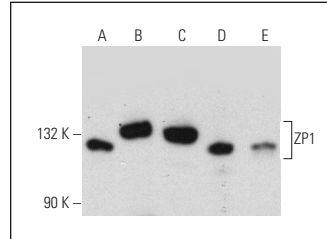
Molecular Weight of deglycosylated ZP1: 63 kDa.

Positive Controls: CCRF-CEM cell lysate: sc-2225, C2C12 whole cell lysate: sc-364188 or 3611-RF whole cell lysate: sc-2215.

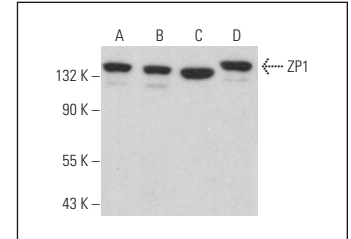
STORAGE

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

DATA



ZP1 (D-4): sc-365435. Western blot analysis of ZP1 expression in 3611-RF (A), ES-2 (B), CCRF-CEM (C), C2C12 (D) and I-11.15 (E) whole cell lysates.



ZP1 (D-4): sc-365435. Western blot analysis of ZP1 expression in A-10 (A), Sol8 (B), BC₃H1 (C) and Jurkat (D) whole cell lysates.

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.
- Zhou, Z., et al. 2019. Novel mutations in ZP1, ZP2, and ZP3 cause female infertility due to abnormal zona pellucida formation. *Hum. Genet.* 138: 327-337.
- 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.
- Liu, M., et al. 2020. Novel biallelic loss-of-function variants in ZP1 identified in an infertile female with empty follicle syndrome. *J. Assist. Reprod. Genet.* 37: 2151-2157.
- 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.

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.

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