

# TFIIIB90-1 (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 TFIIIB and TFIIIC2 transcription factor complexes. The TFIIIC2 complex is composed of five subunits, TFIIIC220, TFIIIC110, TFIIIC102, TFIIIC90 and TFIIIC63, that are overexpressed in adenovirus transformed cells as well as in malignant cells *in vivo*, such as ovarian carcinomas. TFIIIC2 recruits RNA pol III and TFIIIB to promoter elements and may be a key component in the deregulation of malignant cells. The TFIIIB complex includes the TATA-binding protein (TBP), TFIIIB-related factor 1 (TFIIIB90, BRF1) and TFIIIB, 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 TFIIIB.

## 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 TFIIIC90 subunit of TFIIIC interacts with multiple components of the RNA polymerase III machinery and contains a histone-specific acetyltransferase activity. *Mol. Cell. Biol.* 19: 7697-7704.
4. Winter, A.G., et al. 2000. RNA polymerase III transcription factor TFIIIC2 is overexpressed in ovarian tumors. *Proc. Natl. Acad. Sci. USA* 97: 12619-12624.
5. Moir, R.D., et al. 2000. Interactions between the tetratricopeptide repeat-containing transcription factor TFIIIC131 and its ligand, TFIIIB70. Evidence for a conformational change in the complex. *J. Biol. Chem.* 275: 26591-26598.

## CHROMOSOMAL LOCATION

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

## SOURCE

TFIIIB90-1 (BRF1G2A8) is a mouse monoclonal antibody raised against a recombinant protein corresponding to a region near the C-terminus of TFIIIB90-1 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.

## 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.

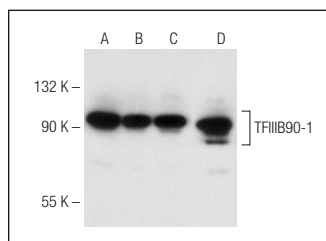
## APPLICATIONS

TFIIIB90-1 (BRF1G2A8) is recommended for detection of TFIIIB90-1 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)].

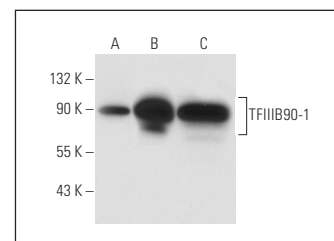
Suitable for use as control antibody for TFIIIB90 siRNA (h): sc-38535, TFIIIB90 shRNA Plasmid (h): sc-38535-SH and TFIIIB90 shRNA (h) Lentiviral Particles: sc-38535-V.

Positive Controls: CCRF-CEM cell lysate: sc-2225, HeLa whole cell lysate: sc-2200 or TFIIIB90-1 (h): 293T Lysate: sc-111635.

## DATA



TFIIIB90-1 (BRF1G2A8): sc-81405. Western blot analysis of TFIIIB90-1 expression in HeLa (A), CCRF-CEM (B), MOLT-4 (C) and SW480 (D) whole cell lysates.



TFIIIB90-1 (BRF1G2A8): sc-81405. Western blot analysis of TFIIIB90-1 expression in non-transfected 293T: sc-117752 (A), human TFIIIB90-1 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. 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.