SANTA CRUZ BIOTECHNOLOGY, INC.

β-casein (G-20): sc-17973

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: 25-26.
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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 (rat) mapping to 14p21.

SOURCE

β-casein (G-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of β-casein of rat origin.

STORAGE

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

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-17973 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

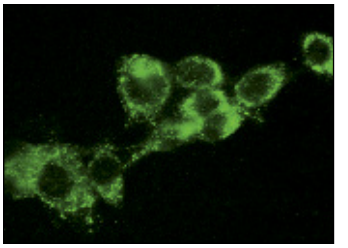
β-casein (G-20) is recommended for detection of β-casein of rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of β-casein: 29 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



β-casein (G-20): sc-17973. Immunofluorescence staining of methanol-fixed L8 cells showing cytoplasmic and cell surface localization.

RESEARCH USE

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

PROTOCOLS

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