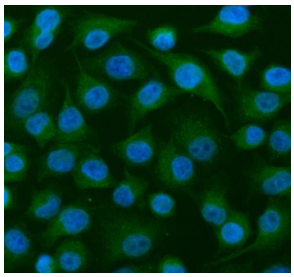
MEIOB Antibody / Meiosis-specific with OB domains protein (FY13042)

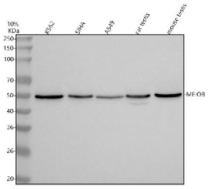
Catalog No.	Formulation	Size
FY13042	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

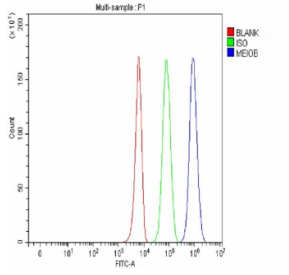
Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q8N635
Applications	Western Blot : 0.25-0.5ug/ml Immunocytochemistry/Immunofluorescence : 5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This MEIOB antibody is available for research use only.



Immunofluorescent staining of MEIOB using anti-MEIOB antibody (green). MEIOB was detected in an immunocytochemical section of cells. Enzyme antigen retrieval was performed using IHC enzyme antigen retrieval reagent for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 5 ug/ml rabbit anti-MEIOB antibody overnight at 4oC. DyLight 488 Conjugated Goat Anti-Rabbit IgG was used as secondary antibody at 1:500 dilution and incubated for 30 minutes at 37oC. The section was counterstained with DAPI nuclear stain (blue). Visualize using a fluorescence microscope and filter sets appropriate for the label used.



Western blot analysis of MEIOB using anti-MEIOB antibody. Lane 1: human K562 whole cell lysates, Lane 2: human SiHa whole cell lysates, Lane 3: human whole cell lysates, Lane 4: rat testis tissue lysates, Lane 5: mouse testis tissue lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-MEIOB antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using enhanced chemiluminescent. A specific band was detected for MEIOB at approximately 49 kDa. The expected molecular weight of MEIOB is ~49 kDa.



Flow Cytometry analysis of K562 cells using anti-MEIOB antibody. Overlay histogram showing K562 cells stained with (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-MEIOB antibody (1 ug/million cells) for 30 min at 20oC. DyLight 488 conjugated goat anti-rabbit IgG (5-10 ug/million cells) was used as secondary antibody for 30 minutes at 20oC. Isotype control antibody (Green line) was rabbit IgG (1 ug/million cells) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.

Description

MEIOB antibody detects Meiosis-specific with OB domains protein, a single-stranded DNA-binding protein essential for homologous recombination and meiotic crossover formation. The UniProt recommended name is Meiosis-specific with OB domains protein (MEIOB). This nuclear factor participates in the repair of programmed DNA double-strand breaks (DSBs) during meiosis, ensuring accurate chromosomal segregation and gamete genomic integrity.

Functionally, MEIOB antibody identifies a 471-amino-acid protein that localizes to meiotic chromatin in germ cells. MEIOB interacts with single-stranded DNA at resected DSBs and forms a complex with SPATA22, which stabilizes the DNA repair intermediate and promotes strand exchange facilitated by recombinases DMC1 and RAD51. Together, these interactions drive the homologous recombination events that generate genetic diversity during gametogenesis.

The MEIOB gene is located on chromosome 16p13.3 and is expressed exclusively in meiotic cells of the testis and ovary. MEIOB contains oligonucleotide/oligosaccharide-binding (OB) folds characteristic of single-stranded DNA-binding proteins. Its expression begins at the leptotene stage of meiosis and persists through pachytene, where it coordinates crossover formation and synapsis of homologous chromosomes. Loss of MEIOB function results in defective recombination, impaired synaptonemal complex formation, and meiotic arrest.

In mammals, MEIOB plays an indispensable role in meiotic DSB repair by stabilizing single-stranded DNA intermediates and promoting strand invasion. It also prevents excessive nuclease activity that could lead to genome instability. In humans, MEIOB mutations have been linked to infertility due to defective gametogenesis, emphasizing its essential contribution to reproductive success. In addition to its germline function, MEIOB expression may serve as a biomarker for spermatogenic activity and ovarian follicle development.

MEIOB antibody is widely used in reproductive biology, genetics, and DNA repair research. It is suitable for immunohistochemistry, immunoblotting, and chromatin association studies to track MEIOB localization and complex formation. This antibody supports investigations into meiotic recombination, chromosomal synapsis, and genetic stability. It is also used in infertility research to assess meiotic defects and germ cell differentiation.

Structurally, MEIOB possesses two OB-fold domains for DNA binding and forms a stoichiometric complex with SPATA22 that mimics the RPA-like architecture. NSJ Bioreagents provides MEIOB antibody reagents validated for use in meiosis,

recombination, and fertility research.

Application Notes

Optimal dilution of the MEIOB antibody should be determined by the researcher.

Immunogen

E.coli-derived human MEIOB recombinant protein (Position: I140-V442) was used as the immunogen for the MEIOB antibody.

Storage

After reconstitution, the MEIOB antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.