SANTA CRUZ BIOTECHNOLOGY, INC.

β-casein (F-4): sc-166684

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 (F-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 100-125 within an internal region of β-casein of mouse origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-166684 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

β-casein (F-4) is recommended for detection of β-casein of mouse 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.

Positive Controls: β-casein (m): 293T Lysate: sc-119005.

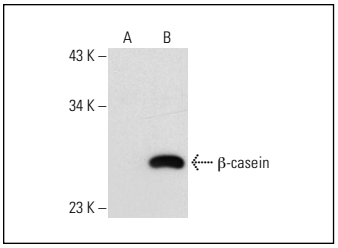
STORAGE

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

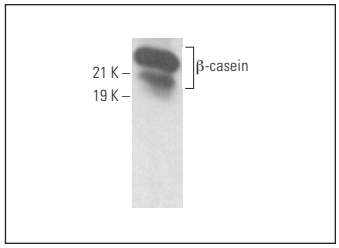
RESEARCH USE

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

DATA



β-casein (F-4): sc-166684. 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.



β-casein (F-4): sc-166684. Western blot analysis of β-casein expression in rat breast tissue extract.

SELECT PRODUCT CITATIONS

1. Zhang, C., et al. 2015. Induction of size-dependent breakdown of blood-milk barrier in lactating mice by TiO_2 nanoparticles. PLoS ONE 10: e0122591.
2. Dong, L., et al. 2018. Post-transcription mediated Snail stabilization is involved in radiation exposure induced invasion and migration of hepatocarcinoma cells. Biomed. Pharmacother. 103: 767-772.
3. Tian, L., et al. 2018. Let-7g-5p regulates mouse mammary cells differentiation and function by targeting PRKCA. J. Cell. Physiol. 234: 10101-10110.
4. Deng, Q., et al. 2019. Tissue-specific microRNA expression alters cancer susceptibility conferred by a TP53 noncoding variant. Nat. Commun. 10: 5061.
5. Che, L., et al. 2020. Effects of dietary valine supplementation during late gestation on the reproductive performance and mammary gland development of gilts. J. Anim. Sci. Biotechnol. 11: 15.
6. Spitzer, A.J., et al. 2020. Bacterial endotoxin induces oxidative stress and reduces milk protein expression and hypoxia in the mouse mammary gland. Oxid. Med. Cell. Longev. 2020: 3894309.
7. Meyer, A.E., et al. 2020. Loss of Fbxw7 triggers mammary tumorigenesis associated with E2F/c-Myc activation and Trp53 mutation. Neoplasia 22: 644-658.
8. Josan, C., et al. 2022. Effect of δ-9-tetrahydrocannabinol and cannabidiol on milk proteins and lipid levels in HC11 cells. PLoS ONE 17: e0272819.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.