SANTA CRUZ BIOTECHNOLOGY, INC.

β-casein (G-9): sc-515301

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/EBPβ (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

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3. Menon, R.S., et al. 1992. Regional localization of human β-casein gene (CSN2) to 4pter-q21. Genomics 13: 225-226.
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.
8. Wyszomierski, S.L., et al. 2001. Cooperative effects of STAT5 (signal transducer and activator of transcription 5) and C/EBP β (CCAAT/enhancer-binding protein-β) on β-casein gene transcription are mediated by the glucocorticoid receptor. Mol. Endocrinol. 15: 228-240.

CHROMOSOMAL LOCATION

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

SOURCE

β-casein (G-9) is a mouse monoclonal antibody raised against amino acids 1-231 representing full length β-casein of mouse origin.

RESEARCH USE

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

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

β-casein (G-9) 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.

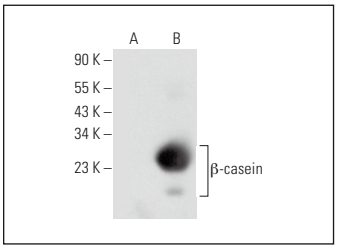
Molecular Weight of β-casein: 29 kDa.

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.

DAT



β-casein (G-9): sc-515301. 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.

STORAGE

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

PROTOCOLS

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