



Pit-1 (FL): sc-4014

BACKGROUND

Transcriptional regulators play a critical role in development by mediating tissue- and cell-specific transcription. POU domain factors are transcriptional regulators characterized by a bipartite DNA binding domain, which consists of two highly conserved regions, tethered by a variable linker of 14-26 amino acids. Pit-1, also known as growth hormone factor-1 (GHF-1), a member of the POU homeodomain family, is essential for the normal development of the anterior pituitary gland, where it is required for the formation of somatotropes, lactotropes and thyrotropes. In somatotropes and lactotropes, Pit-1 activates the production of growth hormone and Prolactin, respectively. In addition, Pit-1 acts as a repressor of gene expression, which allows for the differentiation of specific cell types. Pit-1 is expressed as two alternatively spliced products, designated Pit-1a and Pit-1b, that have molecular masses of 33 and 31 kDa, respectively, and differ in their *trans*-activation ability. Mutations in the Pit-1 gene is believed to result in combined pituitary hormone deficiency (CPHD) for growth hormone, Prolactin and thyroid stimulating hormone. The gene which encodes Pit-1 maps to human chromosome 3p11.

REFERENCES

1. Voss, J.W., et al. 1991. Alternative translation initiation site usage results in two structurally distinct forms of Pit-1. *J. Biol. Chem.* 266: 12832-12835.
2. Morris, A.E., et al. 1992. An alternatively spliced Pit-1 isoform altered in its ability to *trans*-activate. *Nucleic Acids Res.* 20: 1355-1361.
3. Ohta, K., et al. 1992. Characterization of the gene encoding human pituitary-specific transcription factor, Pit-1. *Gene* 122: 387-388.
4. Brown, M.R., et al. 1998. Central hypothyroidism reveals compound heterozygous mutations in the Pit-1 gene. *Horm. Res.* 49: 98-102.
5. Schonemann, M.D., et al. 1998. POU domain factors in neural development. *Adv. Exp. Med. Biol.* 449: 39-53.
6. Scully, K.M., et al. 2000. Allosteric effects of Pit-1 DNA sites on long-term repression in cell type specification. *Science* 290: 1127-1131.

CHROMOSOMAL LOCATION

Genetic locus: POU1F1 (human) mapping to 3p11; Pit1 (mouse) mapping to 16 C1.3.

SOURCE

Pit-1 (FL) is produced in *E. coli* as a 40 kDa polyhistidine tagged fusion protein corresponding to the full length Pit-1 protein of rat origin.

PRODUCT

Pit-1 (FL) is purified from bacterial lysates (> 98%) by Ni²⁺ affinity column chromatography; supplied as 50 µg protein in PBS containing 5 mM DTT and 50% glycerol.

RESEARCH USE

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

APPLICATIONS

Pit-1 (FL) is recommended as a control for gel shift studies with Pit-1 consensus sequence oligonucleotide probes and for use with TransCruz gel supershift sc-442 X antibody. Pit-1 (FL) is suitable as a Western blotting control for sc-25258, sc-47761, sc-47762, sc-55480, sc-393943 and sc-517531.

SELECT PRODUCT CITATIONS

1. Yang, X., et al. 2010. Appearance of the pituitary factor Pit-1 increases chromatin remodeling at hypersensitive site III in the human GH locus. *J. Mol. Endocrinol.* 45: 19-32.

STORAGE

Store at -20° C; stable for one year from the date of shipment.

PROTOCOLS

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