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# $\beta$ -casein (m5): 293T Lysate: sc-119013

## BACKGROUND

Milk proteins are crucial for the development of all newborn mammals and caseins constitute the major proteins in mammalian milk.  $\beta$ - and  $\kappa$ -caseins are the only caseins present in human milk. The  $\beta$ -casein/ $\kappa$ -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  $\beta$ -casein-encoding gene (Bca) contains a highly phosphorylated site, which is responsible for the calcium-binding capacity of  $\beta$ -casein. A common set of transcription factors are required for the expression of  $\beta$ -casein. Multiple binding sites for Stat5, C/EBP  $\beta$  (CCAAT/enhancer-binding protein) and several half-sites for glucocorticoid receptor (GR) are identified in the distal human enhancer of the  $\beta$ -casein gene.  $\beta$ -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. NF $\kappa$ B functions as a negative regulator of  $\beta$ -casein gene expression during pregnancy by interfering with Stat5 tyrosine phosphorylation.

## REFERENCES

- Greenberg, R., Groves, M.L. and Dower, H.J. 1984. Human  $\beta$ -casein. Amino acid sequence and identification of phosphorylation sites. *J. Biol. Chem.* 259: 5132-5138.
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- Lykos, M.A., Fligger, J.M., Staley, M.D. and Baumrucker, C.R. 2000. Autocrine Insulin-like growth factor II inhibits  $\beta$ -casein mRNA expression in a mammary cell line. *J. Dairy Sci.* 83: 285-295.
- Wyszomierski, S.L. and Rosen, J.M. 2001. Cooperative effects of Stat5 (signal transducer and activator of transcription 5) and C/EBP  $\beta$  (CCAAT/enhancer-binding protein- $\beta$ ) on  $\beta$ -casein gene transcription are mediated by the glucocorticoid receptor. *Mol. Endocrinol.* 15: 228-240.

## STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

## CHROMOSOMAL LOCATION

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

## PRODUCT

$\beta$ -casein (m5): 293T Lysate represents a lysate of mouse  $\beta$ -casein transfected 293T cells and is provided as 100  $\mu$ g protein in 200  $\mu$ l SDS-PAGE buffer.

## APPLICATIONS

$\beta$ -casein (m5): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive  $\beta$ -casein antibodies. Recommended use: 10-20  $\mu$ l per lane.

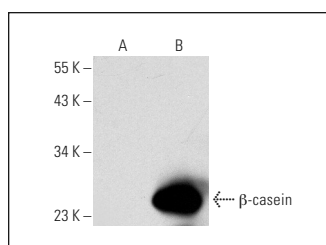
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

$\beta$ -casein (H-4): sc-166530 is recommended as a positive control antibody for Western Blot analysis of enhanced mouse  $\beta$ -casein expression in  $\beta$ -casein transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

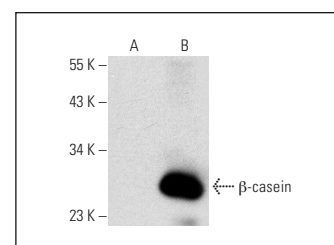
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:  
1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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.

## DATA



$\beta$ -casein (H-4): sc-166530. Western blot analysis of  $\beta$ -casein expression in non-transfected: sc-117752 (A) and mouse  $\beta$ -casein transfected: sc-119013 (B) 293T whole cell lysates.



$\beta$ -casein (B-5): sc-393734. Western blot analysis of  $\beta$ -casein expression in non-transfected: sc-117752 (A) and mouse  $\beta$ -casein transfected: sc-119013 (B) 293T whole cell lysates.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.