



## TFIID (TBP): sc-4000

### BACKGROUND

In eukaryotic systems, initiation of transcription from protein-coding genes is a complex process requiring RNA polymerase II and broad families of auxiliary transcription factors. Such factors can be divided into two major functional classes: the basal factors that are required for transcription of all Pol II genes, including TFIIA, TFIIB, TFIID, TFIIE, TFIIIF and TFIIH; and sequence-specific factors that regulate gene expression. The basal transcription factors and Pol II form a specific multiprotein complex near the transcription start site by interacting with core promoter elements such as the TATA box generally located 25-30 base pairs upstream of the transcription start site. Binding of TFIID to the TATA element initiates assembly of the other factors into a preinitiation complex. The TATA-binding subunit of TFIID (designated TFIIDt or TBP) from higher eukaryotes contains a highly conserved 180 amino acid C-terminal domain with all of the essential regions for DNA binding, transcription initiation and species specificity, and divergent N-terminal regions. The binding of TFIID to DNA is stimulated by direct interaction with TFIIA.

### REFERENCES

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3. Lee, D.K., et al. 1992. TFIIA induces conformational changes in TFIID via interactions with the basic repeat. *Mol. Cell. Biol.* 12: 5189-5196.
4. Takada, R., et al. 1992. Identification of human TFIID components and direct interaction between a 250 kDa polypeptide and the TATA box-binding protein (TFIIDt). *Proc. Natl. Acad. Sci. USA* 89: 11809-11813.
5. Huisinga, K.L. and Pugh, B.F. 2007. A TATA binding protein regulatory network that governs transcription complex assembly. *Genome Biol.* 8: R46.
6. Romier, C., et al. 2007. Crystal structure, biochemical and genetic characterization of yeast and *E. coli* TAF(II)5 N-terminal domain: implications for TFIID assembly. *J. Mol. Biol.* 368: 1292-1306.
7. Demény, M.A., et al. 2007. Identification of a small TAF complex and its role in the assembly of TAF-containing complexes. *PLoS ONE* 2: e316.
8. Bhattacharya, S., et al. 2007. Structural analysis and dimerization potential of the human TAF5 subunit of TFIID. *Proc. Natl. Acad. Sci. USA* 104: 1189-1194.

### CHROMOSOMAL LOCATION

Genetic locus: TBP (human) mapping to 6q27; Tbp (mouse) mapping to 17 A2.

### SOURCE

TFIID (TBP) is produced in *E. coli* as a 65 kDa tagged fusion protein representing full length TFIID (TBP) protein of human origin.

### RESEARCH USE

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

### PRODUCT

TFIID (TBP) is purified from bacterial lysates (98%) by glutathione affinity chromatography and supplied as 50 µg purified protein in PBS containing 5 mM DTT and 50% glycerol.

Also available in agarose conjugate form: 100 µg purified TFIID protein conjugated to 0.1 ml agarose in PBS containing 0.1% azide, 0.1% BSA and 10% glycerol: TFIID (TBP) AC: sc-4000 AC.

Available as a Western blotting control; 10 µg in 0.1 ml SDS-PAGE loading buffer, TFIID (TBP): sc-4000 WB.

### APPLICATIONS

TFIID (TBP): sc-4000 is suitable for *in vitro* transcription studies, DNA footprinting and as a gel shift control for TransCruz gel supershift antibodies sc-204 X, sc-273 X and sc-421 X.

TFIID (TBP) AC: sc-4000 AC is recommended for co-immunoprecipitation of TFIID binding proteins.

TFIID (TBP): sc-4000 WB is suitable as a Western blotting control for sc-204, sc-273 and sc-421.

### SELECT PRODUCT CITATIONS

1. Yotov, W., et al. 1998. The  $\alpha$  chain of the nascent polypeptide-associated complex functions as a transcriptional activator. *Mol. Cell. Biol.* 18: 1303-1311.
2. Riquet, F.B., et al. 2001. YY1 is a positive regulator of transcription of the Col1a1 gene. *J. Biol. Chem.* 276: 38665-38672.
3. Kaneoka, H., et al. 2008. GATA4 inhibits expression of the tryptophan oxygenase gene by binding to the TATA box in fetal hepatocytes. *Cytotechnology* 57: 123-128.
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### STORAGE

Store TFIID (TBP): sc-4000 and sc-4000 WB at -20° C; store TFIID (TBP) AC: sc-4000 AC at 4° C. Stable for one year from the date of shipment.

### PROTOCOLS

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