SANTA CRUZ BIOTECHNOLOGY, INC.

β-casein (H-4): sc-166530

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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/enchancer-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. NFκB 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 µg IgG_3 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 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-166530 HRP), 200 µg/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 µg/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 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-166530 P, (100 µg 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 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).

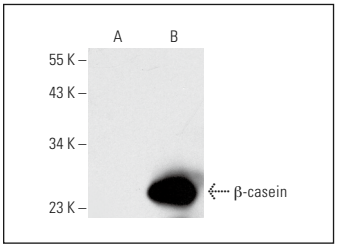
Suitable for use as control antibody for β-casein siRNA (m): sc-40385, β-casein shRNA Plasmid (m): sc-40385-SH and β-casein shRNA (m) Lentiviral Particles: sc-40385-V.

Molecular Weight of β-casein: 29 kDa.

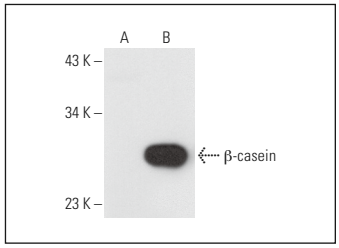
STORAGE

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

1. 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.
2. Lv, C., et al. 2017. MiR-31 promotes mammary stem cell expansion and breast tumorigenesis by suppressing Wnt signaling antagonists. Nat. Commun. 8: 1036.
3. Li, G., et al. 2020. Identification and characterization of the lactating mouse mammary gland citrullinome. Int. J. Mol. Sci. 21: 2634.
4. Bach, K., et al. 2021. Time-resolved single-cell analysis of Brca1 associated mammary tumourigenesis reveals aberrant differentiation of luminal progenitors. Nat. Commun. 12: 1502.
5. Al-Khaldi, S., et al. 2022. Fascin is essential for mammary gland lactogenesis. Dev. Biol. 492: 25-36.
6. Grinman, D.Y., et al. 2022. PTHrP induces STAT5 activation, secretory differentiation and accelerates mammary tumor development. Breast Cancer Res. 24: 30.
7. 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.
8. Rocha, A.S., et al. 2023. Luminal Rank loss decreases cell fitness leading to basal cell bipotency in parous mammary glands. Nat. Commun. 14: 6213.
9. 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.