

α -lactalbumin siRNA (m): sc-72408

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 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

1. Burchell, J., et al. 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.
2. Anema, S.G., et al. 2006. Effect of protein, nonprotein-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.
3. Barros, R.M., et al. 2006. Molecular characterization of peptides released from β -lactoglobulin and α -lactalbumin via cardosins A and B. *J. Dairy Sci.* 89: 483-494.
4. Biziulevicius, G.A., et al. 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.

CHROMOSOMAL LOCATION

Genetic locus: Lalba (mouse) mapping to 15 F1.

PRODUCT

α -lactalbumin siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 μM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see α -lactalbumin shRNA Plasmid (m): sc-72408-SH and α -lactalbumin shRNA (m) Lentiviral Particles: sc-72408-V as alternate gene silencing products.

For independent verification of α -lactalbumin (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-72408A, sc-72408B and sc-72408C.

PROTOCOLS

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

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20°C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20°C , avoid contact with RNases and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 μl of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μl of RNase-free water makes a 10 μM solution in a 10 μM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

α -lactalbumin siRNA (m) is recommended for the inhibition of α -lactalbumin expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 μM in 66 μl . Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor α -lactalbumin gene expression knockdown using RT-PCR Primer: α -lactalbumin (m)-PR: sc-72408-PR (20 μl , 449 bp). Annealing temperature for the primers should be $55-60^{\circ}\text{C}$ and the extension temperature should be $68-72^{\circ}\text{C}$.

RESEARCH USE

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