

DIO2 (H-165): sc-98716

BACKGROUND

DIO2 (deiodinase, iodothyronine, type II), also known as D2, 5DII, SeIY, TXDI2 or ITDI2, is a 273 amino acid single-pass selenoprotein that belongs to the iodothyronine deiodinase family and localizes to the membrane. Expressed in muscle, heart, brain, thyroid, placenta and skeletal muscle, DIO2 functions to activate thyroid hormone (TH) by catalyzing the outer ring deiodination of the prohormone thyroxine (T4) to bioactive 3,3',5-triiodothyronine (T3), a reaction that is essential for providing the appropriate levels of T3 during brain development. Overexpression of DIO2 is associated with an increase in thyroidal T3 production in patients with Graves disease and thyroid adenomas, both of which are thyroid disorders. Defects in the gene encoding DIO2 may be associated with osteoarthritis, McCune-Albright syndrome and hypertension. DIO2 is expressed as two alternatively spliced isoforms, designated hDII- α and hDII- β .

REFERENCES

1. Croteau, W., et al. 1996. Cloning of the mammalian type II iodothyronine deiodinase. A selenoprotein differentially expressed and regulated in human and rat brain and other tissues. *J. Clin. Invest.* 98: 405-417.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 601413. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
3. Maia, A.L., et al. 2005. Type 2 iodothyronine deiodinase is the major source of plasma T3 in euthyroid humans. *J. Clin. Invest.* 115: 2524-2533.
4. Gereben, B., et al. 2005. Pretranslational regulation of type 2 deiodinase. *Thyroid* 15: 855-864.
5. de Jong, F.J., et al. 2007. The association of polymorphisms in the type 1 and 2 deiodinase genes with circulating thyroid hormone parameters and atrophy of the medial temporal lobe. *J. Clin. Endocrinol. Metab.* 92: 636-640.
6. Kanou, Y., et al. 2007. Thyroglobulin gene mutations producing defective intracellular transport of thyroglobulin are associated with increased thyroidal type 2 iodothyronine deiodinase activity. *J. Clin. Endocrinol. Metab.* 92: 1451-1457.

CHROMOSOMAL LOCATION

Genetic locus: DIO2 (human) mapping to 14q31.1; Dio2 (mouse) mapping to 12 D3.

SOURCE

DIO2 (H-165) is a rabbit polyclonal antibody raised against amino acids 1-132 mapping at the N-terminus of DIO2 of human origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

DIO2 (H-165) is recommended for detection of DIO2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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).

DIO2 (H-165) is also recommended for detection of DIO2 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for DIO2 siRNA (h): sc-77148, DIO2 siRNA (m): sc-77149, DIO2 shRNA Plasmid (h): sc-77148-SH, DIO2 shRNA Plasmid (m): sc-77149-SH, DIO2 shRNA (h) Lentiviral Particles: sc-77148-V and DIO2 shRNA (m) Lentiviral Particles: sc-77149-V.

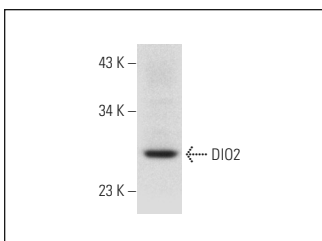
Molecular Weight of DIO2: 31 kDa.

Positive Controls: human skeletal muscle extract: sc-363776.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



DIO2 (H-165): sc-98716. Western blot analysis of DIO2 expression in human skeletal muscle tissue extract.

SELECT PRODUCT CITATIONS

1. Li, N., et al. 2012. Prolonged high iodine intake is associated with inhibition of type 2 deiodinase activity in pituitary and elevation of serum thyrotropin levels. *Br. J. Nutr.* 107: 674-682.

RESEARCH USE

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