



◎ PCR enzyme Selection Guide Ⅱ

Product	5' → 3' Exonuclease	3' → 5' Exonuclease (fidelity)	A-tailing	Product Size	Extension Time	Yield	Specificity	Sensitivity	cDNA Synthesis	Isothermal
BioFACT™ Real-Time PCR	Yes	No	Yes	< 1 kb	1 min / kb	**	*****	**		
BioFACT™ F-Star Taq	Yes	No	Yes	< 3 kb	1 min / kb	***	*****	****		
BioFACT™ Thumb Taq	Yes	No	Yes	< 5 kb	1 min / kb	*****	**	****		
BioFACT™ Taq	Yes	No	Yes	< 5 kb	1 min / kb	****	**	****		
BioFACT™ H-Star Taq	Yes	No	Yes	< 1 kb	1 min / kb	**	*****	**		
BioFACT™ A-Star Taq	Yes	No	Yes	< 5 kb	1 min / kb	****	***	****		
BioFACT™ Lamp Taq	Yes	Yes ^W	Yes	< 40 kb (Δ DNA7[²])	1 min / kb	*****	***	***		
BioFACT™ A-Star Lamp Taq	Yes	Yes ^W	Yes	< 40 kb (Δ DNA7[²])	1 min / kb	****	***	****		
BioFACT™ Pfu	No	Yes	No	< 3 kb	2 min / kb	***	**	**	Yes	
BioFACT™ Lamp Pfu	No	Yes	No	< 20 kb	0.5 min / kb	*	*	*	Yes	
BioFACT™ 2X Multi-Star PCR	Yes	No	Yes	< 1 kb	1 min / kb	**	*****	**		
BioFACT™ RT									Yes	
BioFACT™ OneStep RT-PCR	Yes	No	Yes	< 1 kb	1 min / kb	**	*****	**	Yes	
BioFACT™ Bst	No	No								Yes

- Yes^W : 약한 3' → 5' Exonuclease (fidelity) activity
- Yield : PCR 증폭 효율, 즉 PCR이 완료된 end-product 양을 의미합니다.
- Extension time : 각 enzyme별 특성에 따라 증폭 길이와 extension time이 다릅니다.
- Specificity : Target Gene에 대한 특이성을 말하며, non-specific band의 증폭 없이 원하는 target region만 증폭되는 정도를 말합니다.
- Sensitivity : Template DNA 농도에 대한 민감도, 즉 template DNA 농도에 따른 PCR 증폭 정도를 의미하며, Sensitivity가 높으면 낮은 농도의 template DNA로도 상대적으로 높은 PCR 증폭 효율이 나타납니다.

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DNA polymerase, dNTP, PCR buffer 등 PCR Kit의 구성품이 각기 다른 vial에 따로 분주되어 제공되는 제품입니다.



Standard Type

적정 비율로 혼합된 PCR mixture를 1.5 ml vial에 분주한 제품입니다.



Master Mix Type

적정 비율로 혼합된 PCR mixture를 실험자가 더욱 편하게 이용할 수 있도록 8-strip PCR tube (0.2 ml)에 분주한 제품입니다.



Pre-Mix Type

적정 비율로 혼합된 PCR mixture를 실험자가 더욱 편하게 이용할 수 있도록 8-strip PCR Tube (0.2 ml)에 분주하고, 동결 건조한 제품입니다.



Pre-Mix Type (Lyophilisates)

Classification	Product	Type			
		Standard Type	Master Mix Type	Pre-Mix Type	Pre-Mix (Lyophilisates)
Universal	BioFACT™ F-Star Taq	○	○	○	
	BioFACT™ Thumb Taq	○	○	○	
	BioFACT™ Taq	○	○	○	○
Gene Specific	BioFACT™ H-Star Taq	○	○	○	
	BioFACT™ A-Star Taq	○			
Long	BioFACT™ Lamp Taq	○	○	○	
	BioFACT™ A-Star Lamp Taq	○			
High Fidelity	BioFACT™ Pfu	○	○	○	
	BioFACT™ Lamp Pfu	○			
Multiplex	BioFACT™ 2X Multi-Star PCR Series		○	○	○
cDNA Synthesis	BioFACT™ RT Series	○		○	○
	BioFACT™ OneStep RT-PCR Series	○	○	○	○
Isothermal	BioFACT™ Bst DNA Polymerase	○			

◎ BIOFACT PCR polymerase List

[Standard]			[Master Mix / Pre-Mix]				
Products		Cat.No	Size	Products		Cat.No.	Size
Taq		ST116-500	500U	Taq	2X Taq PCR Master Mix 1	ST301-50h	1mL x 5ea
		ST116-25h	2,500U		2X Taq PCR Master Mix 2	ST302-50h	1mL x 5ea
		ST116-50h	5,000U		2X Taq PCR Pre-Mix	ST402-096	96 tubes
		ST111-500	500U		2X Taq PCR Pre-Mix	ST402-480	480 tubes
Thumb Taq		TT116-500	500U		2X Taq PCR Pre-Mix , Lyophilisates	ST501-096	96 tubes
F-Star Taq		FS106-500	500U	Thumb Taq	Thumb Taq PCR Master Mix 1	TT301-50h	1mL x 5ea
		FS106-25h	2,500U		Thumb Taq PCR Master Mix 2	TT302-50h	1mL x 5ea
		FS106-50h	5,000U		Thumb Taq PCR Pre-Mix	TT402-096	96 tubes
H-Star Taq		HS106-250	250U		Thumb Taq PCR Pre-Mix	TT402-480	480 tubes
		HS106-10h	1,000U				
A-Star Taq		AT116-500	500U	F-Star Taq	2X F-star Taq PCR Master Mix	FS301-50h	1mL x 5ea
		AT116-25h	2,500U		2X F-Star Taq PCR Pre-Mix	FS401-096	96 tubes
		AT116-50h	5,000U		2X F-Star Taq PCR Pre-Mix	FS401-480	480 tubes
Lamp Taq		LT116-250	250U	H-Star Taq	2X H-Star Taq PCR Master Mix 1	HS301-40h	1mL x 4ea
		LT116-500	500U		2X H-Star Taq PCR Master Mix 2	HS303-40h	1mL x 4ea
		LT116-25h	2,500U		2X H-Star Taq PCR Pre-Mix	HS401-096	96 tubes
		LT116-50h	5,000U		2X H-Star Taq PCR Pre-Mix	HS401-480	480 tubes
A-Star Lamp Taq		AL116-250	250U	Lamp Taq	2X Lamp Taq PCR Master Mix 1	LT301-50h	1mL x 5ea
		AL116-500	500U		2X Lamp Taq PCR Master Mix 2	LT302-50h	1mL x 5ea
		AL116-25h	2,500U		2X Lamp Taq PCR Pre-Mix	LT402-096	96 tubes
Pfu		PD116-250	250U		2X Lamp Taq PCR Pre-Mix	LT402-480	480 tubes
		PD116-500	500U	Pfu	2X Pfu PCR Master Mix 1	PD301-50h	1mL x 5ea
		PD116-25h	2,500U		2X Pfu PCR Master Mix 2	PD302-50h	1mL x 5ea
		PD116-50h	5,000U		2X Pfu PCR Pre-Mix	PD401-096	96 tubes
Lamp Pfu		LP116-250	250U		2X Pfu PCR Pre-Mix	PD401-480	480 tubes
		LP116-500	500U	RT	2X RT Pre-Mix	BR441-096	96 tubes
RT Kit		BR122-10k	10,000U		2X RT Pre-Mix	BR341-20h	1mL x 2ea
		BR123-10k	10,000U		2X RT Pre-Mix(dT18 Plus), Lyophilisates	BR546-096	96 tubes
	OneStep RT-PCR Kit		BR861-050		50 rxns	2X RT Pre-Mix(dN9 Plus), Lyophilisates	BR547-096
		BR861-100	100 rxns		2X RT Pre-Mix(dT18/dN9 Plus), Lyophilisates	BR548-096	96 tubes
Isothermal		BP101-16h	1,600U		2X OneStep RT-PCR Master Mix	BR331-10h	1mL x 1ea
		BP101-80h	8,000U		2X OneStep RT-PCR Master Mix	BR331-50h	1mL x 5ea
					2X OneStep RT-PCR Pre-Mix	BR431-096	96 tubes
					2X OneStep RT-PCR Pre-Mix, Lyophilisates	BR531-096	96 tubes

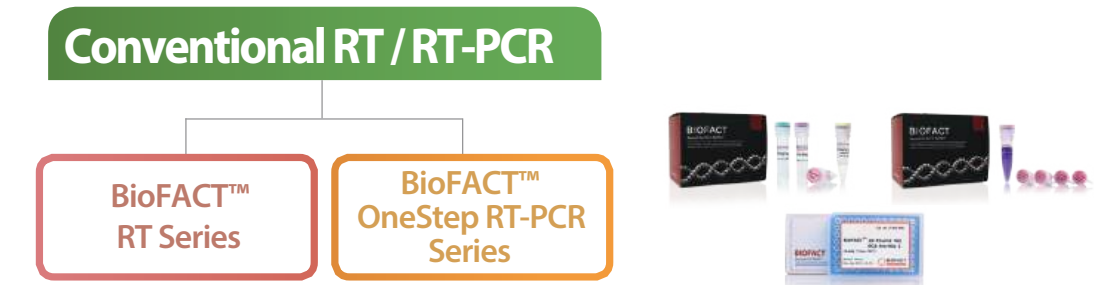
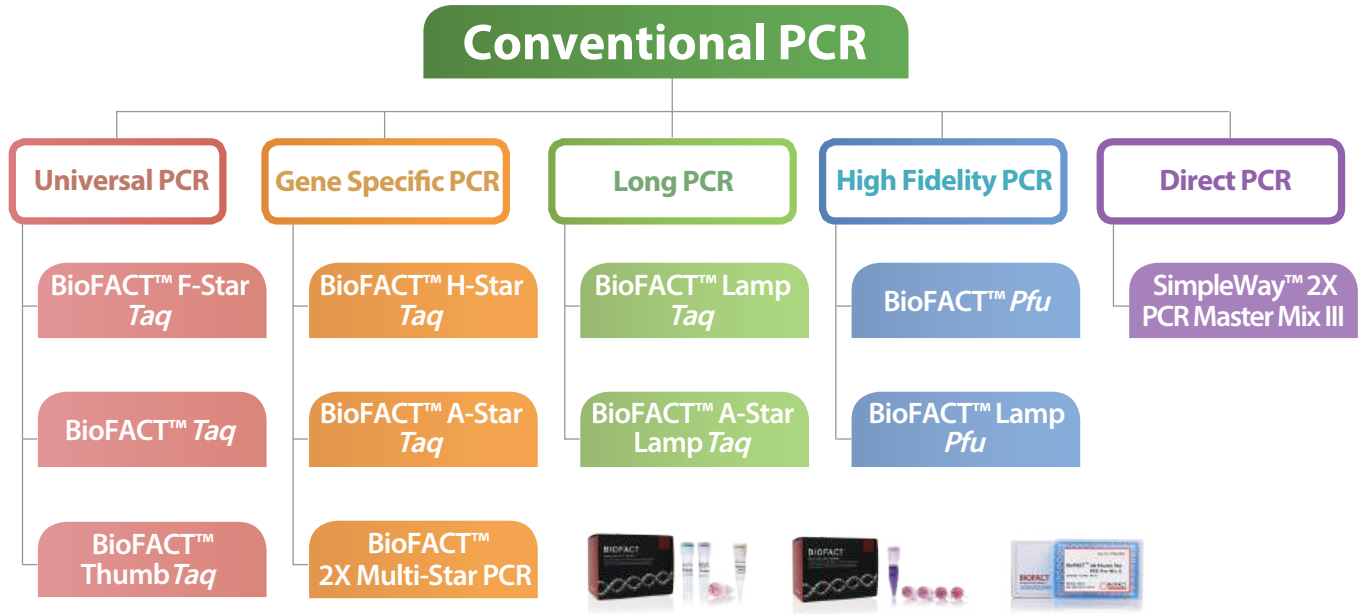


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Selection Guide
- BIOFACT PCR Enzyme

“ Beyond the PCR technology, BIOFACT promises the progress for your research. BIOFACT provides you the most innovative high-quality reagents and lab supplies which lead to success of your tomorrow.”

※ 동결건조 제형의 Lyophilisates 제품의 자세한 정보는 해당 브로셔 참조



* Real-Time PCR part의 자세한 내용은 Real-Time PCR selection guide 참조

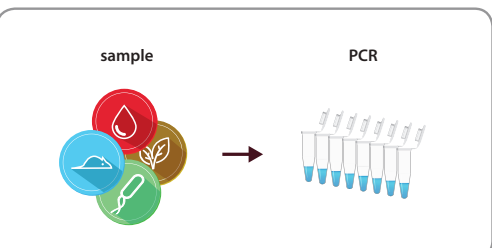
Universal PCR		
BioFACT™ F-Star <i>Taq</i> [FS106-500]	BioFACT™ <i>Taq</i> [ST116-500]	BioFACT™ Thumb <i>Taq</i> [TT116-500]
- Hot start PCR enzyme - Target gene에 대한 높은 특이성 - BioFACT™ H-Star <i>Taq</i> 과 유사한 특성	- Colony PCR과 같은 일반적인 PCR - 진단 및 검정 등 다양한 PCR에도 사용 가능 - UDG system 적용 가능	- Conventional PCR - High Productivity PCR
Gene Specific PCR		
BioFACT™ H-Star <i>Taq</i> [HS106-250]	BioFACT™ A-Star <i>Taq</i> [AT116-500]	BioFACT™ 2X Multi-Star PCR Series [MS301-25h]
- Hot start PCR enzyme - Target gene에 대한 높은 특이성 - Chemical-mediated antibody 이용	- DNA Polymerase에 Anti- <i>Taq</i> antibody를 결합시킨 Hot Start PCR enzyme - 비특이적 증폭 방지 - Target gene 증폭에 효과적	- Hot start PCR enzyme - Target gene에 대한 높은 특이성 - Chemical-mediated 이용 - Multiplex PCR 가능
Long PCR		
BioFACT™ Lamp <i>Taq</i> [LT116-250]	BioFACT™ A-Star Lamp <i>Taq</i> [AL116-250]	
- <i>Taq</i> 과 <i>Pfu</i> 의 장점을 가진 제품 - 긴 PCR 단편 증폭가능 - 낮은 error rate - A-tailing 가능	- <i>Taq</i> 과 <i>Pfu</i> 의 장점을 가진 제품 - 긴 PCR fragment 증폭가능	- Anti- <i>Taq</i> Antibody와 결합 - Non-specific product 등 비특이적 증폭 방지
High Fidelity PCR		
BioFACT™ <i>Pfu</i> [PD116-250]	BioFACT™ Lamp <i>Pfu</i> [LP116-250]	
- Blunt-end fragment 증폭 - Error rate가 낮아 정확한 PCR 증폭 가능	- 20kb 이하의 긴 PCR fragment 증폭 가능 - Site-directed Mutagenesis에 적합	- 기존 <i>Pfu</i> 에 비해 약 4배 빠른 합성 속도 - 1bp 이하 error/10 ⁶ bp
RT PCR		
BioFACT™ RT Series [BR123-10k]	BioFACT™ OneStep RT-PCR Series [BR861-050]	
- 기존 M-MLV보다 비교적 열에 안정성을 가진 RTase - 50°C에서 cDNA 합성 가능한 thermostable RTase - RNA의 2차구조 억제하여 cDNA 합성 효율 우수	- Reverse transcription과 PCR 증폭을 OneStep으로 진행 - Thermostable BioFACT™ RTase와 Hot Start 기능을 가진 H-star <i>Taq</i> DNA polymerase의 enzyme mixture를 최적의 조건으로 혼합	
Isothermal amplification		

BioFACT™ *Bst* DNA Polymerase, Large Fragment
[BP101-16h]

- Loop-Mediated isothermal Amplification(LAMP)
- optimization activity at 65°C
- lacking 5'→3' exonuclease activity
- Isothermal Amplification
- Relative activity 80~90% at 60°C, 65~75% at 55°C, 15~20% at 50°C
- 3'→5' exonuclease: No

Direct PCR

SimpleWay™ gDNA Prep & PCR Set [SW401-100]



- gDNA prep solution과 PCR용 Master mix 함께 제공
- 1개의 시료에서 다양한 Primer Set로 PCR 진행 시 권장
- Hot start PCR enzyme
- 1kb 미만의 특이적인 증폭

PCR enzyme Selection Guide I

Specification		Products	Similar products from other companies
Universal PCR	Premium	BioFACT™ F-Star <i>Taq</i>	-
	General	BioFACT™ Thumb <i>Taq</i> BioFACT™ <i>Taq</i>	ABI Ampli <i>Taq</i> , Ampli <i>qon</i> <i>Taq</i> , Beamsbio <i>Taq</i> -PCR Master Mix, Bioneer AccuPower® <i>Taq</i> , Bioron Top- <i>Taq</i> , Cosmo <i>genetech</i> G- <i>Taq</i> , Thermo Scientific Dream <i>Taq</i> , Elpis bio r <i>Taq</i> / HiPi / HiPi Eco <i>Taq</i> , Enzy <i>nomics</i> n <i>Taq</i> , Fermentas <i>Taq</i> , GenetBio Prime <i>Taq</i> , Intron i- <i>Taq</i> / i- <i>Taq</i> plus, Invitrogen Tf <i>i</i> , Promega Go <i>Taq</i> , Qiagen <i>Taq</i> / Top <i>Taq</i> , Roche <i>Taq</i> , Takara <i>Taq</i>
Gene Specific PCR	Chemical-mediated	BioFACT™ H-Star <i>Taq</i>	Qiagen HotStart <i>Taq</i> , ABI Ampli <i>Taq</i> Gold, Roche Faststar <i>Taq</i> , Promega Go- <i>Taq</i> Hotstart, Cosmo <i>genetech</i> Hotstart- <i>Taq</i> , Fermentas Maxima Hot start <i>Taq</i> , Tru <i>estar</i> Hot start <i>Taq</i>
	Antibody-mediated	BioFACT™ A-Star <i>Taq</i>	Bioron SuperHot <i>Taq</i> DNA Polymerase, Intron i-Star <i>Taq</i> ™ GH DNA Polymerase, KAPA KAPA <i>Taq</i> HotStart PCR Kit, Invitrogen Platinum® <i>Taq</i> DNA Polymerase, Promega Go <i>Taq</i> ® Hot Start Polymerase, Go <i>Taq</i> ® G2 Hot Start Polymerase, TaKaRa TaKaRa <i>Taq</i> HS
Long PCR	General	BioFACT™ Lamp <i>Taq</i>	Takara LA- <i>Taq</i> , Elpis biotech Hi <i>pi</i> super <i>Taq</i> / Hi <i>pi</i> plus <i>Taq</i> , Invitrogen Platinum <i>Taq</i> High Fidelity, Fermentas Long PCR enzyme mix
	Antibody-mediated	BioFACT™ A-Star Lamp <i>Taq</i>	Intron i-StarMAX™ GH DNA Polymerase, KAPA KAPA Long Range HotStart DNA Polymerase, Invitrogen Platinum® <i>Taq</i> DNA Polymerase High Fidelity, AccuPrimer™ <i>Taq</i> DNA Polymerase High Fidelity, Elongase® Enzyme Mix, Promega Go <i>Taq</i> ® Long PCR Master Mix, Solis biodyne 5x HOT FIREPol® Blend Master Mix, TaKaRa TaKaRa LA <i>Taq</i> HS, TaKaRa Ex <i>Taq</i> HS, Toyobo Blend <i>Taq</i> ® -Plus-
High Fidelity PCR	General	BioFACT™ <i>Pfu</i>	Bioneer <i>Pfu</i> , Takara Pyro <i>best</i> , PrimeSTAR HS, Roche Pwo SuperYield, Invitrogen AccuPrime P <i>fx</i> , Fermentas <i>Pfu</i> , Phusion High fidelity
	Long	BioFACT™ Lamp <i>Pfu</i>	Bioneer AccuPower® <i>Pfu</i> , Enzy <i>nomics</i> n <i>Pfu</i> -Forte
Multiplex PCR	General	BioFACT™ Multi-Star PCR	Qiagen Multiplex PCR kit, Intron i-D PCR, Bioneer Accupower Multiplex PCR, Komabiotech Multiplex PCR
Isothermal amplification	General	BioFACT™ <i>Bst</i>	NEB <i>Bst</i> 2.0, <i>Bst</i> 3.0, <i>Bst</i> DNA Polymerase, Large Fragment, Nano <i>helix</i> HelixAmp™ <i>Bst</i> , Enzy <i>nomics</i> <i>Bst</i> DNA Polymerase (Large Fragment), ELPIS BIOTECH <i>Bst</i> DNA polymerase, LF exo-, <i>Bst</i> DNA Polymerase V2