



ds DNA Marker (11B6): sc-58748

BACKGROUND

Deoxyribonucleic acid (DNA) is a long polymer of nucleotides that is held together by a backbone made of sugars and phosphate groups. It holds the genetic instructions for the development and function of living things. DNA is crucial for living organisms, and all known cellular life and some viruses contain DNA. In eukaryotes, DNA exists in the cell nucleus, while in prokaryotes, DNA is located in the cytoplasm. In living organisms, DNA does not usually exist as a single molecule, but instead as a tightly-associated pair of molecules in the shape of a right-handed double helix. The two DNA strands are held together by hydrogen bonds as well as forces generated by the hydrophobic effect and pi stacking. During replication and transcription, portions of the helix unwind and become single stranded. These single-stranded DNA are surrounded by protective proteins. Double stranded (ds) DNA markers are useful tools in biology research and aid in the study of DNA behavior and characteristics.

REFERENCES

1. Watson, J.D. and Crick, F.H. 1953. Molecular structure of nucleic acids; a structure for deoxyribose nucleic acid. *Nature* 171: 737-738.
2. Pabo, C.O. and Sauer, R.T. 1984. Protein-DNA recognition. *Annu. Rev. Biochem.* 53: 293-321.
3. Jeffreys, A.J., Wilson, V. and Thein, S.L. 1985. Individual-specific "fingerprints" of human DNA. *Nature* 316: 76-79.
4. Bickle, T.A. and Krüger, D.H. 1993. Biology of DNA restriction. *Microbiol. Rev.* 57: 434-450.
5. Clausen-Schaumann, H., Rief, M., Tolksdorf, C. and Gaub, H.E. 2000. Mechanical stability of single DNA molecules. *Biophys. J.* 78: 1997-2007.
6. Isaksson, J., Acharya, S., Barman, J., Cheruku, P. and Chattopadhyaya, J. 2004. Single-stranded adenine-rich DNA and RNA retain structural characteristics of their respective double-stranded conformations and show directional differences in stacking pattern. *Biochem.* 43: 15996-16010.
7. Benham, C.J. and Mielke, S.P. 2005. DNA mechanics. *Annu. Rev. Biomed. Eng.* 7: 21-53.
8. Pidoux, A.L. and Allshire, R.C. 2005. The role of heterochromatin in centromere function. *Philos. Trans. R. Soc. Lond., B, Biol. Sci.* 360: 569-579.
9. Burge, S., Parkinson, G.N., Hazel, P., Todd, A.K. and Neidle, S. 2006. Quadruplex DNA: sequence, topology and structure. *Nucleic Acids Res.* 34: 5402-5415.

SOURCE

ds DNA Marker (11B6) is a mouse monoclonal antibody raised against double stranded DNA.

PRODUCT

Each vial contains 500 µl culture supernatant containing IgM with < 0.1% sodium azide.

APPLICATIONS

ds DNA Marker (11B6) is recommended for detection of ds DNA of bovine origin by immunofluorescence (starting dilution to be determined by researcher, dilution range 1:10-1:200).

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Immunofluorescence: use goat anti-mouse IgM-FITC: sc-2082 (dilution range: 1:100-1:400) or goat anti-mouse IgM-TR: sc-2983 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

RESEARCH USE

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

PROTOCOLS

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