

Guide to Takara PCR Polymerases

| Polymerase* | Amplification Efficiency | Product Size λ DNA Recommended/Max | Product size Human Genomic DNA Recommended/Max | Fidelity** | Proofreading Activity | Specificity | Convenience | GC-Rich Templates | Hot-Start PCR | Real Time PCR (qPCR) | Low DNA Enzyme | Processing Speed | Guidelines for Length of Primers | Terminal Transferase Activity (3'-A overhang) |
|---|--------------------------|--|--|----------------------|-----------------------|-------------|-------------|-------------------|---------------|----------------------|----------------|------------------|----------------------------------|---|
| <i>Ex Taq™</i> | ++++ | 29 kb/30 kb | 10 kb/20 kb | 4.5 X <i>Taq</i> | Yes | ++ | ++ | + | - | - | ≤ 10 fg | 1-2 kb/min | 20-30 bp | Yes |
| <i>Premix Ex Taq™</i> | ++++ | 29 kb/30 kb | 10 kb/20 kb | 4.5 X <i>Taq</i> | Yes | ++ | ++++ | + | - | - | ≤ 10 fg | 1-2 kb/min | 20-30 bp | Yes |
| <i>Ex Taq™ HS</i> | ++++ | 29 kb/30 kb | 10 kb/20 kb | 4.5 X <i>Taq</i> | Yes | ++++ | ++ | + | ++++ | - | ≤ 10 fg | 1-2 kb/min | 20-30 bp | Yes |
| <i>Ex Taq™ R-PCR</i> | ++++ | - | - | 4.5 X <i>Taq</i> | Yes | ++++ | ++ | + | ++++ | ++++ | ≤ 10 fg | - | 17-25 bp | Yes |
| <i>Premix Ex Taq™</i> (Perfect Real Time) | ++++ | - | - | 4.5 X <i>Taq</i> | Yes | ++++ | ++++ | + | ++++ | ++++ | ≤ 10 fg | - | 17-25 bp | Yes |
| <i>SYBR Premix Ex Taq™</i> (Perfect Real Time) | ++++ | - | - | 4.5 X <i>Taq</i> | Yes | ++++ | ++++ | + | ++++ | ++++ | ≤ 10 fg | - | 17-25 bp | Yes |
| <i>LA Taq™</i> | +++ | 35 kb/48 kb | 20 kb/30 kb | 6.5 X <i>Taq</i> | Yes | ++ | ++ | + | - | - | ≤ 10 fg | 1-2 kb/min | 25-35 bp | Yes+ |
| <i>LA Taq™ w/GC Buffer</i> | +++ | 35 kb/48 kb§ | (20 kb/30 kb)§ | (6.5 X <i>Taq</i>)‡ | Yes | ++ | ++ | ++++ | - | - | ≤ 10 fg | 1-2 kb/min | 25-35 bp | Yes+ |
| LA PCR Kit | +++ | 35 kb/48 kb | 20 kb/30 kb | 6.5 X <i>Taq</i> | Yes | ++ | ++ | ++++ | - | - | ≤ 10 fg | 1-2 kb/min | 25-35 bp | Yes+ |
| One-Shot LA PCR Mix | +++ | 35 kb/48 kb | 20 kb/30 kb | 6.5 X <i>Taq</i> | Yes | ++ | ++++ | + | - | - | ≤ 10 fg | 1-2 kb/min | 25-35 bp | Yes+ |
| <i>LA Taq™ HS</i> | +++ | 35 kb/48 kb | 20 kb/30 kb | 6.5 X <i>Taq</i> | Yes | ++++ | ++ | + | ++++ | - | ≤ 10 fg | 1-2 kb/min | 25-35 bp | Yes+ |
| <i>Z-Taq™</i> | +++ | 29 kb/30 kb | 10 kb/20 kb | 3 X <i>Taq</i> | Yes | ++ | ++ | ++ | - | - | ≤ 10 fg | 4-5 kb/min | 20-30 bp | Yes |
| <i>Taq</i> | ++ | 6 kb/12 kb | 2 kb/4 kb | 1 X <i>Taq</i> | No | ++ | ++ | + | - | - | ≤ 10 fg | 1 kb/min | 20-30 bp | Yes |
| <i>Premix Taq</i> | ++ | 6 kb/12 kb | 2 kb/4 kb | 1 X <i>Taq</i> | No | + | ++++ | + | - | - | ≤ 10 fg | 1 kb/min | 20-30 bp | Yes |
| <i>Taq HS</i> | ++ | 6 kb/12 kb | 2 kb/4 kb | 1 X <i>Taq</i> | No | ++++ | ++ | + | ++++ | - | ≤ 10 fg | 1 kb/min | 20-30 bp | Yes |

* All of Takara's PCR polymerases are provided with dNTPs and buffer.

+ T-vector cloning efficiency diminishes as the length of the PCR product to be cloned increases above 5 kb.

§ When used with GC Buffer I.

‡ When amplifying GC-rich templates, the fidelity is reduced.

** All fidelity determined by using the Kunkel method.

Takara Bio owns the worldwide rights to LA PCR technology, and also provides a wide selection of PCR kits, including kits for RT-PCR, RACE, Competitive PCR, PCR cloning, PCR mutagenesis, and organism and gene screening.