

# p-FKHR (Ser 319): sc-101682

## 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 phosphoinositide 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.

## CHROMOSOMAL LOCATION

Genetic locus: FOXO1 (human) mapping to 13q14.11; Foxo1 (mouse) mapping to 3 C.

## SOURCE

p-FKHR (Ser 319) is a rabbit polyclonal antibody raised against a short amino acid sequence containing Ser 319 phosphorylated FKHR of human origin.

## PRODUCT

Each vial contains 100 µg 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.

## RESEARCH USE

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

## PROTOCOLS

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

## APPLICATIONS

p-FKHR (Ser 319) is recommended for detection of Ser 319 phosphorylated FKHR of human origin, correspondingly phosphorylated Ser 316 of mouse origin and correspondingly phosphorylated Ser 313 of rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

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.

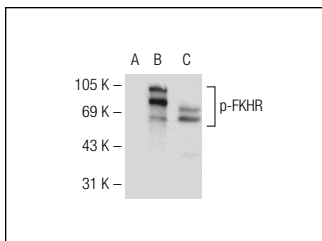
Molecular Weight of p-FKHR: 80 kDa.

Positive Controls: NIH/3T3 + serum cell lysate: sc-2248 or FKHR (m): 293 Lysate: sc-178616.

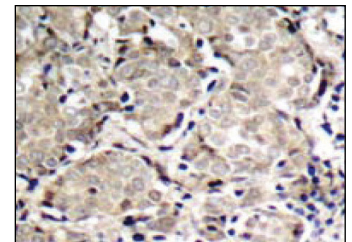
## RECOMMENDED SECONDARY REAGENTS

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 B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Western Blotting Luminol Reagent: sc-2048 and Lambda Phosphatase: sc-200312A. 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. 4) Immunohistochemistry: use ImmunoCruz™: sc-2051 or ABC: sc-2018 rabbit IgG Staining Systems.

## DATA



p-FKHR (Ser 319): sc-101682. Western blot analysis of FKHR phosphorylation in non-transfected 293: sc-110760 (A), mouse FKHR transfected 293: sc-178616 (B) and TE671 (C) whole cell lysates.



p-FKHR (Ser 319): sc-101682. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human breast carcinoma tissue showing nuclear staining.

## SELECT PRODUCT CITATIONS

1. Kaiser, G., et al. 2013. Regulation of forkhead box O1 (FOXO1) by protein kinase B and glucocorticoids: different mechanisms of induction of  $\beta$  cell death *in vitro*. *Diabetologia* 56: 1587-1595.