

α -lactalbumin (FL-142): sc-135345

BACKGROUND

α -lactalbumin is the B protein of lactose synthetase secreted by the mammary epithelial cells. It is a potent Ca^{2+} -elevating and apoptosis-inducing agent with broad, yet selective, cytotoxic activity. Multimeric α -lactalbumin has been shown to kill all transformed, embryonic and lymphoid cells tested, but not mature epithelial elements. This suggests that milk contributes to mucosal immunity not only by furnishing antimicrobial molecules but also by policing the function of lymphocytes and epithelium. α -lactalbumin may be helpful in discovering the site of origin of metastatic breast tumors. Human lactalbumin has a molecular weight of 14.1 kDa and contains 123 amino acid residues. Comparison of the 5' flanking sequences of the two α -lactalbumin genes with those of five casein genes reveals the presence of a highly conserved region extending from position -140 to -110 in all seven sequences examined, suggesting a possible regulatory role in the hormonal control or tissue-specific expression of milk protein genes in the mammary gland.

REFERENCES

- Burchell, J., Bartek, J. and Taylor-Papadimitriou, J. 1985. Production and characterization of monoclonal antibodies to human casein. A monoclonal antibody that cross-reacts with casein and α -lactalbumin. *Hybridoma* 4: 341-350.
- Wang, Q., Tolkach, A. and Kulozik, U. 2006. Quantitative assessment of thermal denaturation of bovine α -lactalbumin via low-intensity ultrasound, HPLC, and DSC. *J. Agric. Food Chem.* 54: 6501-6506.
- Anema, S.G., Lee, S.K. and Klostermeyer, H. 2006. Effect of protein, non-protein-soluble components, and lactose concentrations on the irreversible thermal denaturation of β -lactoglobulin and α -lactalbumin in skim milk. *J. Agric. Food Chem.* 54: 7339-7348
- Barros, RM. and Malcata, F.X. 2006. Molecular characterization of peptides released from β -lactoglobulin and α -lactalbumin via cardosins A and B. *J. Dairy Sci.* 89: 483-494.
- Biziulevicius, G.A., Kislukhina, O.V., Kazlauskaitė and J., Zukaite, V. 2006. Food-protein enzymatic hydrolysates possess both antimicrobial and immunostimulatory activities: a "cause and effect" theory of bifunctionality. *FEMS Immunol. Med. Microbiol.* 46: 131-138
- Huppertz, T., Fox, P.F., de Kruif, K.G. and Kelly, A.L. 2006. High pressure-induced changes in bovine milk proteins: a review. *Biochim. Biophys. Acta* 1764: 593-598.
- Ohrvik, H., Yoshioka, M., Oskarsson, A. and Tallkvist, J. 2006. Cadmium-induced disturbances in lactating mammary glands of mice. *Toxicol. Lett.* 164: 207-213.
- Xiao, Y., Freed, A.S., Jones, T.T., Makrodimitris, K., O'Connell, J.P. and Fernandez, E.J. 2006. Protein instability during HIC: describing the effects of mobile phase conditions on instability and chromatographic retention. *Biotechnol. Bioeng.* 93: 1177-1189.

STORAGE

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

CHROMOSOMAL LOCATION

Genetic locus: LALBA (human) mapping to 12q13.11.

SOURCE

α -lactalbumin (FL-142) is a rabbit polyclonal antibody raised against amino acids 1-142 representing full length α -lactalbumin of human origin.

PRODUCT

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

APPLICATIONS

α -lactalbumin (FL-142) is recommended for detection of α -lactalbumin of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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 α -lactalbumin siRNA (h): sc-72407, α -lactalbumin shRNA Plasmid (h): sc-72407-SH and α -lactalbumin shRNA (h) Lentiviral Particles: sc-72407-V.

Molecular Weight of α -lactalbumin: 14.1 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

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.