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Product Information

Monoclonal Anti-MTA1 antibody produced in mouse
clone MTA1-213, purified from hybridoma cell culture

Catalog Number **M1320**

Product Description

Monoclonal Anti-MTA1 (mouse IgG1 isotype) is derived from the hybridoma MTA1-213 produced by the fusion of mouse myeloma cells (NS1 cells) and splenocytes from BALB/c mice immunized with a synthetic peptide corresponding to amino-acids 626-641 of human MTA1. The isotype is determined using a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Catalog Number ISO2.

Monoclonal Anti-MTA1 recognizes human, canine, rat and mouse MTA1, 75-80 kDa. The product is useful in ELISA, immunoblotting, immunoprecipitation and immunocytochemistry.

Metastasis-associated genes (MTAs) comprise a novel gene family with a growing number of members. Currently, there are three known genes encoding for six isoforms, MTA1, MTA1S, MTA-ZG29p, MTA2/MTA1L1, MTA3, and MTA3L.[1-3] MTA1, also known as NuRD-70**,** was originally identified in rat metastatic adenocarcinomas as a differentially expressed gene.[1] It encodes a 715 amino acid protein that shares about 70% overall homology to human MTA2 and MTA3 proteins, the C-terminus being more divergent than the N-terminus.[2]

Although it is clear that MTA1 is associated with cancer metastasis, its exact role in the process remains elusive.[4-6] The discovery that both MTA1 and MTA2/MTA1L1 interact with the deacetylases HDAC1 and HDAC2 within the nuclear remodeling and deacetylation complexes Mi2/NuRD suggests that these proteins are involved in transcriptional repression.[7-9] MTA1 interacts with CAK, a component of the TFIIH regulatory complex, suggesting that MTA1 may also act as a signal transducer to mediate crosstalk between corepressor complexes and the general transcription machinery.[10] In addition, estrogen receptor (ER) is transcriptionally repressed by MTA1, having serious implications for the development of an aggressive breast cancer phenotype through transactivation of the HER-2 receptor by heregulin-β1 (HRG).[11] Mechanistically, HRG regulates expression of MTA1 in the NuRD complex, which in turn represses ER-mediated transcription by recruiting HDACs.[11] Expression in breast cancer cells of MTA1s, a naturally occurring short form of MTA1, can also be a cause for the development of the malignant phenotype. MTA1s localizes in the cytoplasm and sequesters ER in the cytoplasm, preventing ligand-induced translocation of ER and stimulating malignant phenotypes.[12] MTA3 was characterized as being part of another NuRD complex and also shown to be an ER-regulated gene, which targets the transcription factor Snail. Snail in turn represses E-cadherin expression leading to epithelial de-differentiation and increased metastasis.[2]

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Antibody concentration: ~2 mg/mL

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards 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, or storage in “frost-free” freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working concentration of 1-2 μg/mL is recommended using HeLa cell nuclear extract.

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

References

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