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# ProductInformation

**Anti-CtBP1, N-Terminal**
Produced in rabbit, IgG fraction of antibody

Product Number: **C 9491**

## Product Description

Anti CtBP1, N-terminal is developed in rabbit using as immunogen a synthetic peptide corresponding to amino acids 2-18 of human CtBP1, conjugated to KLH via a C-terminal added cysteine residue. This sequence is conserved in mouse and has no similarity with CtBP2. Whole antiserum is fractionated and then further purified by ion-exchange chromatography to provide the IgG fraction of antiserum that is essentially free of other rabbit serum proteins.

Anti CtBP, N-terminal specifically recognizes human and mouse CtBP1. Applications include immunoblotting (48 kDa) and immunoprecipitation. Staining of the CtBP1 band in immunoblotting is specifically inhibited by the immunizing peptide.

Gene transcription in eukaryotes is controlled by a dynamic interplay between transcriptional activation and repression taking place in the context of chromatin.[1,2] Consequently, remodeling of chromatin is one of the critical steps in gene silencing.[3,4] Chromatin remodeling factors drive mobilization of the nucleosome by catalyzation of ATP hydrolysis, as well as by histone deacetylation.[5-7] The acetylation status of histones at specific DNA regulatory sequences depends on the recruitment of histone acetyltransferase or histone deacetylase (HDAC) activities usually as part of large multiprotein complexes of coactivators or corepressors, respectively.[2,7] Carboxy terminal binding protein (CtBP) was initially identified by virtue of its ability to interact with the carboxyl terminus of the adenoviral protein E1A.[8] Like other E1A binding proteins, CtBP1 also interacts with a wide variety of cellular factors. Thus, it was found in complex with several known DNA-binding transcription factors that participate in a wide variety of developmental biological pathways and processes.

CtBP1 has also been shown to interact with polycomb group proteins and thus a component of the chromatin remodeling machinery and transcriptional repression.[9] Another protein interacting with CtBP1 is Pnn/DRS, a phosphoprotein involved in the regulation of cell adhesion and modulation of the activity of multiple tumor supressor genes. Several lines of evidence suggest that the interaction of Pnn with CtBP1 may modulate repression of E-cadherin transcription by CtBP1.[10] In the TGF-β pathway, BMP was found to be connected with CtBP1. TGF-βs activate transmembrane serine/threonine kinase receptors. Ligand-activated receptors, in turn, activate intracellular effectors such as Smad proteins. More specifically, CtBP1 associates with SMAD6 explaining the repression of BMP signaling in the nucleus.[11] While the exact function of CtBP is unknown, it is quite clear that these proteins act as transcriptional coregulators in HDAC-dependent and independent manners.[12] However, the way that CTBP1 is recruited to DNA and its function in tumorigenesis is still a matter of debate. There has been a report on a complex containing the essential components for both gene targeting and coordinated histone modifications allowing the effective repression of genes targeted by CtBP. In HeLa cells, the complex was isolated and found to include HDAC1, HDAC2, CtBP1, CtBP2, G9a histone methyltransferase, EuHMT histone methyl transferase, and others.[13]

## Reagent

The antibody is supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

**Precautions and Disclaimer**
Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazardous and safe handling practices.

**Storage/Stability**
For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in frost-free freezers is also not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

**Product Profile**
By immunoblotting, a working antibody dilution of 1:500-1:1,000 is recommended using cell lysates of the K562 cell line.

By immunoblotting, a working antibody dilution of 1:250-1:500 is recommended using mouse brain lysates.

By immunoprecipitation, 5-10 µL of the antibody can immunoprecipitate CtBP1 from lysates of the K562 cell line.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining the optimal working dilutions by titration.

**References**

1. Lee, T.I., and Young, R.A., Ann. Rev. Genet., **34**, 77-137 (2000).
2. Jepsen, K., and Rosenfeld, M.G., J. Cell Sci., **115**, 689-698 (2002).
3. Bird, A.P., and Wolffe, A.P., Cell, **99**, 451-454 (1999).
4. Riggs, A.D., and Pfeifer, G.P., Trends Genet., **8**, 169-173 (1992).
5. Wang, W., et al., EMBO J., **15**, 5370-5382 (1996).
6. Muchardt, C., et al, EMBO J., **15**, 3394-3402 (1996).
7. Strahl, B.D., and Allis, C.D., Nature, **403**, 41-45 (2000).
8. Schaeper, U., et al., Proc. Natl. Acad. Sci. USA, **92**, 10467-10471 (1995).
9. Sewalt, E.A.B., et al., Mol. Cell. Biol., **19**, 777-787 (1999).
10. Alpatov, R., et al., Mol. Cell. Biol., **24**, 10223-10235 (2004).
11. Lin, X., et al., Mol.Cell. Biol., **23**, 9081-9093 (2003).
12. Chinnadurai, G., Mol Cell., **9**, 213-224 (2002).
13. Shi, Y., et al., Nature, **422**, 735-738 (2003).


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