SANTA CRUZ BIOTECHNOLOGY, INC.

CES1 (E-1): sc-365248

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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-monoacetly 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

1. 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.
2. 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.
3. 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.
4. Landowski, C.P., et al. 2006. Nucleoside ester prodrug substrate specificity of liver carboxylesterase. J. Pharmacol. Exp. Ther. 316: 572-580.
5. Geshi, E., et al. 2006. 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.

CHROMOSOMAL LOCATION

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

SOURCE

CES1 (E-1) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 323-347 within an internal region of CES1 of human origin.

PRODUCT

Each vial contains 200 µg 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-365248 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

RESEARCH USE

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

APPLICATIONS

CES1 (E-1) 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 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 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.

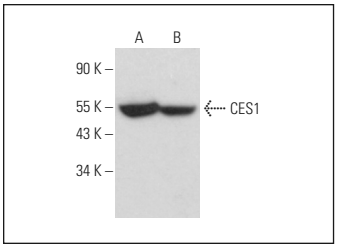
Molecular Weight of CES1: 62 kDa.

Positive Controls: CES1 (h): 293T Lysate: sc-111916, THP-1 cell lysate: sc-2238 or Hep G2 cell lysate: sc-2227.

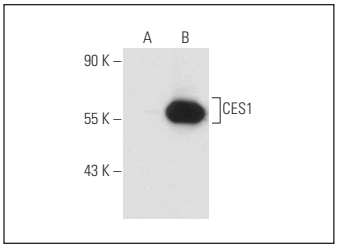
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 (E-1): sc-365248. Western blot analysis of CES1 expression in Hep G2 (**A**) and THP-1 (**B**) whole cell lysates.



CES1 (E-1): sc-365248. Western blot analysis of CES1 expression in non-transfected: sc-117752 (**A**) and human CES1 transfected: sc-111916 (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Benabdelkamel, H., et al. 2015. Mature adipocyte proteome reveals differentially altered protein abundances between lean, overweight and morbidly obese human subjects. Mol. Cell. Endocrinol. 401: 142-154.
2. Park, S.J., et al. 2016. A carboxylesterase-selective ratiometric fluorescent two-photon probe and its application to hepatocytes and liver tissues. Chem. Sci. 7: 3703-3709.

STORAGE

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