

## Anti-Z-DNA/Z-RNA [Z22] Standard Size Ab00783-1.29

This is a Fab fragment with a his-tag.

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**Isotype and Format:** Mouse Fab fragment, His-Tagged, Kappa

**Clone Number:** Z22

**Alternative Name(s) of Target:** Z-22; Z 22; Z DNA; ZDNA; Z RNA; ZRNA; Z NA; Z-NA; ZNA

**UniProt Accession Number of Target Protein:**

**Published Application(s):** EMSA, gel retardation assay, in vitro, SPR, WB, ELISA, FC, IF, IHC

**Published Species Reactivity:** Species independent

**Immunogen:** Z22 was prepared by immunizing C57BL/6 mice with brominated poly(dG-dC).poly(dG-dC) complexed with methylated bovine serum albumin (BSA), and was selected for by ELISA. Brominated poly(dG-dC).poly(dG-dC) forms a stable Z-DNA helix under physiological salt conditions.

**Specificity:** Z22 binds both Z-DNA, but not B-DNA or ssDNA (single-stranded DNA). It recognizes Z-DNA at the phosphodiester backbone of various base sequence including (dG-dC)<sub>n</sub>.(dG-dC)<sub>n</sub>, (dTdG)<sub>n</sub>.(dC-dA)<sub>n</sub>, (dG-dme5C)<sub>n</sub>.(dG-dme5C)<sub>n</sub> and (dG-dbr5C)<sub>n</sub>.(dG-dbr5C)<sub>n</sub>. In other words, Z22 binds Z-DNA irrespective of sequence. Z22 Also binds DNA-8-MOP adducts and Z-RNA.

**Application Notes:** Z22 binding to Z-DNA was evaluated by a competitive solid-phase ELISA (Möller et al., 1982; PMID: 7118931). The binding affinity of Z22 Fab version engineered from the original mouse IgG2b format to Z-DNA by SPR was measured to have an apparent KD of ~160 nM and could be competed out by soluble brominated d(G-C)<sub>15</sub> but not unmodified d(G-C)<sub>15</sub> (B-DNA). Z22 scFv binds to the target with a similar affinity to Z22 Fab. Competitive ELISA was used to determine binding specificity. Gel retardation assays were also used to show Z22 binding to DNA-8-MOP adducts. Biotinylated Z22 was used to determine the distribution of Z-DNA in permeabilized, microbead-encapsulated nuclei after adding radioactive streptavidin, and compared to encapsulated permeabilized nuclei stained with DAPI (Wittig et al., 1989; PMID: 2921282). Z22 was shown to cross-react with Z-RNA (Zarling et al., 1990; PMID: 2153833). Z-RNA binding using this product (Ab00783-3.0) was shown using IF (Zhang et al., 2020; PMID: 32200799), and it was also used in FC (Koehler et al., 2021; PMID: 34192517). Furthermore, this product (Ab00783, unspecified isotype) was also used in IHC and WB (Yau et al., 2021; PMID: 34728780), and Electrophoretic Mobility Shift Assay (EMSA; gel mobility assay) (Li et al., 2022; PMID: 35744832).

**Antibody First Published in:** Möller et al. Monoclonal Antibodies Recognize Different Parts of Z-DNA. J Biol Chem. 1982 Oct 25;257(20):12081-5. [PMID:7118931](https://pubmed.ncbi.nlm.nih.gov/7118931/)

**Note on publication:** Describes the production of monoclonal antibodies which recognize Z-DNA. Binding specificity and affinity were determined.

## Product Form

**Size:** 100 µg Purified antibody.

**Purification:** Purified by Immobilized Metal Affinity Chromatography

**Supplied In:** PBS with 0.02% Proclin 300.

**Storage Recommendation:** Store at 4°C for up to 3 months. For longer storage, aliquot and store at -

20°C.

**Concentration:** 1 mg/ml.

Important note – This product is for research use only. It is not intended for use in therapeutic or diagnostic procedures for humans or animals.