

TOK-1 β (B-10): sc-271985

BACKGROUND

Combinations of cyclin-cyclin-dependent kinase (CDK) complex and their inhibitors coordinately regulate cell-cycle movement. INK4 family proteins p15, p16, p18 and p19 inhibit CDK4/CDK, whereas Cip/Kip family proteins p21, p27 and p57, inhibit all of the CDKs (1,2). p21 induces cell cycle arrest, thus inhibiting CDK activity for Rb inactivation. In addition to binding of CDK-cyclin to the N-terminal region of p21, other proteins such as proliferating cell nuclear antigen (PCNA), SET/TAF1 and calmodulin are able to bind to the C-proximal region of p21. A novel p21^{Cip1}-binding protein TOK-1 binds to the C-terminal region of p21. TOK-1 is alternatively spliced to form TOK-1 α and TOK-1 β , which are comprised of 322 and 314 amino acids, respectively. TOK-1 co-localizes with p21 in nuclei and has similar expression pattern to that of p21. TOK-1 α , but not TOK-1 β , directly binds to the C-terminal proximal region of p21 and both are expressed at the G₁/S boundary of cell-cycle. TOK-1 α preferentially binds to an active form of CDK2 via p21 to make a ternary complex in human cells. In addition, TOK-1 α enhances the inhibitory activity of p21 to Histone H1 kinase activity of CDK2, suggesting that TOK-1 α may be a new type of CDK2 modulator.

REFERENCES

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2. Luo, Y., et al. 1995. Cell-cycle inhibition by independent CDK and PCNA binding domains in p21^{Cip1}. *Nature* 375: 159-161.
3. Goubin, F., et al. 1995. Identification of binding domains on the p21^{Cip1} cyclin-dependent kinase inhibitor. *Oncogene* 10: 2281-2287.
4. Harper, J.W., et al. 1995. Inhibition of cyclin-dependent kinases by p21. *Mol. Biol. Cell* 6: 387-400.
5. Connell-Crowley, L., et al. 1998. G₁ cyclin-dependent kinases are sufficient to initiate DNA synthesis in quiescent human fibroblasts. *Curr. Biol.* 8: 65-68.
6. Hengstschlager, M., et al. 1999. Cyclin-dependent kinases at the G₁-S transition of the mammalian cell cycle. *Mutat. Res.* 436: 1-9.
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CHROMOSOMAL LOCATION

Genetic locus: BCCIP (human) mapping to 10q26.2; Bccip (mouse) mapping to 7 F3.

SOURCE

TOK-1 β (B-10) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 271-301 near the C-terminus of TOK-1 β of human origin.

STORAGE

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

PRODUCT

Each vial contains 200 μ g IgM in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-271985 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

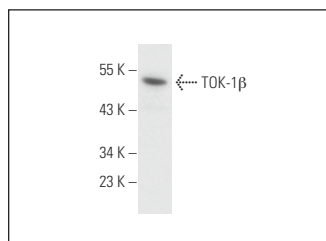
TOK-1 β (B-10) is recommended for detection of TOK-1 β of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for TOK-1 siRNA (h): sc-106626, TOK-1 siRNA (m): sc-154549, TOK-1 shRNA Plasmid (h): sc-106626-SH, TOK-1 shRNA Plasmid (m): sc-154549-SH, TOK-1 shRNA (h) Lentiviral Particles: sc-106626-V and TOK-1 shRNA (m) Lentiviral Particles: sc-154549-V.

Molecular Weight of TOK-1 β : 45 kDa.

Positive Controls: SK-BR-3 cell lysate: sc-2218, Caki-1 cell lysate: sc-2224 or SW480 cell lysate: sc-2219.

DATA



TOK-1 β (B-10): sc-271985. Western blot analysis of TOK-1 β expression in SK-BR-3 whole cell lysate.

RESEARCH USE

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

PROTOCOLS

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