SANTA CRUZ BIOTECHNOLOGY, INC.

BTG1 siRNA (m): sc-45961

BACKGROUND

B cell translocation gene proteins, also designated BTG1-4, are members of a novel antiproliferative gene family and play a role in transcription regulation. BTG genes are considered immediate early genes whose expression is induced in response to mitogenic as well as differentiative and antiproliferative factors. Expression of BTG1 is maximal in the G_0/G_1 phases of the cell cycle and is downregulated when cells progress through G_1. BTG2 is a p53 inducible, antiproliferative protein that regulates the G_1/S transition of the cell cycle. BTG2 expression increases in response to DNA damage, cell differentiation, cell quiescence, cell contact and as part of a positive feedback mechanism in response to growth stimulation. High levels of BTG2 are present in kidney proximal tubules, lung alveolar bronchial epithelium and the basal cell layer of prostate acini. BTG1 and BTG2 both contain LXXLL motifs, referred to as nuclear receptor boxes, which are involved in the regulation of ER-mediated activation. Human BTG3 protein is abundantly expressed in testis, prostate, ovary, thymus and lung.

REFERENCES

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2. Rouault, J.P., et al. 1996. Identification of BTG2, an antiproliferative p53-dependent component of the DNA damage cellular response pathway. Nat. Genet. 14: 482-486.
3. Prevot, D., et al. 2001. Relationships of the antiproliferative proteins BTG1 and BTG2 with CAF1, the human homolog of a component of the yeast CCR4 transcriptional complex: involvement in ERα signaling pathway. J. Biol. Chem. 276: 9640-9648.
4. Tirone, F. 2001. The gene $PC3^{TIS21/BTG2}$, prototype member of the PC3/BTG/TOB family: regulator in control of cell growth, differentiation, and DNA repair. J. Cell. Physiol. 2: 155-165.
5. Melamed, J., et al. 2002. Expression of B-cell translocation gene 2 protein in normal human tissues. Tissue Cell 1: 28-32.
6. Duriez, C., et al. 2002. The human BTG2/TIS21/PC3 gene: genomic structure, transcriptional regulation and evaluation as a candidate tumor suppressor gene. Gene 1-2: 207-214.
7. Morel, A.P., et al. 2003. BTG2 antiproliferative protein interacts with the human CCR4 complex existing *in vivo* in three cell-cycle-regulated forms. J. Cell Sci. 116: 2929-2936.
8. Kawakubo, H., et al. 2004. Expression of the NFκB-responsive gene BTG2 is aberrantly regulated in breast cancer. Oncogene 23: 8310-8319.
9. Ryu, M.S., et al. 2004. TIS21/BTG2/PC3 is expressed through PKC-δ pathway and inhibits binding of cyclin B1-Cdc2 and its activity, independent of p53 expression. Exp. Cell Res. 299: 159-170.

CHROMOSOMAL LOCATION

Genetic locus: Btg1 (mouse) mapping to 10 C3.

RESEARCH USE

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

RPRODUCT

BTG1 siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see BTG1 shRNA Plasmid (m): sc-45961-SH and BTG1 shRNA (m) Lentiviral Particles: sc-45961-V as alternate gene silencing products.

For independent verification of BTG1 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-45961A, sc-45961B and sc-45961C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

BTG1 siRNA (m) is recommended for the inhibition of BTG1 expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor BTG1 gene expression knockdown using RT-PCR Primer: BTG1 (m)-PR: sc-45961-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Kim, J.S., et al. 2019. Role of B-cell translocation gene 1 in the pathogenesis of endometriosis. Int. J. Mol. Sci. 20: 3372.

PROTOCOLS

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