SANTA CRUZ BIOTECHNOLOGY, INC.

Polyoma virus middle T antigen (PyMT): sc-53481

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The Power to Question

BACKGROUND

The Polyoma virus (Py) is a small oncogenic DNA virus that belongs to the family Polymaviridae and produces multiple tumors in the infected host. Py encodes three early proteins: large, middle and small T (tumor) antigen. Polyoma virus large T antigen (PyLT) is a nuclear phosphoprotein that helps to regulate viral replication and gene expression, allows isolation of viral T antigens, and can induce cellular DNA replication in the absence of other virus-transforming genes. Polyoma virus middle T antigen (PyMT) contains 421 amino acids and is divided into at least three domains, some of which are shared with PyLT and Polyoma virus small T antigen (PyST). PyMT is a major transforming protein responsible for inducing the phenotype of transformed cells and, without it, transformation does not occur. PyST functions in transformation and in productive infection.

REFERENCES

1. Dilworth, S.M. and Griffin, B.E. 1982. Monoclonal antibodies against polyoma virus tumor antigens. Proc. Natl. Acad. Sci. USA 79: 1059-1063.
2. Dilworth, S.M. 1984. Protein kinase activities associated with distinct antigenic forms of Polyoma virus middle T antigen. EMBO J. 1: 1319-1328.
3. Schaffhausen, B., et al. 1985. Expression of polyoma early gene products in *E. coli*. Nucleic Acids Res. 13: 501-519.
4. Jat, P.S. and Sharp, P.A. 1986. Large T antigens of Simian virus 40 and polyoma virus efficiently establish primary fibroblasts. J. Virol. 59: 746-750.
5. Berger, H. and Wintersberger, E. 1986. Polyoma virus small T antigen enhances replication of viral genomes in 3T6 mouse fibroblasts. J. Virol. 60: 768-770.

SOURCE

Polyoma virus middle T antigen (PyMT) is a rat monoclonal antibody raised against Polyoma virus-transformed Wistar rat fibroblast cell line REWA5/T1A1.

PRODUCT

Each vial contains 200 µg IgG_{2b} in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Polyoma virus middle T antigen (PyMT) is available conjugated to agarose (sc-53481 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-53481 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-53481 PE), fluorescein (sc-53481 FITC), Alexa Fluor® 488 (sc-53481 AF488), Alexa Fluor® 546 (sc-53481 AF546), Alexa Fluor® 594 (sc-53481 AF594) or Alexa Fluor® 647 (sc-53481 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-53481 AF680) or Alexa Fluor® 790 (sc-53481 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

Polyoma virus middle T antigen (PyMT) is recommended for detection of Polyoma virus middle T antigen by immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Molecular Weight of Polyoma virus middle T antigen: 52 kDa.

SELECT PRODUCT CITATIONS

1. Luo, M., et al. 2009. Mammary epithelial-specific ablation of the focal adhesion kinase suppresses mammary tumorigenesis by affecting mammary cancer stem/progenitor cells. Cancer Res. 69: 466-474.
2. Guo, K., et al. 2011. Targeting intracellular oncoproteins with antibody therapy or vaccination. Sci. Transl. Med. 3: 99ra85.
3. Fan, H. and Guan, J.L. 2011. Compensatory function of Pyk2 protein in the promotion of focal adhesion kinase (FAK)-null mammary cancer stem cell tumorigenicity and metastatic activity. J. Biol. Chem. 286: 18573-18582.
4. Moreira Sousa, C., et al. 2013. The Huntington disease protein accelerates breast tumour development and metastasis through ErbB2/HER2 signalling. EMBO Mol. Med. 5: 309-325.
5. Zhao, Y., et al. 2013. Expression of a phosphorylated substrate domain of p130Cas promotes PyMT-induced c-Src-dependent murine breast cancer progression. Carcinogenesis 34: 2880-2890.
6. Wellberg, E.A., et al. 2014. Modulation of tumor fatty acids, through overexpression or loss of thyroid hormone responsive protein spot 14 is associated with altered growth and metastasis. Breast Cancer Res. 16: 481.
7. Blaas, L., et al. 2016. Lgr6 labels a rare population of mammary gland progenitor cells that are able to originate luminal mammary tumours. Nat. Cell Biol. 18: 1346-1356.
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11. Sharick, J.T., et al. 2019. Cellular metabolic heterogeneity *in vivo* is recapitulated in tumor organoids. Neoplasia 21: 615-626.
12. Dong, S., et al. 2020. Knockout model reveals the role of Nischarin in mammary gland development, breast tumorigenesis and response to metformin treatment. Int. J. Cancer 146: 2576-2587.

RESEARCH USE

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