

# TFIIB90-1 (BRF1G2A8): sc-81405

## BACKGROUND

RNA polymerase (pol) III synthesizes tRNA, 5s rRNA, 7SL RNA and U6 snRNA and is overexpressed in many transformed cell lines and tumors *in vivo*, since cells must duplicate its protein components before division. Therefore, in order to maintain rapid growth, cells must produce a high level of Pol III transcribed RNA, which requires the presence of the TFIIB and TFIIC2 transcription factor complexes. The TFIIC2 complex is composed of five subunits, TFIIC220, TFIIC110, TFIIC102, TFIIC90 and TFIIC63, that are overexpressed in adenovirus transformed cells as well as in malignant cells *in vivo*, such as ovarian carcinomas. TFIIC2 recruits RNA pol III and TFIIB to promoter elements and may be a key component in the deregulation of malignant cells. The TFIIB complex includes the TATA-binding protein (TBP), TFIIB-related factor 1 (TFIIB90, BRF1) and TFIIB", the expression of which are also upregulated in transformed cells. In many carcinomas, the tumor suppressors retinoblastoma (RB) and p53 are inactivated, which affects their ability to bind and inactivate the function of TFIIB.

## REFERENCES

1. Scott, M.R., et al. 1983. Activation of mouse genes in transformed cells. *Cell* 34: 557-567.
2. Chen, W., et al. 1997. Expression of neural BC1 RNA: induction in murine tumours. *Eur. J. Cancer* 33: 288-292.
3. Hsieh, Y.J., et al. 1999. The TFIIC90 subunit of TFIIC interacts with multiple components of the RNA polymerase III machinery and contains a histone-specific acetyltransferase activity. *Mol. Cell. Biol.* 19: 7697-7704.

## CHROMOSOMAL LOCATION

Genetic locus: BRF1 (human) mapping to 14q32.33.

## SOURCE

TFIIB90-1 (BRF1G2A8) is a mouse monoclonal antibody raised against a recombinant protein corresponding to a region near the C-terminus of TFIIB90-1 of human origin.

## PRODUCT

Each vial contains 100 µg IgG<sub>1</sub> in 1.0 ml of PBS with < 0.1% sodium azide and 1.0% stabilizer protein.

## APPLICATIONS

TFIIB90-1 (BRF1G2A8) is recommended for detection of TFIIB90-1 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

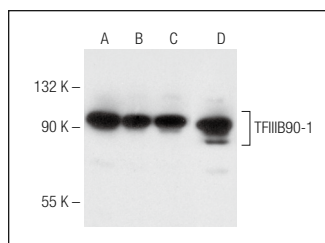
Suitable for use as control antibody for TFIIB90 siRNA (h): sc-38535, TFIIB90 shRNA Plasmid (h): sc-38535-SH and TFIIB90 shRNA (h) Lentiviral Particles: sc-38535-V.

Positive Controls: CCRF-CEM cell lysate: sc-2225, HeLa whole cell lysate: sc-2200 or TFIIB90-1 (h): 293T Lysate: sc-111635.

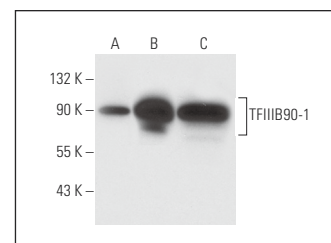
## STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

## DATA



TFIIB90-1 (BRF1G2A8): sc-81405. Western blot analysis of TFIIB90-1 expression in HeLa (A), CCRF-CEM (B), MOLT-4 (C) and SW480 (D) whole cell lysates.



TFIIB90-1 (BRF1G2A8): sc-81405. Western blot analysis of TFIIB90-1 expression in non-transfected 293T: sc-117752 (A), human TFIIB90-1 transfected 293T: sc-111635 (B) and HeLa (C) whole cell lysates.

## SELECT PRODUCT CITATIONS

1. Wang, J., et al. 2016. Cytoskeletal filamin A differentially modulates RNA polymerase III gene transcription in transformed cell lines. *J. Biol. Chem.* 291: 25239-25246.
2. Bellido, F., et al. 2018. Association between germline mutations in BRF1, a subunit of the RNA polymerase III transcription complex, and hereditary colorectal cancer. *Gastroenterology* 154: 181-194.
3. Peng, F., et al. 2020. The transcription factor Sp1 modulates RNA polymerase III gene transcription by controlling BRF1 and GTF3C2 expression in human cells. *J. Biol. Chem.* 295: 4617-4630.
4. Hou, Y., et al. 2021. YTHDC1-mediated augmentation of miR-30d in repressing pancreatic tumorigenesis via attenuation of RUNX1-induced transcriptional activation of Warburg effect. *Cell Death Differ.* 28: 3105-3124.
5. Zhang, C., et al. 2022. Transcription factor GATA4 drives RNA polymerase III-directed transcription and transformed cell proliferation through a filamin A/GATA4/SP1 pathway. *J. Biol. Chem.* 298: 101581.
6. Wang, J., et al. 2023. TFIIB-related factor 1 is a nucleolar protein that promotes RNA polymerase I-directed transcription and tumour cell growth. *Hum. Mol. Genet.* 32: 104-121.
7. Wang, J., et al. 2023. Transcription factor AP-2α activates RNA polymerase III-directed transcription and tumour cell proliferation by controlling expression of c-MYC and p53. *J. Biol. Chem.* 299: 102945.
8. Zhang, C., et al. 2023. STAT3 promotes RNA polymerase III-directed transcription by controlling the miR-106a-5p/TP73 axis. *Elife* 12: e82826.

## RESEARCH USE

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