diagenode
A Hologic Company

TECHNICAL DATASHEET

PRODUCT NAME Human LMNA promoter Primer Pairs			
Official full name: Human Lamin A/C **Primary source:** HGNC: 6636			
Cat. No: pp-1011-050	**Size:** 50 µl	**Concentration:** 10 µM	**Lot #:** 001
Cat. No: pp-1011-500	**Size:** 500 µl	**Concentration:** 10 µM	**Lot #:** 001

10 sets of our primer pairs: 50 µl (see our list)
500 µl

Description: The primer pair cat#: pp-1011 (-050, -500) is specific to a DNA region in the human Lamin A (LMNA) gene promoter as shown in **Figure 1** [1]. These primers can be used to amplify DNA isolated by chromatin immunoprecipitation (ChIP). Primers are optimized to be used in quantitative polymerase chain reaction (qPCR) (**Figures 2, 3 and 4**). See overview below.

Expected PCR product size: 120 base pairs (bp).

Specificity: Human: positive
Other species: not tested

Format: In solution in MiliQ water at the concentration of 10 µM (each oligonucleotide primer is at the final concentration of 5 µM).

Storage: For long storage, store at -20°C. Avoid multiple freeze-thaw cycles.

Precautions: This product is for research use only. Not for use in diagnostic or therapeutic procedures.

References: [1] Dahl J. A. and Collas P. (2007) Stem Cells 25 (4):1037-46.
[2] Mattout A., Dechat T., Adam S.A., Goldman R.D. and Gruenbaum Y. (2006) Curr. Opin. Cell Biol. 18: 335-341.

Availability date: July 16, 2007

Last data sheet update: August 03, 2007

Lot #: 001/ day of synthesis: May 25, 2007/ day of QC: July 13, 2007/ aliquoting day: July 13, 2007

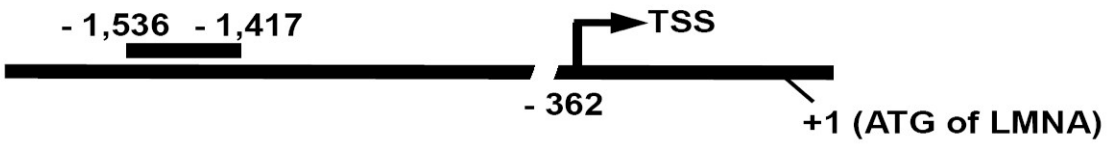

Figure 1
Region amplified in the promoter of the LMNA gene. Region amplified by polymerase chain reaction (PCR) using the primer pair cat#: pp-1011-050, -500 is indicated by a bar and the nucleotide number relative to the ATG translation initiation site is given. Position of the transcriptional start site (TSS) is indicated.

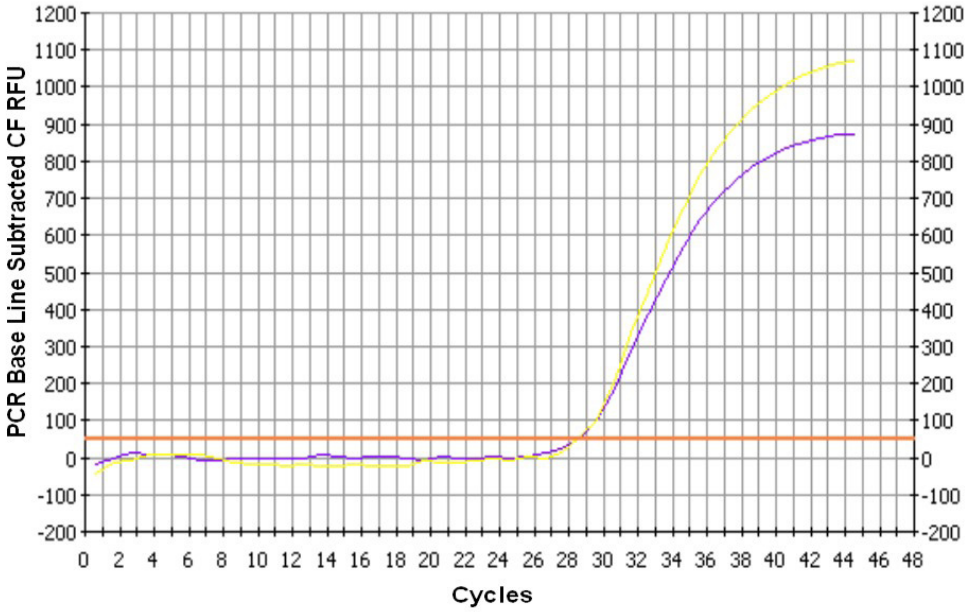

Figure 2.
DNA from undifferentiated human teratocarcinoma NCCIT cells was analyzed in duplicate by real-time PCR starting from 5 µl of DNA template (0.01 µg/ml) using the Diagenode primers to amplify a region of the LMNA gene promoter (cat#: pp-1011-050, -500). One µl of provided primer pairs is used by PCR of 25 µl final volume. A Real-Time PCR Detection System and iQ SYBR Green have been used. qPCR conditions used are as follows: 95°C for 3 minutes, 40 cycles of: [95°C for 30 seconds, 60°C for 30 seconds] and 1 cycle of 72°C for 30 seconds. Duplicates are shown in yellow and purple. Threshold position is in orange.

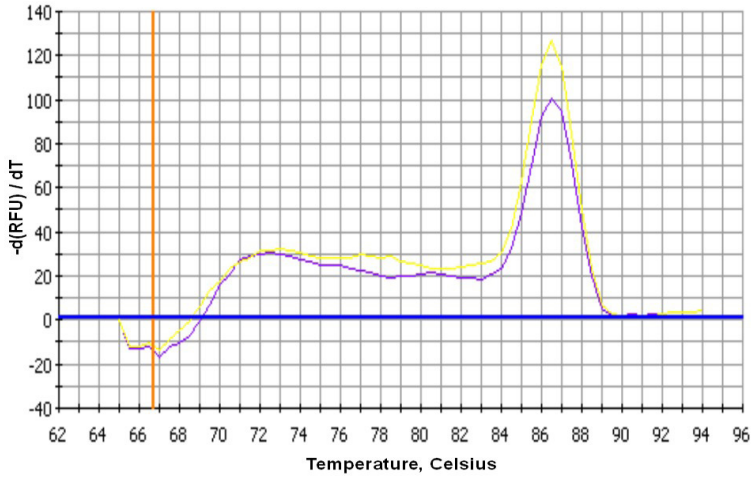

Figure 3

Melting curves obtained with primers cat#: pp-1011 (-050, -500) used in the above qPCR. Conditions were 60 cycles of 65°C for 1 minute and increment of 0.5°C per cycle. Duplicates are shown in yellow and purple.

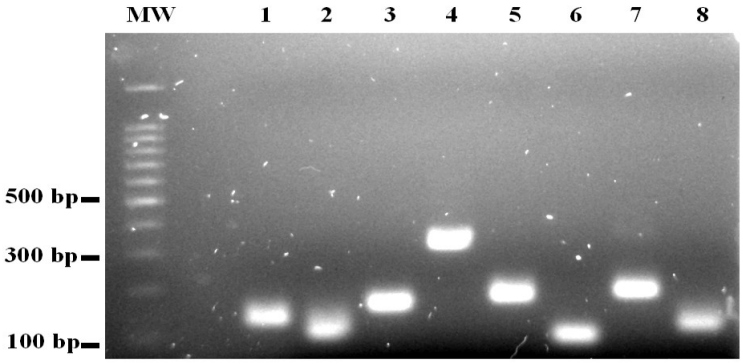

Figure 4.

qPCR products were analysed by electrophoresis (1.5% agarose gel) stained with SYBR Safe and illuminated with UV light. The left lane shows molecular weight markers (MW) that decrease in size by 100 bp. Different qPCR products using different primer pairs which are available at Diagenode were tested: 1: primers for human LMNA gene promoter (cat#: pp-1011-050, -500), 2: primers for human NANOG gene promoter (cat#: pp-1012-050, -500), 3: primers for human OCT4/A (-2,602/-2,435) (cat#: pp-1013-050, -500), 4: primers for OCT4/B (-2,340/-2,042) (cat#: pp-1014-050, -500), 5: primers for OCT4/C (-1,725/-1,564) (cat#: pp-1015-050, -500), 6: primers for OCT4/D (-1,491/-1,409) (cat#: pp-1016-050, -500), 7: primers for OCT4/E (-318/-150) (cat#: pp-1017-050, -500), 8: primers for human PAX 6 gene promoter (cat#: pp-1018-050, -500). For more details about other primer pairs, see data sheet.

Overview: The nuclear lamina consists of a two-dimensional matrix of proteins located next to the inner nuclear membrane. The lamin family of proteins make up the matrix and are highly conserved in evolution. During mitosis, the lamina matrix is reversibly disassembled as the lamin proteins are phosphorylated. Lamin proteins are thought to be involved in nuclear stability, chromatin structure and gene expression. Vertebrate lamins consist of two types: A and B. Through alternate splicing, this gene encodes three type A lamin isoforms. Mutations in this gene lead to several diseases: Emery-Dreifuss muscular dystrophy, familial partial lipodystrophy, limb girdle muscular dystrophy, dilated cardiomyopathy, Charcot-Marie-Tooth disease, and Hutchinson-Gilford progeria syndrome [2].