SANTA CRUZ BIOTECHNOLOGY, INC.

TOK-1 (13): sc-136104

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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. 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 p21Cip1-binding protein TOK-1 binds to the C-terminal rgeion of p21. TOK-1 is alternatively spliced to form TOK-1α and TOK-1β, which are comprised of 322 and 314 amino acids, respectively. TOK-1 co-localizes with p21 in nuclei and has similiar expression pattern to that of p21. TOK-1α, but not TOK-1β, directly binds to the C-terminal proximal region of p21 and both are expressed at the G_1/S boundary of cell-cycle. TOK-1α preferentially binds to an active form of Cdk2 via p21 to make a ternary complex in human cells. In addition, TOK-1α enhances the inhibitory activity of p21 to Histone H1 kinase activity of Cdk2, suggesting that TOK-1α may be a new type of Cdk2 modulator.

REFERENCES

1. Chen, J., et al. 1995. Separate domains of p21 involved in the inhibition of Cdk kinase and PCNA. Nature 374: 386-388.
2. Goubin F. and Ducommun B. 1995. Identification of binding domains on the $p21^{Cip1}$ cyclin-dependent kinase inhibitor. Oncogene 10: 2281-2287.
3. Harper, J.W., et al. 1995. Inhibition of cyclin-dependent kinases by p21 Mol. Biol. Cell 6: 387-400.
4. Luo, Y., et al. 1995. Cell-cycle inhibition by independent Cdk and PCNA binding domains in $p21^{Cip1}$. Nature 375: 159-161.
5. Connell-Crowley, L., et al. 1998. G_1 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 G_1-S transition of the mammalian cell cycle. Mutat. Res. 436: 1-9.

CHROMOSOMAL LOCATION

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

SOURCE

TOK-1 (13) is a mouse monoclonal antibody raised against amino acids 139-260 of TOK-1 of human origin.

PRODUCT

Each vial contains 50 µg IgG_1 kappa light chain in 0.5 ml of PBS with < 0.1% sodium azide, 0.1% gelatin, 20% glycerol and 0.04% stabilizer protein.

STORAGE

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

APPLICATIONS

TOK-1 (13) is recommended for detection of all isoforms of TOK-1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

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.

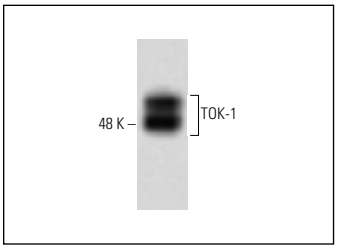
Molecular Weight of TOK-1: 45/50 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, SK-BR-3 cell lysate: sc-2218 or Caki-1 cell lysate: sc-2224.

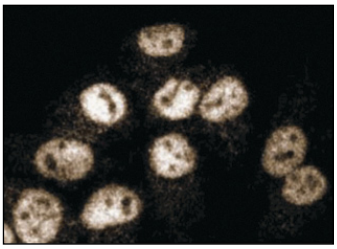
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



TOK-1 (13): sc-136104. Western blot analysis of TOK-1 expression in HeLa whole cell lysate.



TOK-1 (13): sc-136104. Immunofluorescence staining of HeLa cells showing nuclear staining.

RESEARCH USE

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

PROTOCOLS

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