Gene Expression

LightCycler® RNA Pre-Amplification Kit
For Fast and Efficient Linear Amplification of Total RNA

There is an increasing interest in using gene expression research studies of clinical tissue or blood samples to identify new molecular targets, better molecular diagnostic tools, and biomarkers which predict drug efficacy.

However, clinical samples are only available in limited size and quantity, and generally cannot be replaced from the same individual once the whole sample has been processed. Furthermore, when RNA is prepared from small biopsies, formalin-fixed paraffin-embedded (FFPE) sections, or very small cell numbers, the amount and quality of the isolated nucleic acid can be very low. The small amount of RNA increases the difficulty of obtaining an amplified cDNA pool and limits the number of tests that can be done.

The LightCycler® RNA Pre-Amplification Kit provides a fast and simple method for preparing high yields of amplified cDNA from nanogram amounts of total RNA for subsequent gene expression analysis with qPCR. Starting with 5 to 50 ng total RNA, microgram quantities of cDNA can be prepared in approximately four hours.

The Ribo-SPIA® linear isothermal amplification technology used in the LightCycler® RNA Pre-Amplification Kit maintains the relative representation of each transcript species in the original RNA and reduces contamination by amplifying only original copies of the starting mRNA. The amplified product is single-stranded cDNA in the antisense direction of the RNA starting material; the cDNA product is ready for qPCR and does not require purification.

Benefits
- Achieve fast and efficient preparation of up to 1,500-fold amplified cDNA in only four hours.
- Maintain the relative transcript representation of your original RNA sample with the selective Ribo-SPIA® isothermal linear amplification method.
- Use the amplified cDNA with standard PCR reaction conditions on any real-time PCR system.
- Benefit from easy and convenient handling, without the need for intermediate or final purification steps.

*RNA amplification by NUGEN Technologies, Inc.

Figure 1: The fluorescence exponential curves produced using the real-time LightCycler® 480 PCR System show a significant signal increase when using the LightCycler® RNA Pre-Amplification Kit. On average, crossing points (Cp) appear 10 cycles earlier when using the LightCycler® RNA Pre-Amplification Kit.

<table>
<thead>
<tr>
<th></th>
<th>Cp after pre-amplification</th>
<th>Cp without pre-amplification</th>
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</thead>
<tbody>
<tr>
<td>Total RNA, source 1 (n=3)</td>
<td>20.47</td>
<td>30.22</td>
</tr>
<tr>
<td>Total RNA, source 2 (n=3)</td>
<td>19.95</td>
<td>30.47</td>
</tr>
<tr>
<td>Total RNA, source 3 (n=3)</td>
<td>19.79</td>
<td>30.23</td>
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NEW!
LightCycler® RNA Pre-Amplification Kit

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