-Datasheet-

# Mouse Telomere Length Quantification qPCR Assay Kit（Relative）

## Cat. No. EQ028 - 100rcs; EQ028L – 500 rcs;

**Features:**
This product is designed to confirm the average length of chromosomal telomeres in a sample by the ratio (T/S) of the copy number of telomere gene (Tel) and the copy number of single copy gene (SCR). It is for research use only and is not approved for clinical or in vitro diagnosis.
**Please note:** 0.5ng to 5ng of genomic DNA can be used in a 20µl system.

**Advantages:**

- Get results quickly, saving 50% of time
- Optimized ready-to-use master mix for rapid PCR reactions.
- Accurate detection of various starting amounts of templates, stable amplification and highly reproducible quantitative results
- Balanced ration of K+ and $NH_4$+ions and independent ROX reference dye packaging, suitable for all real-time PCR instruments

**Principle Telomere Kit length Kit:**
The Mouse Telomere Length Quantification qPCR Assay Kit SYBR Green PCR SuperMix (relative) can perform specific and sensitive detection in a wide range, and is suitable for standard and rapid thermal cyclers. The SYBR Green I dye in the master mix can analyze multiple target nucleic acids without the need to synthesize sequence-specific probes. Antibody method hot-start Taq enzyme can effectively inhibit the amplification caused by primer non-specific annealing. At the same time, the PCR formula is optimized, suitable for the amplification of low-concentration templates, so that quantitative PCR can obtain a good standard curve in a wide quantitative area.

**Description / Introduction:**
Telomere (Telomere) is a DNA sequence at the end of a eukaryotic cell chromosome composed of multiple repeating nucleotide elements (TTAGGG) in tandem. In addition to providing a buffer for non-transcribed DNA, it can also protect the end of the chromosome from fusion and Degenerate, protect chromosome structure stability and genetic integrity.
Telomere is the most important and accurate indicator of a person's aging rate. Its initial length is determined by genetic and environmental factors, and will decrease over time. Studies have shown that telomere length is closely related to DNA repair, aging, apoptosis, and tumorigenesis.
Therefore, accurate and repeatable measurement of telomere length is particularly important for researchers. This product mainly uses relative quantitative qPCR to directly compare the average telomere length of the sample, that is, the copy number ratio (T/S) of the telomere repeat sequence (Tel) and the genome single copy gene (SCR) copy number (T/S) is used as the telomere relative length. Single-copy gene primers (SCR) specifically recognize and amplify the 100bp long region on mouse chromosome 10.

**The primer set in the kit has passed the test to ensure**:

- Efficient and reliable quantification
- No non-specific amplification.
- Each set of primers has been verified by amplification curve efficiency (E>98%, $R^2$>0.99), melting curve analysis and gel electrophoresis verification.

**Components:**

- 2X qPCR Mastermix: 1000 µl
- Telomere Primer Mix: 50 µl
- Single Copy Reference Primer: 50 µl
- 50X ROX: 250 µl
- RNase-free dd$H_2O$: 1 ml
- User manual: 1 pcs

**Transportation:** on blue ice

**Storage:** at -20°C up to 24 months

.. a good decision ..


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**Assay Protocol / Procedures**

1. Defrost the reaction mixture and stir thoroughly.
2. Add the following components into the thin-wall PCR tubes considering the final volume of a reaction mixture equal to 50 µl:

| Component | Volume | Final concentration |
|---|---|---|
| 2x Mastermix | 10 µl | 1x |
| Primer stock solution (Telomere or SCR) | 0.4 µl | 0.2 µM |
| Genomic DNA Template (0.5 - 5 ng/µl) | 1 µl | |
| *50X ROX Dye (optional) | 0.4 µl | 1x |
| Rnase-free water | up to 20 µl | |

3. Gently vortex and remove droplets by centrifugation.
4. Perform PCR using temperature conditions recommended below:

| Step | Temp. °C | Incubation time | Number of Cycles |
|---|---|---|---|
| Preliminary denaturation | 95 | 1 min | 1 |
| Denaturation | 95 | 10 sec | 35-40 |
| Annealing | 55 | 30 sec | 35-40 |
| Elongation | 72 | 45 sec | 35-40 |
| Melting curve (recommended) | | | 1 |

**Note:** The main factors that determine the optimal annealing temperature are primer length and primer base composition. According to the characteristics of the kit's telomere and SCR primer set, we recommend setting the annealing temperature to 55°C.

***ROX dye 50X;**

The fluorescent signal in the reaction system can be standardized by adding a ROX dye to the reaction system according to the selected instrument. The table below lists the amount of ROX required per unit of operation (per 20µl of reaction system):

**qPCR cycler compatibility table *ROX dye**

ABI7300, 7900HT, StepOne: add 5 µl ROX
ABI7500, 7500Fast, ViiA7, Stratagene Mx3000, Mx3005, Mx4000: add 1 µl ROX
Roche, Bio-Rad, Eppendorf etc.: do not add any ROX dye

**Ordering information:**

| Cat.-No | Description | Amount |
|---|---|---|
| EQ028 | Mouse Telomere Length Quantification qPCR Assay Kit (Relative） | 100 rcs |
| EQ028L | Mouse Telomere Length Quantification qPCR Assay Kit (Relative） | 500 rcs |

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