

CES1 (B-4): sc-398236

BACKGROUND

CES1 and CES2 are the two major liver carboxylesterases which belong to the type-B carboxylesterase/lipase family. Helping the body in the detoxification of a wide range of xenobiotics, CES1 and CES2 are involved in the hydrolyzing activation of therapeutic ester and amide pro-drugs, as well as in the detoxification of several narcotic compounds. The catalytic activity of CES1 and CES2 is influenced by both the esterification site and the structure/moiety of the amino acid. While CES1 shows high affinity for aromatic and aliphatic esters, CES2 shows high affinity for 3,6-diacetyl and 6-monoacetyl esters, such as those found in morphine and morphine derivatives. Since CES1 and CES2 are crucial in the breakdown of various foreign molecules, several therapeutic compounds, such as anti-tumor agents, are structurally designed to target the catalytic sites of one or both of these key carboxylesterase proteins.

REFERENCES

- Kim, S.R., et al. 2004. Twelve novel single nucleotide polymorphisms in the CES2 gene encoding human carboxylesterase 2 (hCE-2). *Drug Metab. Pharmacokinet.* 18: 327-332.
- Furihata, T., et al. 2005. Dexamethasone-induced methylprednisolone hemisuccinate hydrolase: its identification as a member of the rat carboxylesterase 2 family and its unique existence in plasma. *Biochem. Pharmacol.* 69: 1287-1297.
- Kubo, T., et al. 2005. Functional characterization of three naturally occurring single nucleotide polymorphisms in the CES2 gene encoding carboxylesterase 2 (HCE-2). *Drug Metab. Dispos.* 33: 1482-1487.
- Geshi, E., et al. 2005. A single nucleotide polymorphism in the carboxylesterase gene is associated with the responsiveness to imidapril medication and the promoter activity. *Hypertens. Res.* 28: 719-725.
- Landowski, C.P., et al. 2006. Nucleoside ester prodrug substrate specificity of liver carboxylesterase. *J. Pharmacol. Exp. Ther.* 316: 572-580.
- Furihata, T., et al. 2006. Hepatocyte nuclear factor-4 α plays pivotal roles in the regulation of mouse carboxylesterase 2 gene transcription in mouse liver. *Arch. Biochem. Biophys.* 447: 107-117.

CHROMOSOMAL LOCATION

Genetic locus: CES1 (human) mapping to 16q12.2.

SOURCE

CES1 (B-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 544-567 at the C-terminus of CES1 of human origin.

PRODUCT

Each vial contains 200 μ g IgG $_1$ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-398236 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

CES1 (B-4) is recommended for detection of CES1 of human origin by Western Blotting (starting dilution 1:100, 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).

Suitable for use as control antibody for CES1 siRNA (h): sc-62096, CES1 shRNA Plasmid (h): sc-62096-SH and CES1 shRNA (h) Lentiviral Particles: sc-62096-V.

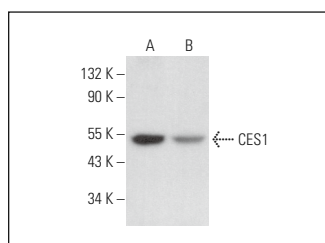
Molecular Weight of CES1: 62 kDa.

Positive Controls: THP-1 cell lysate: sc-2238, human liver extract: sc-363766 or Hep G2 cell lysate: sc-2227.

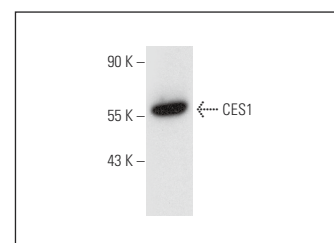
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 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 m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



CES1 (B-4): sc-398236. Western blot analysis of CES1 expression in Hep G2 (A) and THP-1 (B) whole cell lysates.



CES1 (B-4): sc-398236. Western blot analysis of CES1 expression in human liver tissue extract.

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 for detailed protocols and support products.