

CES2 (G5): sc-100685

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.

CHROMOSOMAL LOCATION

Genetic locus: CES2 (human) mapping to 16q22.1.

SOURCE

CES2 (G5) is a mouse monoclonal antibody raised against recombinant CES2 of human origin.

PRODUCT

Each vial contains 50 µg IgG_{2b} kappa light chain in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

CES2 (G5) is recommended for detection of CES2 of human 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), immunohistochemistry (including paraffin-embedded sections) (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 CES2 siRNA (h): sc-62098, CES2 shRNA Plasmid (h): sc-62098-SH and CES2 shRNA (h) Lentiviral Particles: sc-62098-V.

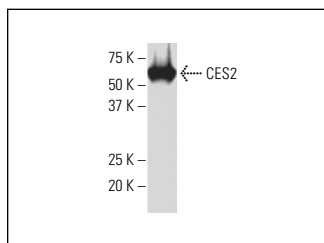
Molecular Weight of CES2: 60 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227.

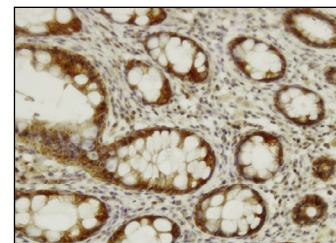
RECOMMENDED SUPPORT REAGENTS

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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



CES2 (G5): sc-100685. Western blot analysis of CES2 expression in Hep G2 whole cell lysate.



CES2 (G5): sc-100685. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human colon tissue showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

- Pratt, S.E., et al. 2013. Human carboxylesterase-2 hydrolyzes the prodrug of gemcitabine (LY2334737) and confers prodrug sensitivity to cancer cells. *Clin. Cancer Res.* 19: 1159-1168.
- Silvestris, N., et al. 2014. CES2, ABCG2, TS and Topo-I primary and synchronous metastasis expression and clinical outcome in metastatic colorectal cancer patients treated with first-line FOLFIRI regimen. *Int. J. Mol. Sci.* 15: 15767-15777.
- Verbrugge, S.E., et al. 2016. Multifactorial resistance to aminopeptidase inhibitor prodrug CHR2863 in myeloid leukemia cells: down-regulation of carboxylesterase 1, drug sequestration in lipid droplets and pro-survival activation ERK/Akt/mTOR. *Oncotarget* 7: 5240-5257.
- 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.
- Han, B., et al. 2020. Combined use of irinotecan and p53 activator enhances growth inhibition of mesothelioma cells. *FEBS Open Bio.* 10: 2375-2387.

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.