

# LCT (G-16): sc-240613

## BACKGROUND

LCT (lactase), also known as LAC, LPH (lactase-phlorizin hydrolase) or LPH1, is a 1,927 amino acid single-pass type I membrane protein that belongs to the glycosyl hydrolase 1 family. Expressed in intestine, LCT hydrolyzes lactose to form D-galactose and D-glucose. LCT is suggested to have both phlorizin hydrolase and lactase activity. Defects in the gene encoding LCT are the cause of congenital lactase deficiency (COLACD), also known as hereditary alactasia or disaccharide intolerance II. COLACD is an autosomal recessive, rare and severe gastrointestinal disorder that is characterized by watery diarrhea in infants fed with breast milk or other lactose-containing formulas. Down-regulation of lactase activity during childhood or early adulthood is the cause of lactose intolerance, which is the most common enzyme deficiency worldwide. The down-regulation of lactase activity operates at the transcriptional level and it is associated with a noncoding variation in the MCM6 gene, which is located in the upstream vicinity of LCT.

## REFERENCES

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2. Harvey, C.B., et al. 1993. Regional localization of the lactase-phlorizin hydrolase gene, LCT, to chromosome 2q21. *Ann. Hum. Genet.* 57: 179-185.
3. Harvey, C.B., et al. 1995. DNA polymorphisms in the lactase gene. Linkage disequilibrium across the 70-kb region. *Eur. J. Hum. Genet.* 3: 27-41.
4. Harvey, C.B., et al. 1998. Lactase haplotype frequencies in Caucasians: association with the lactase persistence/non-persistence polymorphism. *Ann. Hum. Genet.* 62: 215-223.
5. Enattah, N.S., et al. 2002. Identification of a variant associated with adult-type hypolactasia. *Nat. Genet.* 30: 233-237.
6. Beja-Pereira, A., et al. 2003. Gene-culture coevolution between cattle milk protein genes and human lactase genes. *Nat. Genet.* 35: 311-313.
7. Hollox, E. 2005. Evolutionary genetics: genetics of lactase persistence—fresh lessons in the history of milk drinking. *Eur. J. Hum. Genet.* 13: 267-269.
8. Kuokkanen, M., et al. 2006. Mutations in the translated region of the lactase gene (LCT) underlie congenital lactase deficiency. *Am. J. Hum. Genet.* 78: 339-344.
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## CHROMOSOMAL LOCATION

Genetic locus: LCT (human) mapping to 2q21.3; Lct (mouse) mapping to 1 E4.

## SOURCE

LCT (G-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an extracellular domain of LCT of human origin.

## 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-240613 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

LCT (G-16) is recommended for detection of LCT of mouse, rat and human 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).

LCT (G-16) is also recommended for detection of LCT in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for LCT siRNA (h): sc-94992, LCT siRNA (m): sc-146688, LCT shRNA Plasmid (h): sc-94992-SH, LCT shRNA Plasmid (m): sc-146688-SH, LCT shRNA (h) Lentiviral Particles: sc-94992-V and LCT shRNA (m) Lentiviral Particles: sc-146688-V.

Molecular Weight of LCT precursor: 205/220 kDa.

Molecular Weight of mature LCT: 130 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.

## STORAGE

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

## 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) or our catalog for detailed protocols and support products.