SANTA CRUZ BIOTECHNOLOGY, INC.

p-FKHR (Thr 24): sc-22161

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The transcription factor forkhead in rhabdomyosarcoma (FKHR), which is inhibited by insulin and IGF-1, enhances transcription. FKHR has been implicated in alveolar rhabdomyosarcoma, a soft tissue tumor wherein a chromosomal translocation [t(2;12)(q35;q14)] occurs between the FKHR and PAX3 genes, resulting in a novel chimeric protein with abnormal levels of expression. FKHR becomes phosphorylated at Ser 319, Ser 256 and Thr 24 by protein kinase B (PKB) in a phosphoinsoditide 3-(PI3) kinase/Akt dependent pathway, resulting in the inactivation and subsequent nuclear exit of FKHR. In addition, FKHR becomes phosphorylated at Ser 329, also resulting in decreased FKHR activity and diminished nuclear FKHR concentration. However, phosphorylation of FKHR at Ser 329 is not mediated by a PI3-kinase-dependent pathway, but by an alternate mechanism. Dual-specificity tyrosine-phosphorylated and regulated kinase 1A (DYRK1A), which co-localizes to the same region of the nucleus as FKHR, specifically phosphorylates FKHR at Ser 329 in rabbit skeletal muscle.

REFERENCES

1. Pappo, A.S., et al. 1995. Biology and therapy of pediatric rhabdomyosarcoma. J. Clin. Oncol. 13: 2123-2139.
2. Rena, G., et al. 1999. Phosphorylation of the transcription factor forkhead family member FKHR by protein kinase B. J. Biol. Chem. 274: 17179-17183.
3. Nakae, J., et al. 2000. Differential regulation of gene expression by Insulin and IGF-1 receptors correlates with phosphorylation of a single amino acid residue in the forkhead transcription factor FKHR. EMBO J. 19: 989-996.
4. Nakae, J., et al. 2001. Insulin regulation of gene expression through the forkhead transcription factor Foxo1 (FKHR) requires kinases distinct from Akt. Biochemistry 40: 11768-11776.
5. Rena, G., et al. 2001. Roles of the forkhead in rhabdomyosarcoma (FKHR) phosphorylation sites in regulating 14-3-3 binding, transactivation and nuclear targetting. Biochem. J. 354: 605-612.
6. Woods, Y.L., et al. 2001. The kinase Dyrk1A phosphorylates the transcription factor FKHR at Ser 329 *in vitro,* a novel *in vivo* phosphorylation site. Biochem. J. 355: 597-607.

CHROMOSOMAL LOCATION

Genetic locus: FOXO1A (human) mapping to 13q14.11; Foxo1a (mouse) mapping to 3 C.

SOURCE

p-FKHR (Thr 24) is available as either goat (sc-22161) or rabbit (sc-22161-R) polyclonal affinity purified antibody raised against a short amino acid sequence containing Thr 24 phosphorylated FKHR of human origin.

STORAGE

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

PRODUCT

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

Blocking peptide available for competition studies, sc-22161 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-FKHR (Thr 24) is recommended for detection of Thr 24 phosphorylated FKHR of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

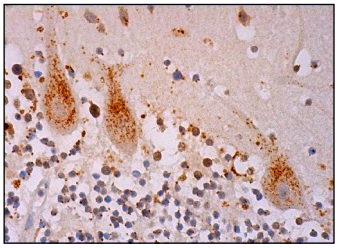
p-FKHR (Thr 24) is also recommended for detection of correspondingly phosphorylated FKHR in additional species, including canine, bovine, porcine and avian.

Suitable for use as control antibody for FKHR siRNA (h): sc-35382, FKHR siRNA (m): sc-35383, FKHR shRNA Plasmid (h): sc-35382-SH, FKHR shRNA Plasmid (m): sc-35383-SH, FKHR shRNA (h) Lentiviral Particles: sc-35382-V and FKHR shRNA (m) Lentiviral Particles: sc-35383-V.

Molecular Weight of p-FKHR: 80 kDa.

Positive Controls: NIH/3T3 + serum cell lysate: sc-2248.

DATA



p-FKHR (Thr 24): sc-22161. Immunoperoxidase staining of formalin fixed, paraffin-embedded human cerebellum tissue showing cytoplasmic staining of Purkinje cells.

SELECT PRODUCT CITATIONS

1. Blaise, S., et al. 2013. Elastin-derived peptides are new regulators of insulin resistance development in mice. Diabetes 62: 3807-3816.

RESEARCH USE

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

PROTOCOLS

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