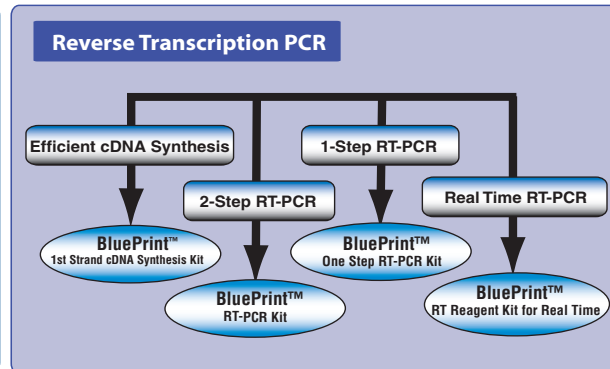
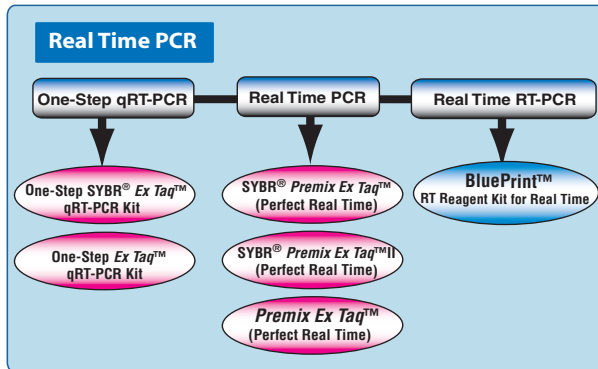
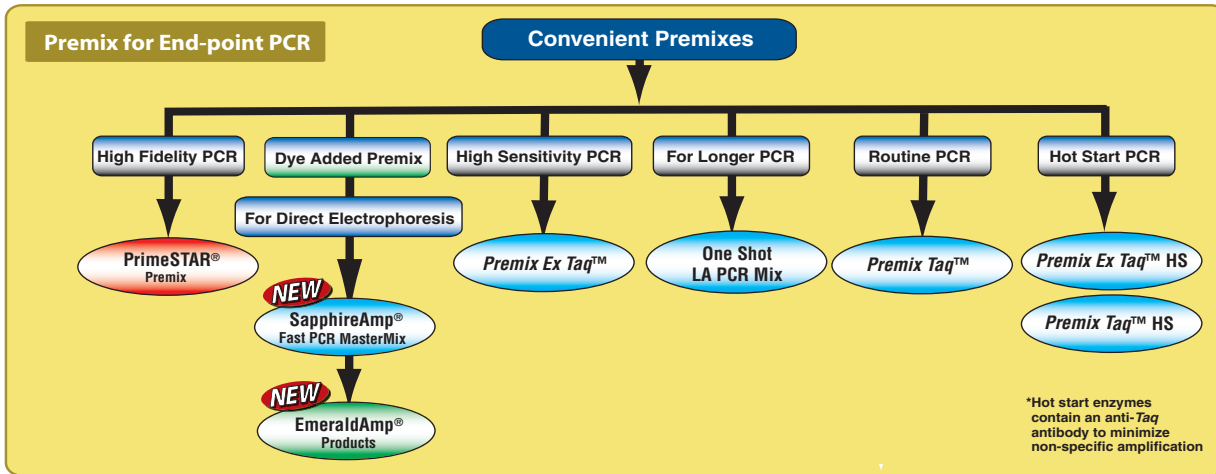
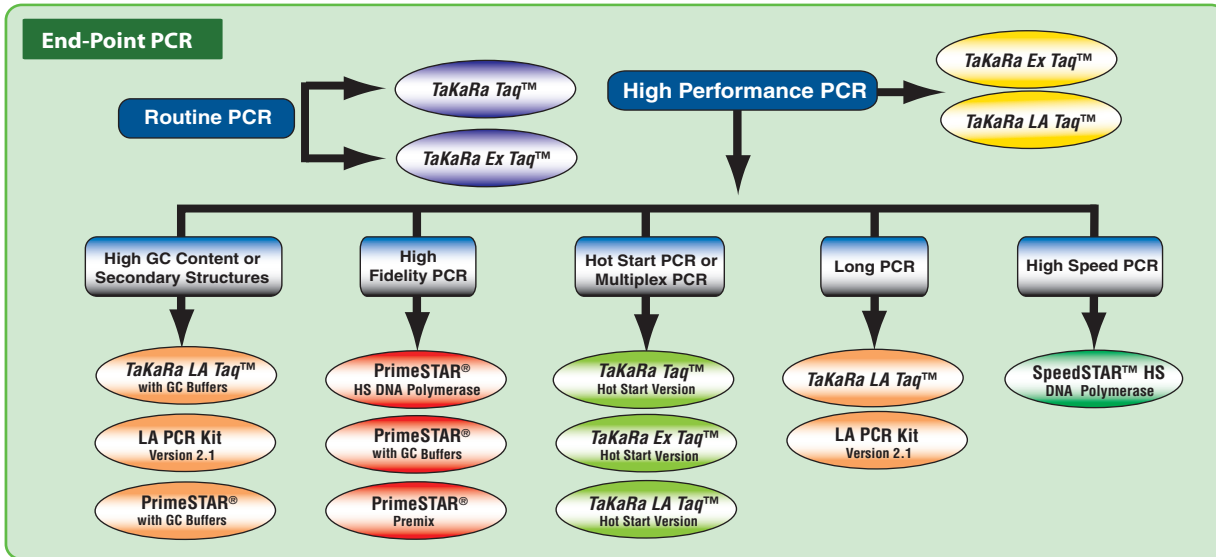


How to Select The Best PCR Enzyme for Your Application



Application	Product Name	Catalog Numbers
High Fidelity PCR	PrimeSTAR® HS DNA Polymerase	R010A/B
	PrimeSTAR® HS DNA Polymerase (premix)	R040A
	PrimeSTAR® HS DNA Polymerase with GC Buffer	R044A/B
Fast PCR	SpeedSTAR™ HS DNA Polymerase	RR070A /B
	SapphireAmp® Fast HS PCR Master Mix	RR350A/B
High Performance PCR	TaKaRa Ex Taq™ DNA Polymerase	RR001A/B/C
	TaKaRa Ex Taq™ DNA Polymerase (Mg free buffer)	RR01AM/BM/CM
	Premix Taq™ (Ex Taq™ Version)	RR003A
	TaKaRa Ex Taq™ DNA Polymerase, Hot-Start Version	RR006A/B
	TaKaRa Ex Taq™ DNA Polymerase, HS Version, Premix	RR030A
	TaKaRa LA Taq™ DNA Polymerase (Mg free buffer)	RR002A
	TaKaRa LA Taq™ DNA Polymerase	RR002M/B/C
	LA PCR Kit, Version 2.1	RR013A/B
	TaKaRa LA Taq™ DNA Polymerase with GC Buffers	RR02AG
	TaKaRa LA Taq™ Hot-Start Version	RR042A/B
	One Shot LA PCR Mix	RR004
Real Time PCR	SYBR® Premix Ex Taq™ (Perfect Real Time)	RR041A/B
	SYBR® Premix Ex Taq™ (Perfect Real Time)	RR041L/RR41R
	SYBR® Premix Ex Taq™ II (Perfect Real Time)	RR081A /B
	SYBR® Premix Ex Taq™ II (Perfect Real Time)	RR081L/ RR81LR
	Premix Ex Taq™ (Perfect Real Time)	RR039A/B
	One Step SYBR® Ex Taq™ qRT-PCR Kit	RR067A/B
	One Step Ex Taq™ qRT-PCR Kit	RR068A/B
	CellAmp™ Direct RT-PCR RNA Prep Kit	3732
RT-PCR and qRT-PCR	Blueprint™ RT Reagent Kit (for Real Time PCR)	RR737A/B
	Blueprint™ RT PCR Kit (for two step RT-PCR)	RR714A/B
	Blueprint™ One Step RT-PCR Kit	RR755A/B
	Blueprint™ 1st Strand cDNA Synthesis Kit	6115A/B
General PCR	TaKaRa Taq™ Hot-Start Version	R007A/B
	TaKaRa Taq™ Hot-Start Version (premix)	R028A
	TaKaRa Taq™	R001A/B/C
	TaKaRa Taq™ (Mg ²⁺ free buffer)	R001AM/BM/CM
	Premix Taq™ (TaKaRa Taq™ Version)	R004A
Dye-added Premixes	EmeraldAmp® GT PCR Master Mix	RR310A/B
	EmeraldAmp® Max PCR Master Mix	RR320A/B
	EmeraldAmp® Max HS PCR Master Mix	RR330A/B
	SapphireAmp® Fast HS PCR Master Mix	RR350A/B
dNTPs	dATP, dGTP, dCTP, dTTP	4026/4027/4028/4029
	dNTP Mixture	4030
	dNTP Set	4025

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)
PrimeSTAR® HS*	+++	up to 20 kb	up to 8.5 kb	10 X <i>Taq</i> [‡]	Yes	++++	++	++++	++++	–	\$ 10 fg	1-2 kb/min	20-30 bp	No (blunt end)
PrimeSTAR® HS with GC Buffers	+++	up to 10 kb	up to 5 kb	10 X <i>Taq</i> [‡]	Yes	++++	++	++++	++++	–	\$ 10 fg	1-2 kb/min	20-30 bp	No (blunt end)
PrimeSTAR® HS, Premix	+++	up to 10 kb	up to 5 kb	10 X <i>Taq</i> [‡]	Yes	++++	++++	++++	++++	–	\$ 10 fg	1-2 kb/min	20-30 bp	No (blunt end)
SpeedSTAR™ HS	+++	20 kb/30 kb	10 kb/ 20 kb	4.5 X <i>Taq</i> ^{**}	Yes	++++	++	+	++++	–	\$ 10 fg	6 kb/min	20-30 bp	Yes
TaKaRa Ex <i>Taq</i> ^{™*}	++++	20 kb/30 kb	10 kb/20 kb	4.5 X <i>Taq</i> ^{**}	Yes	++	++	+	–	–	\$ 10 fg	1-2 kb/min	20-30 bp	Yes
Premix Ex <i>Taq</i> [™]	++++	20 kb/30 kb	10 kb/20 kb	4.5 X <i>Taq</i> ^{**}	Yes	++	++++	+	–	–	\$ 10 fg	1-2 kb/min	20-30 bp	Yes
TaKaRa Ex <i>Taq</i> ^{™ HS*}	++++	20 kb/30 kb	10 kb/20 kb	4.5 X <i>Taq</i> ^{**}	Yes	++++	++	+	++++	++	\$ 10 fg	1-2 kb/min	20-30 bp	Yes
TaKaRa Ex <i>Taq</i> ^{™ HS, Premix}	++++	20 kb/30 kb	10 kb/20 kb	4.5 X <i>Taq</i> ^{**}	Yes	++++	++++	+	++++	++	\$ 10 fg	1-2 kb/min	20-30 bp	Yes
Premix Ex <i>Taq</i> ^{™*} (Perfect Real Time)	++++	–	–	4.5 X <i>Taq</i> ^{**}	Yes	++++	++++	+	++++	++++	\$ 10 fg	–	–	17-25 bp
SYBR® Premix Ex <i>Taq</i> ^{™*} (Perfect Real Time)	++++	–	–	4.5 X <i>Taq</i> ^{**}	Yes	++++	++++	+	++++	++++	\$ 10 fg	–	–	17-25 bp
SYBR® Premix Ex <i>Taq</i> ^{™ II*} (Perfect Real Time)	++++	–	–	4.5 X <i>Taq</i> ^{**}	Yes	++++	++++	+	++++	++++	\$ 10 fg	–	–	17-25 bp
TaKaRa LA <i>Taq</i> ^{™*}	+++	35 kb/48 kb	20 kb/30 kb	6.5 X <i>Taq</i> ^{**}	Yes	++	++	+	–	–	\$ 10 fg	1-2 kb/min	20-30 bp	Yes ⁺
TaKaRa LA <i>Taq</i> ^{™ w/GC Buffers}	+++	35 kb/48 kb§	(20 kb/30 kb)§	(6.5 X <i>Taq</i>) ^{‡**}	Yes	++	++	++++	–	–	\$ 10 fg	1-2 kb/min	20-30 bp	Yes ⁺
LA PCR Kit, V.2.1	+++	35 kb/48 kb	20 kb/30 kb	6.5 X <i>Taq</i> ^{**}	Yes	++	++	++++	–	–	\$ 10 fg	1-2 kb/min	20-30 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	20-30 bp	Yes ⁺
LA <i>Taq</i> ^{™ HS}	+++	35 kb/48 kb	20 kb/30 kb	6.5 X <i>Taq</i> ^{**}	Yes	++++	++	+	++++	–	\$ 10 fg	1-2 kb/min	20-30 bp	Yes ⁺
TaKaRa <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
Premix <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
TaKaRa <i>Taq</i> ^{™ HS*}	++	6 kb/12 kb	2 kb/4 kb	1 X <i>Taq</i> ^{**}	No	++++	++	+	++++	+++	\$ 10 fg	1 kb/min	20-30 bp	Yes
TaKaRa <i>Taq</i> ^{™ HS, Premix*}	++	6 kb/12 kb	2 kb/4 kb	1 X <i>Taq</i> ^{**}	No	++++	++++	+	++++	+++	\$ 10 fg	1 kb/min	20-30 bp	Yes
EmeraldAmp® GT PCR Master Mix*	++	6 kb/12 kb	2 kb/4 kb	1 X <i>Taq</i> ^{**}	No	++	++++	++			\$ 10 fg	1 kb/min	20-30 bp	Yes
EmeraldAmp® Max PCR Master Mix*	++++	10 kb/20 kb	4 kb/10 kb	3 X <i>Taq</i> ^{**}	Yes	++	++++	++++			\$ 10 fg	1 kb/min	20-30 bp	Yes
EmeraldAmp® Max HS PCR Master Mix*	++++	10 kb/20 kb	4 kb/10 kb	3 X <i>Taq</i> ^{**}	Yes	++++	++++	++++	++++		\$ 10 fg	1 kb/min	20-30 bp	Yes
SapphireAmp® Fast PCR Master Mix*	++++	10 kb/20 kb	4 kb/10 kb	3 X <i>Taq</i> ^{**}	Yes	++++	++++	+	++++		\$ 10 fg	1 kb/min	20-30 bp	Yes

* Sample Available

++++ Best
+++ Good
++ Average
+ Poor

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.

Fidelity determined by direct sequencing.

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