

# BTF3a/b (H-9): sc-166094

## BACKGROUND

The initiation of gene transcription involves the ordered assembly of a multi-protein complex on proximal promoter elements such as the TATA box. In addition to RNA polymerase II, the transcription factors class II (TFII) family of proteins are required for initiation of transcription, as the first step in the formation of this initiation complex is the stable binding of TFIID to the TATA box. An additional TFII related protein, BTF3, does not directly associate with the proximal promoter, but rather forms a stable complex with RNA pol II and facilitates RNA pol II assembling into the complex. The BTF3 gene is ubiquitously expressed and encodes for two protein isoforms, BTF3a and BTF3b, which are produced from alternative splicing. The BTF3 proteins are identical except that BTF3b lacks the first 44 amino acids at the N-terminal of BTF3a. As a consequence of this deletion, BTF3b is unable to induce transcription, despite being able to bind RNA pol II. Additionally, BTF3a and BTF3b associate with the widely expressed protein kinase CK2. CK2 phosphorylates BTF3a, as well as TFIIB, and is required for the efficient transcription of the tRNA and 5S rRNA genes by RNA pol III.

## REFERENCES

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- Zheng, X.M., et al. 1990. Sequencing and expression of complementary DNA for the general transcription factor BTF3. *Nature* 344: 556-559.
- Kanno, M., et al. 1992. Genomic structure of the putative BTF3 transcription factor. *Gene* 117: 219-228.
- Moncollin, V., et al. 1992. Class II (B) general transcription factor (TFIIB) that binds to the template-committed preinitiation complex is different from general transcription factor BTF3. *Proc. Natl. Acad. Sci. USA* 89: 397-401.
- Parvin, J.D., et al. 1994. Multiple sets of basal factors initiate transcription by RNA polymerase II. *J. Biol. Chem.* 269: 18414-18421.
- George, C.P., et al. 1995. A spectrum of mechanisms for the assembly of the RNA polymerase II transcription preinitiation complex. *Mol. Cell. Biol.* 15: 1049-1059.
- Grein, S., et al. 1999. BTF3 is a potential new substrate of protein kinase CK2. *Mol. Cell. Biochem.* 191: 121-128.

## CHROMOSOMAL LOCATION

Genetic locus: BTF3 (human) mapping to 5q13.2; Btf3 (mouse) mapping to 13 D1.

## SOURCE

BTF3a/b (H-9) is a mouse monoclonal antibody raised against amino acids 1-206 representing full length BTF3a of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>2b</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

BTF3a/b (H-9) is recommended for detection of BTF3a and BTF3b of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg 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 BTF3a/b siRNA (h): sc-38513, BTF3a/b siRNA (m): sc-38514, BTF3a/b shRNA Plasmid (h): sc-38513-SH, BTF3a/b shRNA Plasmid (m): sc-38514-SH, BTF3a/b shRNA (h) Lentiviral Particles: sc-38513-V and BTF3a/b shRNA (m) Lentiviral Particles: sc-38514-V.

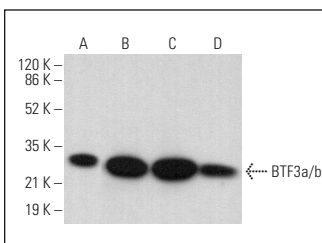
Molecular Weight of BTF3a: 27 kDa.

Positive Controls: Raji whole cell lysate: sc-364236, HL-60 nuclear extract: sc-2147 or NAMALWA cell lysate: sc-2234.

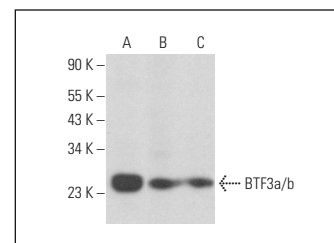
## RECOMMENDED SUPPORT REAGENTS

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



BTF3a/b (H-9): sc-166094. Western blot analysis of BTF3a/b expression in WEHI-231 (A), Raji (B), NAMALWA (C) and L6 (D) whole cell lysates.



BTF3a/b (H-9): sc-166094. Western blot analysis of BTF3a/b expression in HL-60 nuclear extract (A) and RAW 264.7 (B) and J774.A1 (C) whole cell lysates.

## STORAGE

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

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.