Technical Data Sheet

Purified Mouse Anti-DNA Ligase III

Product Information

Material Number:	**611876**
Size:	50 µg
Concentration:	250 µg/ml
Clone:	7/DNA Ligase III
Immunogen:	Human DNA Ligase III aa. 2-115
Isotype:	Mouse IgG1
Reactivity:	QC Testing: Human Tested in Development: Dog, Rat, Mouse
Target MW:	103 kDa
Storage Buffer:	Aqueous buffered solution containing BSA, glycerol, and ≤0.09% sodium azide.

Description

Cells have evolved DNA repair pathways that are dedicated to the maintenance of DNA integrity. In such pathways, damaged DNA is excised and the resulting gap is filled by DNA polymerase. Human DNA ligases, ligase I, III, and IV, utilize ATP as a co-factor in DNA joining reactions required for base excision and single strand break repair pathways. All DNA ligases contain an RFPR sequence and an active site motif (ASM) on each side of their catalytic domain. The RFPR is required for transfer of an AMP group from the enzyme to the 5'-phosphate terminus of a DNA nick. In addition, DNA ligase III has an N-terminal zinc finger domain (ZFD) that is homoloqous with the zinc fingers found in poly(ADP-ribose) polymerase (PARP). This domain is not required for DNA ligase activity, but enables DNA ligase III to interact with single strand gaps and single strand flaps. During base excision repair (BER), ATP-dependent ligation requires PARP, DNA polymerase β, and DNA ligase III interaction with XRCC1 within the BER complex. Thus, DNA ligase III may contain unique protein sequences that allow interaction and repair of specific types of DNA damage.

Western blot analysis of DNA Ligase III on Jurkat cell lysate. *Lane 1: 1:10000, lane 2: 1:20000, lane 3: 1:40000 dilution of anti-DNA Ligase III.*

Preparation and Storage

The monoclonal antibody was purified from tissue culture supernatant or ascites by affinity chromatography.
Store undiluted at -20° C.

Application Notes

Application

Western blot	Routinely Tested
Immunofluorescence	Not Recommended

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Suggested Companion Products

Catalog Number	Name	Size	Clone
611451	Jurkat Cell Lysate	500 µg	(none)
554002	HRP Goat Anti-Mouse Ig	1.0 ml	(none)
554001	FITC Goat Anti-Mouse Ig	0.5 mg	Polyclonal

Product Notices

1. Since applications vary, each investigator should titrate the reagent to obtain optimal results.
2. Please refer to www.bdbiosciences.com/pharmingen/protocols for technical protocols.
3. Source of all serum proteins is from USDA inspected abattoirs located in the United States.
4. Caution: Sodium azide yields highly toxic hydrazoic acid under acidic conditions. Dilute azide compounds in running water before discarding to avoid accumulation of potentially explosive deposits in plumbing.

References

Chen J, Tomkinson AE, Ramos W. Mammalian DNA ligase III: molecular cloning, chromosomal localization, and expression in spermatocytes undergoing meiotic recombination. *Mol Cell Biol.* 1995; 15(10):5412-5422.(Biology)

Mackey ZB, Niedergang C, Murcia JM. DNA ligase III is recruited to DNA strand breaks by a zinc finger motif homologous to that of poly(ADP-ribose) polymerase. Identification of two functionally distinct DNA binding regions within DNA ligase III. *J Biol Chem.* 1999; 274(31):21679-21687.(Biology)

Oei SL, Ziegler M. ATP for the DNA ligation step in base excision repair is generated from poly(ADP-ribose). *J Biol Chem.* 2000; 275(30):23234-23239.(Biology)

Taylor RM, Whitehouse CJ, Caldecott KW. The DNA ligase III zinc finger stimulates binding to DNA secondary structure and promotes end joining. *Nucleic Acids Res.* 2000; 28(18):3558-3563.(Biology)