**Phi29 DNA Polymerase**

*Bacillus subtilis* phage phi29, recombinant, *E. coli*

**Unit Definition:** One unit is defined as the amount of the enzyme required to catalyze the incorporation of 10 nmol of dNTP into an acid-insoluble form in 30 minutes at 74 °C.

**For in vitro use only!**

**Shipping:** shipped on blue ice  
**Storage Conditions:** store at -20 °C  
**Additional Storage Conditions:** avoid freeze/thaw cycles  
**Shelf Life:** 6 months  
**Form:** liquid  
**Concentration:** 10 units/µl

**Applications:**  
- Rolling-circle amplification (RCA)  
- Multiple displacement amplification (MDA)  
- Whole genome amplification (WGA)  
- Preparation of DNA template for sequencing

**Description:**  
Phi29 DNA polymerase is a recombinant protein purified from *E. coli* cloned the gene encoding the DNA polymerase from Phi29 phage. Phi29 DNA polymerase is the replicative polymerase from the *Bacillus subtilis* phage Phi29 and possesses the highest processivity and strand-displacement activity among the known DNA polymerase. Phi29 DNA polymerase contains a 3’→5’ exonuclease activity that enables proofreading capability.

**Content:**  
*Phi29 DNA Polymerase* (brown cap)  
10 units/µl Phi29 DNA Polymerase in storage buffer  
(25 mM NaH₂PO₄ pH 7.0, 150 mM NaCl, 125 mM Imidazole, 50 % Glycerol, 2.5 mM 2-Mercaptoethanol)

*Reaction Buffer (purple cap)*  
10x conc. complete reaction buffer containing 500 mM Tris-HCl pH 7.5, 100 mM MgCl₂, 100 mM (NH₄)₂SO₄ and 40 mM DTT

<table>
<thead>
<tr>
<th>component</th>
<th>PCR-381S</th>
<th>PCR-381L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phi29 DNA Polymerase</td>
<td>20 µl</td>
<td>100 µl</td>
</tr>
<tr>
<td>Reaction Buffer</td>
<td>100 µl</td>
<td>500 µl</td>
</tr>
</tbody>
</table>
**Phi29 DNA Polymerase**  
*Bacillus subtilis* phage phi29, recombinant, *E. coli*

### Recommended Assay Set-Up

<table>
<thead>
<tr>
<th>component</th>
<th>Cat. No.</th>
<th>stock conc.</th>
<th>final conc.</th>
<th>1 assay @ 20 µl</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCR-grade Water</td>
<td>PCR-258</td>
<td></td>
<td></td>
<td>fill up to 20 µl</td>
</tr>
<tr>
<td>Reaction Buffer</td>
<td>PCR-381</td>
<td>10x</td>
<td>1x</td>
<td>2 µl</td>
</tr>
<tr>
<td>(purple cap)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dNTP Mix</td>
<td>NU-1006</td>
<td>10 mM</td>
<td>125 µM</td>
<td>0.25 µl</td>
</tr>
<tr>
<td>Random Hexamers</td>
<td>PM-301</td>
<td>100 µM</td>
<td>5 µM</td>
<td>1 µl</td>
</tr>
<tr>
<td>Target DNA</td>
<td></td>
<td></td>
<td></td>
<td>1 µl</td>
</tr>
<tr>
<td>Phi29 DNA Polymerase</td>
<td>PCR-381</td>
<td>10 units/µl</td>
<td>5-10 units/assay</td>
<td>5-10 units</td>
</tr>
<tr>
<td>(brown cap)</td>
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</tbody>
</table>

**Incubation:**  
Incubate at 30 °C.

**Inactivation:**  
Heat the mixture to 65 °C for 15 min.

**Related Products:**  
Direct WGA Kit, #PCR-382  
Phi29 WGA Kit, #APP-004