

β -casein (H-4): sc-166530

BACKGROUND

Milk proteins are crucial for the development of all newborn mammals and caseins constitute the major proteins in mammalian milk. β - and κ -caseins are the only caseins present in human milk. The β -casein/ κ -casein ratio is higher in colostrum than in transitional and mature milk and is related to a better digestibility of colostrum casein micelles by the neonate during the first days of life. Human β -casein-encoding gene (*Bca*) contains a highly phosphorylated site, which is responsible for the calcium-binding capacity of β -casein. A common set of transcription factors are required for the expression of β -casein. Multiple binding sites for Stat5, C/EBP β (CCAAT/enhancer-binding protein) and several half-sites for glucocorticoid receptor (GR) are identified in the distal human enhancer of the β -casein gene. β -casein gene transcription is regulated primarily by a composite response element (CoRE), which integrates signaling from the lactogenic hormones PRL, Insulin and hydrocortisone in mammary epithelial cells. NF κ B functions as a negative regulator of β -casein gene expression during pregnancy by interfering with Stat5 tyrosine phosphorylation.

CHROMOSOMAL LOCATION

Genetic locus: *Csn2* (mouse) mapping to 5 E1.

SOURCE

β -casein (H-4) is a mouse monoclonal antibody raised against a peptide mapping within an internal region of β -casein of mouse origin.

PRODUCT

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

β -casein (H-4) is available conjugated to agarose (sc-166530 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166530 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166530 PE), fluorescein (sc-166530 FITC), Alexa Fluor[®] 488 (sc-166530 AF488), Alexa Fluor[®] 546 (sc-166530 AF546), Alexa Fluor[®] 594 (sc-166530 AF594) or Alexa Fluor[®] 647 (sc-166530 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-166530 AF680) or Alexa Fluor[®] 790 (sc-166530 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-166530 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

β -casein (H-4) is recommended for detection of β -casein of mouse and rat 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).

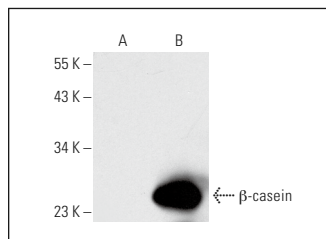
Suitable for use as control antibody for β -casein siRNA (m): sc-40385, β -casein shRNA Plasmid (m): sc-40385-SH and β -casein shRNA (m) Lentiviral Particles: sc-40385-V.

Molecular Weight of β -casein: 29 kDa.

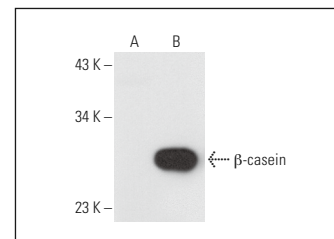
STORAGE

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

DATA



β -casein (H-4): sc-166530. Western blot analysis of β -casein expression in non-transfected: sc-117752 (A) and mouse β -casein transfected: sc-119013 (B) 293T whole cell lysates.



β -casein (H-4): sc-166530. Western blot analysis of β -casein expression in non-transfected: sc-117752 (A) and mouse β -casein transfected: sc-119005 (B) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

- Ma, X., et al. 2012. The construction and expression of lysine-rich gene in the mammary gland of transgenic mice. *DNA Cell Biol.* 31: 1372-1383.
- Lv, C., et al. 2017. MiR-31 promotes mammary stem cell expansion and breast tumorigenesis by suppressing Wnt signaling antagonists. *Nat. Commun.* 8: 1036.
- Li, G., et al. 2020. Identification and characterization of the lactating mouse mammary gland citrullinome. *Int. J. Mol. Sci.* 21: 2634.
- Bach, K., et al. 2021. Time-resolved single-cell analysis of Brca1 associated mammary tumorigenesis reveals aberrant differentiation of luminal progenitors. *Nat. Commun.* 12: 1502.
- Al-Khaldi, S., et al. 2022. Fascin is essential for mammary gland lactogenesis. *Dev. Biol.* 492: 25-36.
- Grinman, D.Y., et al. 2022. PTHrP induces STAT5 activation, secretory differentiation and accelerates mammary tumor development. *Breast Cancer Res.* 24: 30.
- Kobayashi, K., et al. 2022. Early effects of lipoteichoic acid from *Staphylococcus aureus* on milk production-related signaling pathways in mouse mammary epithelial cells. *Exp. Cell Res.* 420: 113352.
- Yan, Y., et al. 2022. Estradiol regulates the expression and secretion of antimicrobial peptide S100A7 via the ERK1/2-signaling pathway in goat mammary epithelial cells. *Animals* 12: 3077.
- Kobayashi, K., et al. 2023. Sweet taste receptor subunit T1R3 regulates casein secretion and phosphorylation of STAT5 in mammary epithelial cells. *Biochim. Biophys. Acta. Mol. Cell Res.* 1870: 119448.

RESEARCH USE

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

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