

cystatin C (C-27): sc-73878

BACKGROUND

cystatin C is a cysteine (thiol) protease inhibitor that belongs to the type II cystatin gene superfamily and is the most abundant extracellular inhibitor of cysteine proteases. cystatin C is a constitutively secreted, amyloidogenic protein, which forms a two-fold symmetric dimer and modulates both cysteine protease activity and the expression of class II MHC molecules. Expression of cystatin C is an indicator of kidney function and glomerular filtration rate. Mutations in the cystatin C gene can lead to protein aggregates, which are implicated in hereditary amyloid angiopathy (HCAA) and cerebral hemorrhage. Although both wildtype and mutant cystatin C are capable of forming concentration dependent inactive dimers, mutant cystatin C dimerizes at lower concentrations and is more susceptible to serine proteases, which may facilitate aggregation. In neuronal cells, oxidative stress stimulates expression of cystatin C, which may positively regulate apoptosis.

REFERENCES

1. Saitoh, E., et al. 1988. Cystatin superfamily. evidence that family II cystatin genes are evolutionarily related to family III cystatin genes. *Biol. Chem. Hoppe-Seyler* 369: 191-197.
2. Nishio, C., et al. 2000. Involvement of cystatin C in oxidative stress-induced apoptosis of cultured rat CNS neurons. *Brain Res.* 873: 252-262.
3. Manoury, B., et al. 2001. Bm-CPI-2, a cystatin homolog secreted by the filarial parasite *Brugia malayi*, inhibits class II MHC-restricted antigen processing. *Curr. Biol.* 11: 447-451.
4. Aras, O., et al. 2001. Cystatin C is an independent predictor of fasting and post-methionine load total homocysteine concentrations among stable renal transplant recipients. *Clin. Chem.* 47: 1263-1268.
5. Janowski, R., et al. 2001. Human cystatin C, an amyloidogenic protein, dimerizes through three-dimensional domain swapping. *Nat. Struct. Mol. Biol.* 8: 316-320.
6. Calero, M., et al. 2001. Distinct properties of wild-type and the amyloidogenic human cystatin C variant of hereditary cerebral hemorrhage with amyloidosis, Icelandic type. *J. Neurochem.* 77: 628-637.
7. Abrahamson, M., et al. 2003. Cystatins. *Biochem. Soc. Symp.* 70: 179-199.

CHROMOSOMAL LOCATION

Genetic locus: CST3 (human) mapping to 20p11.21.

SOURCE

cystatin C (C-27) is a mouse monoclonal antibody raised against amino acids 27-146 of full length recombinant cystatin C of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2b} in 1.0 ml of PBS with < 0.1% sodium azide and protein stabilizer.

STORAGE

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

APPLICATIONS

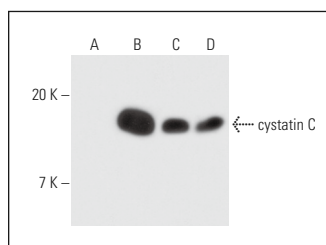
cystatin C (C-27) is recommended for detection of cystatin C of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for cystatin C siRNA (h): sc-43714, cystatin C shRNA Plasmid (h): sc-43714-SH and cystatin C shRNA (h) Lentiviral Particles: sc-43714-V.

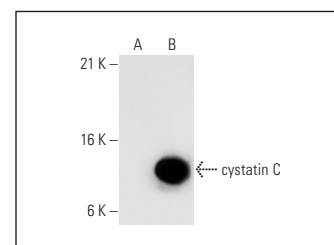
Molecular Weight of cystatin C: 13 kDa.

Positive Controls: cystatin C (h2): 293 Lysate: sc-112728, Hep G2 cell lysate: sc-2227 or MIA PaCa-2 cell lysate: sc-2285.

DATA



cystatin C (C-27): sc-73878. Western blot analysis of cystatin C expression in non-transfected 293: sc-110760 (A), human cystatin C transfected 293: sc-170214 (B), Hep G2 (C) and MIA PaCa-2 (D) whole cell lysates.



cystatin C (C-27): sc-73878. Western blot analysis of cystatin C expression in non-transfected: sc-110760 (A) and human cystatin C transfected: sc-112728 (B) 293 whole cell lysates.

SELECT PRODUCT CITATIONS

1. Loei, H., et al. 2012. Mining the gastric cancer secretome: identification of GRN as a potential diagnostic marker for early gastric cancer. *J. Proteome Res.* 11: 1759-1772.
2. Clement, C.C., et al. 2013. Protein expression profiles of human lymph and plasma mapped by 2D-DIGE and 1D SDS-PAGE coupled with nanoLC-ESI-MS/MS bottom-up proteomics. *J. Proteomics* 78: 172-187.
3. Guo, S.L., et al. 2014. cystatin C in cerebrospinal fluid is upregulated in elderly patients with chronic osteoarthritis pain and modulated through matrix metalloproteinase 9-specific pathway. *Clin. J. Pain* 30: 331-339.
4. Mori, J., et al. 2016. cystatin C as a p53-inducible apoptotic mediator that regulates cathepsin L activity. *Cancer Sci.* 107: 298-306.
5. Perlenfein, T.J., et al. 2017. Insights into the mechanism of cystatin C oligomer and amyloid formation and its interaction with β -amyloid. *J. Biol. Chem.* 292: 11485-11498.

RESEARCH USE

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