

BACKGROUND

Carcinoembryonic antigen (CEA) is one of the most commonly used tumor markers in serum immunoassay determinations of carcinoma. Members of the CEACAM (carcinoembryonic antigen-related cell adhesion molecule) family contain a single N domain, with structural homology to the immunoglobulin variable domains, followed by a variable number of immunoglobulin constant-like A and/or B domains. CEACAMS, such as CEACAM1, CEACAM7, CD66C, CD66D and CD66E, have diverse roles within the cell, including roles in the differentiation and arrangement of tissue three-dimensional structure, angiogenesis, apoptosis, tumor suppression, metastasis, and the modulation of innate and adaptive immune responses. The human CEACAM proteins are encoded by genes which are located within a 1.2 Mb cluster on the long arm of chromosome 19.

REFERENCES

- Muenzner, P., et al. 2008. The CEACAM1 transmembrane domain, but not the cytoplasmic domain, directs internalization of human pathogens via membrane microdomains. *Cell. Microbiol.* 10: 1074-1092.
- Skubitz, K.M., et al. 2008. Interdependency of CEACAM-1, -3, -6, and -8 induced human neutrophil adhesion to endothelial cells. *J. Transl. Med.* 6: 78.
- Lee, H.S., et al. 2008. CEACAM1 dynamics during neisseria gonorrhoeae suppression of CD4⁺ T lymphocyte activation. *J. Immunol.* 180: 6827-6835.
- Gaur, S., et al. 2008. Altered splicing of CEACAM1 in breast cancer: identification of regulatory sequences that control splicing of CEACAM1 into long or short cytoplasmic domain isoforms. *Mol. Cancer* 7: 46.
- Slevogt, H., et al. 2008. CEACAM1 inhibits toll-like receptor 2-triggered antibacterial responses of human pulmonary epithelial cells. *Nat. Immunol.* 9: 1270-1278.
- Nittka, S., et al. 2008. The CEACAM1-mediated apoptosis pathway is activated by CEA and triggers dual cleavage of CEACAM1. *Oncogene* 27: 3721-3728.
- Zalzali, H., et al. 2008. CEACAM1, a SOX9 direct transcriptional target identified in the colon epithelium. *Oncogene* 27: 7131-7138.
- Callaghan, M.J., et al. 2008. Haplotypic diversity in human CEACAM genes: effects on susceptibility to meningococcal disease. *Genes Immun.* 9: 30-37.

SOURCE

pan CEA (D-3) is a mouse monoclonal antibody raised against amino acids 35-334 mapping near the N-terminus of CEA (carcinoembryonic antigen) of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

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

APPLICATIONS

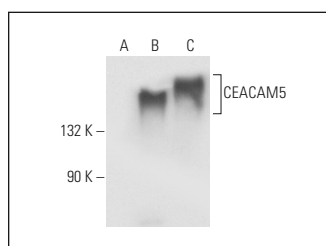
pan CEA (D-3) is recommended for detection of pan CEA of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), 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).

Molecular Weight of pan CEA: 80-200 kDa.

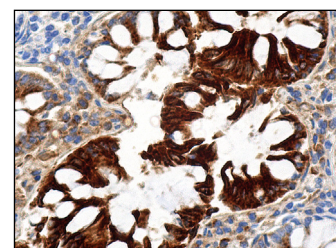
Positive Controls: COLO 320DM cell lysate: sc-2226, MCF7 whole cell lysate: sc-2206 or CEA (h2): 293T Lysate: sc-170027.

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

pan CEA (D-3): sc-55547. Western blot analysis of CEACAM5 expression in non-transfected 293T: sc-117752 (A), human CEACAM5 transfected 293T: sc-170027 (B) and T84 (C) whole cell lysates.



pan CEA (D-3): sc-55547. Immunoperoxidase staining of formalin fixed, paraffin-embedded human colon tissue showing membrane and cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

- Peiris, D., et al. 2015. Identification of o-linked glycoproteins binding to the lectin helix pomatia agglutinin as markers of metastatic colorectal cancer. *PLoS ONE* 10: e0138345.
- Ali, M.S., et al. 2019. Modulation of JNK-1/β-catenin signaling by *Lactobacillus casei*, inulin and their combination in 1,2-dimethylhydrazine-induced colon cancer in mice. *RSC Adv.* 9: 29368-29383.

STORAGE

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