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Product Information

SREBP-2 Blocking Peptide

Item No. 10009266

SREBPs, including SREBP-1a, SREBP-1c, and SREBP-2, constitute a family of basic helix-loop-helix (bHLH) transcription factors that play a critical role in lipid homeostasis by regulating genes involved in cholesterol and fatty acid metabolism.[1] Each SREBP consists of three domains, including an amino-terminal transcription factor domain of ~480 amino acids, a middle hydrophobic region of ~80 amino acids containing two hydrophobic transmembrane segments, and a carboxy-terminal regulatory domain of ~590 amino acids.[1] SREBP-2 regulates cholesterol synthesis by activating the transcription of genes for HMG-CoA reductase and other enzymes of the cholesterol synthetic pathway.[2] SREBP-2 is ubiquitously detected in various tissues.[3] Under basal conditions SREBP is bound to ER membranes as a glycosylated precursor protein. Upon cholesterol depletion, the protein is cleaved to its active forms (about 50-68 kDa) and translocated into the nucleus to stimulate transcription of genes involved in the uptake and synthesis of cholesterol.[4] Cayman's SREBP-2 polyclonal antibody detects both precursor and active forms of the protein in tissues and cells such as liver, brown fat, testis, HepG2 cells, and human fibroblast. The apparent molecular weight of SREBP-2 on SDS-PAGE may be higher than the calculated molecular weight (about 126 kDa) due to glycosylation of the protein.[5]

Laboratory Procedures

This vial contains 200 µg peptide in 200 µl TBS, pH 7.4, containing 0.1% BSA and 0.02% sodium azide. The SREBP-2 blocking peptide (human SREBP-2 amino acids 455-469) can be used in conjunction with Cayman's SREBP-2 Polyclonal Antibody (Item No. 10007663) to block protein-antibody complex formation during immunochemical analysis of SREBP-2.

Store this peptide solution at -20°C. It will be stable for at least two years. To block antibody/protein complex formation, the following procedure is recommended:

1. Mix the SREBP-2 Polyclonal Antibody (Item No. 10007663) and blocking peptide together in a 1:1 (v/v) ratio in a microfuge tube. For example, mix 20 µl of antibody and 20 µl of peptide.*
2. Incubate for one hour at room temperature with occasional mixing prior to further dilution and application of the mixture to the immunoblot or slide.
3. Dilute the mixture to the final working antibody concentration and apply to the slide or membrane as usual.

*This is a recommended mixture. The minimum amount of peptide needed for complete blocking has not been precisely determined and may vary depending on the sample being analyzed. The amount of peptide required may need to be increased if sufficient blocking does not occur.

References

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3. Iizuka, K., Bruick, R.K., Liang, G., *et al.* Deficiency of carbohydrate response element-binding protein (ChREBP) reduces lipogenesis as well as glycolysis. *Proc. Natl. Acad. Sci. USA* **101(19)**, 7281-7286 (2004).
4. Smith, L.H., Petrie, M.S., Morrow, J.D., *et al.* The sterol response element binding protein regulates cyclooxygenase-2 gene expression in endothelial cells. *J. Lipid Res.* **46**, 862-871 (2005).
5. Hua, X., Sakai, J., Ho, Y.K., *et al.* Hairpin orientation of sterol regulatory element-binding protein-2 in cell membranes as determined by protease protection. *J. Biol. Chem.* **270(49)**, 29422-29427 (1995).

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