Datasheet for ABIN2648734

Lactase real time PCR Kit

Overview

Quantity:	32 tests
Gene:	LCT
Application:	Real Time PCR (rtPCR)

Product Details

Purpose:	MutaPLATE® Lactase real time PCR Assay kit is a molecular biological test for analysis of -13910 T/C - polymorphism in the regulatory region of lactase-phlorizin-hydrolase gene (LPH) in open real time PCR systems e. g. RotorGene (Corbett Research), MX-3000P (Stratagene), ECO (Amplifa) or SmartCycler (Cepheid). Only the clinical relevant C/C - genotype causes a primary lactase deficiency often leading to (genetic) lactose intolerance.
Brand:	MutaPLATE®
Sample Type:	DNA
Characteristics:	Patients with lactose intolerance can not digest milk sugar and suffer after ingestion of milk-products from dyspepsia, nausia and bellyache. Further symptoms like vertigo, sleep disorders, akne or depressions can also be triggered by lactose intolerance. A Therapy for affected persons is very simple and can be done by lactose-free diet. In Germany, about 15 million people are affected from primary lactase deficiency. The main reason for lactose intolerance is a genetically based deficiency of the enzyme lactase phlorizin hydrolase (LPH), which is responsible for the disassembly of milk sugar. This widely distributed genetic disorder is a T/C polymorphism located at position –13910 in the regulatory region of this gene. Person homozygous for C/C-genotype are consequently deficient for enzyme lactase and posses higher risk for lactose intolerance. These results are in excellent accordance with results obtained by the lactose hydrogen breath test for the diagnosis of lactase non-persistence. Nevertheless, not all C/C-carriers must show typical symptoms because a fall short of individual level is necessary.

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Furthermore, in some cases lactose intolerance can be due to secondary causes like mal-resorption problems (e. g. Morbus Crohn patients), infections or chemotherapy.

In babyhood and infancy the lactase production is very high but it decreases with higher age resulting in manifestation of primary lactase deficiency. Also a North-/ South gradient is visible: In Scandinavia the homozygous C/C-constellation is very rare whereas in Germany prevalence is about 15-20%. In Southern European countries up to 30% of all adults carry the C-allels homozygous.

Patients suffering from lactose intolerance have also a higher risk for osteoporosis due to the reduced calcium-intake via milk products. In consequence, the C/C-genotype associated with primary lactose intolerance is a genetic risk factor for bone fractures for elderly people.

Target Details

Gene:	LCT
Alternative Name:	Lactase (LCT Products)

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Comment:	MutaPLATE® Lactase real time PCR Kit contains specific primers and additional material for the detection of the T/C (-13910) polymorphism in the regulatory region of the lactase-phlorizin-hydrolase gene. The variable area of the regulatory region from lactase gene is amplified by PCR using genomic DNA-template. The specific primers used in the kit flank the variable area of lactase gene (LCT) and generate an amplificate of 222 bp. The standard PCR contains also sequence specific oligonucleotides marked with fluorescence dye. This specific hybridisation probe binds within the amplification product including the single nucleotide polymorphism (SNP) of target-DNA. Due to this, a fluorescence signal is generated (after excitation with 530 nm or if limited by instrument with 470 nm) and detected at 610 nm through the optical unit of the real time PCR instrument. Genotyping is performed by subsequent melting curve analysis of arised amplificates leading to unequivocal identification of C/C-genotype associated with lactose intolerance and respectively the clinical unobtrusive CT- and T/T-variants. This is due to the different melting points of the

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	complexes formed by DNA template and “SNP-probes”. The included “SNP-probe” is 100% homologous to the C-allel. Therefore the hybridisation probe needs a higher temperature for complex-dissociation from C-allel than from the T-allel (containing a mismatch destabilizing the complex). Consequently, samples with heterozygous genotype generate both peaks at different temperatures during the melting curve analysis.
Sample Volume:	200 µL
Restrictions:	For Research Use only

Handling

Storage:	-20 °C

Publications

Product cited in:	Johnson, Drugan, Miller, Evans: "38" in: , Vol. 1363, Issue Nucleic acids research, pp. 28-39, (1991)