Revision 1

TORC1/CRTC1 Antibody

#2501 Store at -20C

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W	M	Endogenous	78	Rabbit	#Q6UUV9	23373

Product Usage Information

Application	Dilution
Western Blotting	1:1000

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at –20°C. Do not aliquot the antibody.

Specificity/Sensitivity

TORC1/CRTC1 Antibody recognizes endogenous levels of total TORC1 (CRTC1) protein. This antibody does not cross-react with TORC2 and TORC3 proteins.

Species predicted to react based on 100% sequence homology

Human

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Gly296 of human TORC1 (CRTC1) protein. Antibodies are purified by protein A and peptide affinity chromatography.

Background

Glucose homeostasis is regulated by hormones and cellular energy status. Elevations of blood glucose during feeding stimulate insulin release from pancreatic β-cells through a glucose sensing pathway. Feeding also stimulates release of gut hormones such as glucagon-like peptide-1 (GLP-1), which further induces insulin release, inhibits glucagon release and promotes β-cell viability. CREB-dependent transcription likely plays a role in both glucose sensing and GLP-1 signaling (1). The protein CRTC2 (CREB-regulated transcription coactivator 2)/TORC2 (transducer of regulated CREB activity 2) functions as a CREB co-activator (2,3) and is implicated in mediating the effects of these two pathways (4). In quiescent cells, CRTC2/TORC2 is phosphorylated at Ser171 and becomes sequestered in the cytoplasm via an interaction with 14-3-3 proteins. Glucose and gut hormones lead to the dephosphorylation of CRTC2/TORC2 and its dissociation from 14-3-3 proteins. Dephosphorylated CRTC2/TORC2 enters the nucleus to promote CREB-dependent transcription. CRTC2/TORC2 plays a key role in the regulation of hepatic gluconeogenic gene transcription in response to hormonal and energy signals during fasting (5).

CRTC2/TORC2-related proteins CRTC1/TORC1 and CRTC3/TORC3 also act as CREB co-activators (2,3). CRTC1/TORC1, CRTC2/TORC2 and CRTC3/TORC3 associate with the HTLV Tax protein to promote Tax-dependent transcription of HTLV-1 long terminal repeats (6,7). CRTC1/TORC1 is highly phosphorylated at Ser151 in mouse hypothalamic cells under basal conditions (8). When these cells are exposed to cAMP or a calcium activator, CRTC1/TORC1 is dephosphorylated and translocates into the nucleus (8). CRTC1/TORC1 is essential for energy balance and fertility (8).

Background References

1. Hinke, S.A. et al. (2004) *J Physiol* 558, 369-80.
2. Conkright, M.D. et al. (2003) *Mol Cell* 12, 413-23.
3. Iourgenko, V. et al. (2003) *Proc Natl Acad Sci U S A* 100, 12147-52.
4. Screaton, R.A. et al. (2004) *Cell* 119, 61-74.
5. Koo, S.H. et al. (2005) *Nature* 437, 1109-11.
6. Koga, H. et al. (2004) *J Biol Chem* 279, 52978-83.
7. Siu, Y.T. et al. (2006) *J Virol* 80, 7052-9.
8. Altarejos, J.Y. et al. (2008) *Nat Med* 14, 1112-7.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting

Cross-Reactivity Key

M: Mouse

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