SANTA CRUZ BIOTECHNOLOGY, INC.

β-casein (B-5): sc-393734

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/EBPb (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.

REFERENCES

1. Greenberg, R., et al. 1984. Human β-casein. Amino acid sequence and identification of phosphorylation sites. J. Biol. Chem. 259: 5132-5138.
2. Lonnerdal, B., et al. 1990. Cloning and sequencing of a cDNA encoding human milk β-casein. FEBS Lett. 269: 153-156.
3. Menon, R.S., et al. 1992. Regional localization of human β-casein gene (CSN2) to 4pter-q21. Genomics 13: 25-26.
4. Hansson, L., et al. 1994. Structure of the human β-casein encoding gene. Gene 139: 193-199.
5. Winklehner-Jennewein, P., et al. 1998. A distal enhancer region in the human β-casein gene mediates the response to prolactin and glucocorticoid hormones. Gene 217: 127-139.
6. Cuilliere, M.L., et al. 1999. Changes in the κ-casein and β-casein concentrations in human milk during lactation. J. Clin. Lab. Anal. 13: 213-218.
7. Lykos, M.A., et al. 2000. Autocrine Insulin-like growth factor II inhibits β-casein mRNA expression in a mammary cell line. J. Dairy Sci. 83: 285-295.

CHROMOSOMAL LOCATION

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

SOURCE

β-casein (B-5) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 212-231 at the C-terminus of β-casein of mouse 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.

Blocking peptide available for competition studies, sc-393734 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

β-casein (B-5) 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.

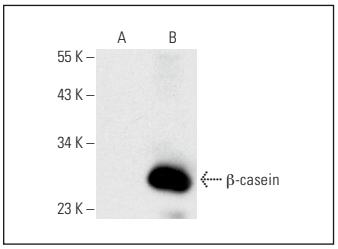
Molecular Weight of β-casein: 29 kDa.

Positive Controls: β-casein (m5): 293T Lysate: sc-119013.

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.

DATA



β-casein (B-5): sc-393734. 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.

SELECT PRODUCT CITATIONS

1. Onoyama, I., et al. 2020. Loss of Fbxw7 impairs development of and induces heterogeneous tumor formation in the mouse mammary gland. Cancer Res. 80: 5515-5530.

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.