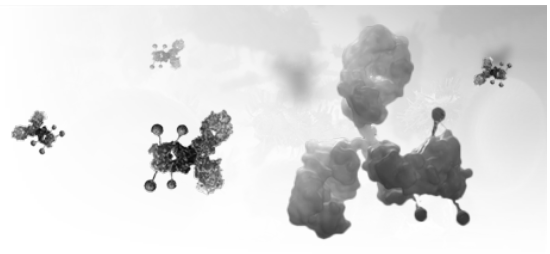

Anti-CTCF monoclonal antibody (DMABT-H19813)

This product is for research use only and is not intended for diagnostic use.

PRODUCT INFORMATION

Specificity	detects endogenous levels of total CTCF protein. This antibody does not cross-react with BORIS.
Immunogen	a synthetic peptide corresponding to the carboxy terminus of the human CTCF protein.
Isotype	IgG
Source/Host	Rabbit
Species Reactivity	Human, Mouse, Rat, Monkey
Conjugate	Unconjugated
Applications	WB, IP, IHC-P, ICC/IF, ChIP
Format	Liquid
Buffer	Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide.
Preservative	<0.02% Sodium Azide
Storage	Store at –20°C. Do not aliquot the antibody.

BACKGROUND

Introduction

CCCTC-binding factor (CTCF) and its paralog, the Brother of the Regulator of Imprinted Sites (BORIS), are highly conserved transcription factors that regulate transcriptional activation and repression, insulator function, and imprinting control regions (ICRs). Although they have divergent amino and carboxy termini, both proteins contain 11 conserved zinc finger domains that work in combination to bind the same DNA elements. CTCF is ubiquitously expressed and contributes to transcriptional regulation of cell-growth regulated genes, including c-myc, p19/ARF, p16/INK4A, BRCA1, p53, p27, E2F1, and TERT. CTCF also binds to and is required for the enhancer-blocking activity of all known insulator elements and ICRs, including the H19/IgF2, Prader-Willi/Angelman syndrome, and Inactive X-Specific Transcript (XIST) anti-sense loci. CTCF DNA-binding is sensitive to DNA methylation, a mark that determines selection of the imprinted allele (maternal vs. paternal). The various functions of CTCF are regulated by at least

two different post-translational modifications. Poly(ADP-ribosyl)ation of CTCF is required for insulator function. Phosphorylation of Ser612 by protein kinase CK2 facilitates a switch of CTCF from a transcriptional repressor to an activator at the c-myc promoter. CTCF mutations or deletions have been found in many breast, prostate, and Wilms tumors. Expression of BORIS is restricted to spermatocytes and is mutually exclusive of CTCF. In cells expressing BORIS, promoters of X-linked cancer-testis antigens like MAGE-1A are demethylated and activated, but methylated and inactive in CTCF-expressing somatic cells. Like other testis specific proteins, BORIS is abnormally expressed in different cancers, such as breast cancer, and has a greater affinity than CTCF for DNA binding sites, detracting from CTCF's potential tumor suppressing activity.

GENE INFORMATION

Entrez Gene ID	13018
UniProt ID	Q61164