ThermoFisher SCIENTIFIC

프리미엄 PCR Enzyme 솔루션

Invitrogen™ SuperScript™ Reverse Transcriptases
Invitrogen™ Platinum™ DNA Polymerases

DNA 구조발견 70주년 기념

SuperScript™ IV UniPrime™ One-Step RT-PCR System 제품

15% 할인 프로모션!

DNA 70 YEARS OF BREAKTHROUGHS

invitrogen

Reverse transcription – cDNA Synthesis (cDNA합성)

SUPERSCRIPT IV

단일 가닥 RNA를 템플릿으로 사용하는 cDNA의 전사 효소.
cDNA는 PCR 증폭, cDNA 라이브러리 구성, RNA 염기서열 분석 등의 템플릿으로 사용할 수 있습니다.
SuperScript는 샘플에서 적은 RNA까지 검출하고 전체 cDNA의 높은 수율을 얻는 데 탁월한 제품입니다.

SuperScript IV 장점

Super Fast
10분만에 cDNA 합성 가능

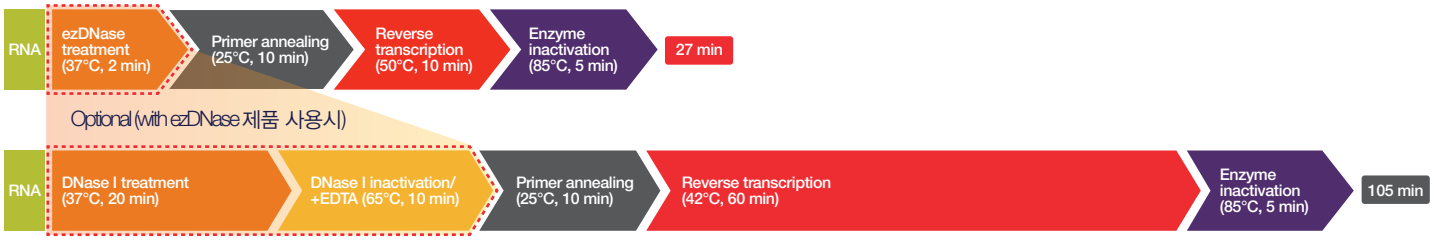
Super Efficient
높은 cDNA 수율 자랑

Super Stable
우수한 cDNA 합성 성능을 위한 높은 열안정성

Super Strong
낮은 purity의 RNA 샘플에서도 뛰어난 결과 확인 가능

Invitrogen SuperScript는 50,000개가 넘는 논문인용에 사용되었습니다.
가장 신뢰 받고 널리 사용되는 First Strand cDNA합성 제품입니다.
IV제품은 최신 SuperScript 효소이며, 어려운 샘플 혹은 RNA 샘플에서도 우수한 성능을 제공하도록 설계된 제품입니다.

SuperScript IV RT and SuperScript IV VILO Master Mix cDNA synthesis workflow with ezDNase



Traditional cDNA synthesis workflow with DNase I

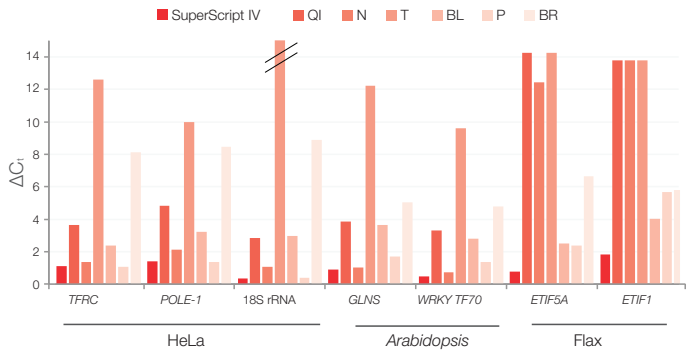


Figure 1. High efficiency with degraded RNA. RT-qPCR of degraded RNA (RNA integrity number (RIN) 1–3) from human cells and plant tissues with different RTs and Applied Biosystems™ TaqMan® Assays. Delta C_t values ($\Delta C_t = C_t - C_{t\ \text{SuperScript IV}}$) show that SuperScript IV RT, with its standard 10 min protocol, delivered higher cDNA yields and lower C_t values than the recommended protocols for SuperScript III reagent and other suppliers' RTs.

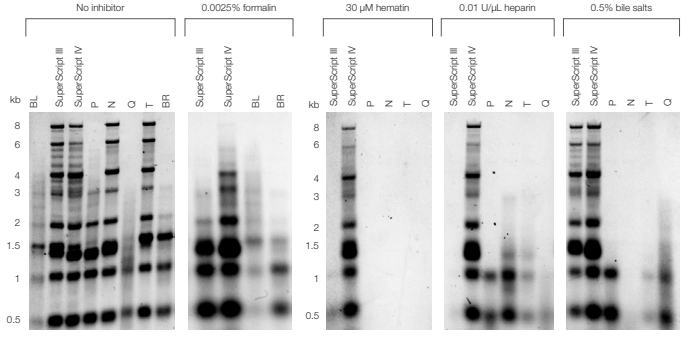


Figure 2. Tolerance to inhibitors. This data shows first-strand cDNA synthesis of an RNA ladder in the presence of reaction inhibitors. cDNA fragments were resolved by alkaline gel electrophoresis. All RTs except for SuperScript IV RT were severely affected with trace amounts of inhibitors.

SuperScript IV 종류 및 특징

SuperScript IV Reverse Transcriptase

- **샘플에 맞는 조건으로 직접 최적화 가능**
- Kit type으로 RTase 단품으로 판매
- 구성품 : SuperScript® IV RT, 5X RT buffer, 0.1 M DTT

SuperScript IV First-Strand Synthesis System

- **합성에 필요한 모든 Component가 포함**
- 추가적으로 Hela RNA, Control gene primer set 제공
- 구성품 : SuperScript® IV RT, 5X RT buffer, 0.1 M DTT, 10 mM dNTP mix, Oligo(dT)20, Random hexamers, Ribonuclease Inhibitor, E. coli RNase H, DEPC-treated water, Total HeLa RNA, Control Primer set

SuperScript IV VILO Master Mix

- **가장 편리하고 간편한 Master Mix**
- 최적화된 버퍼 조건으로 제공
- Hands-on time Save
- ezDNase™ Enzyme 포함된 제품으로 구매 가능
- 구성품 : SuperScript IV VILO Master Mix, SuperScript IV VILO Master Mix 'No RT' Control, Nuclease-free water

SuperScript IV One-Step RT-PCR System

- **하나의 튜브에서 RT부터 PCR까지 한번에 가능**
- Platinum™ SuperFi™ DNA Polymerase 포함
- ezDNase™ Enzyme 포함된 제품으로 구매 가능
- 구성품 : SuperScript IV RT Mix, 2X Platinum SuperFi RT-PCR Master Mix, nuclease-free water

SuperScript IV CellsDirect cDNA Synthesis Kit

- **RNA isolation 과정 불필요**
- Cell 1-10,000개에서 바로 cDNA 합성 가능
- 세포에서 cDNA 합성까지 약 52분 소요
- 구성품 : SuperScript IV CellsDirect Lysis Solution, Stop Solution, Lysis Enhancer, Dnase I, RT Master Mix, No RT Control

SuperScript™ IV UniPrime™ One-Step RT-PCR System

DNA 구조발견 기념
15% 할인

Two-Phase hot-start mechanism으로 하나의 튜브에서
RT부터 PCR까지 한번에 가능

Super Simple
Universal annealing temperature으로 실험 스텝 간소화

Super Efficient
까다로운 RNA 샘플에서도 높은 특이도와 민감도로 높은 회수율 자랑

Super Accurate
Visual tracking이 가능한 시약으로 사용자 오류 최소화

Two-Phase hot-start mechanism

혁신적인 Two-Phase hot-start mechanism은 역전사 효소와 DNA polymerase의 활성을 일시적으로 분리하여 One Step RT-PCR에서 높은 특이성과 수율을 제공합니다.

Reaction setup

18–23°C

역전사 효소 및 DNA polymerase는 비특이적인 binding을 방지하는 hot-start mechanism으로 인해 비활성 상태로 유지됩니다.

First hot-start activation phase

45–60°C

역전사 효소가 활성화되면 cDNA 합성이 시작됩니다.
DNA polymerase는 잔류 활성을 방지하기 위해 비활성 상태를 유지합니다.

Second hot-start activation phase

98°C

이 단계 이후에는 DNA polymerase가 활성화되고 역전사효소가 동시에 비활성화되어 매우 효율적이고 특이적인 DNA 증폭이 가능합니다.

우수한 민감도로 0.01pg RNA까지 detection 가능

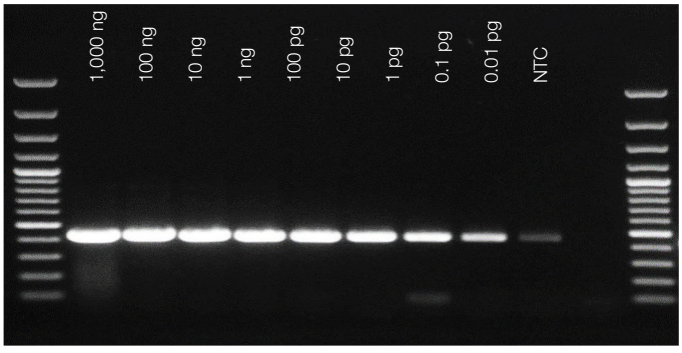


Figure 3. High sensitivity and reliable target detection from low amounts of input RNA. A 0.43 kb fragment was successfully amplified using serial dilution from 1,000 ng to 0.01 pg of Invitrogen™ Universal Human Reference RNA (UHRR) and the SuperScript IV UniPrime One-Step RT-PCR System. The molecular weight marker is the Thermo Scientific™ GeneRuler™ 100 bp Plus DNA Ladder, ready-to-use. NTC: no-template control.

단순화된 reaction setup은 RT-PCR 진행 시 실수 방지에 도움

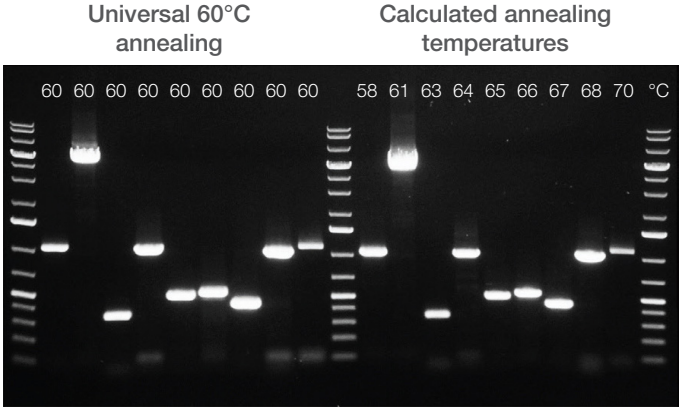


Figure 4. RT-PCR cycling under two annealing conditions. Nine targets with varying calculated annealing temperatures were amplified from 10 ng UHRR using a universal annealing temperature of 60°C (left), or the annealing temperatures calculated with the Tm calculator for Invitrogen™ Platinum™ SuperFi™ DNA Polymerase (right). The molecular weight marker is the GeneRuler 1 kb Plus DNA Ladder, ready-to-use.

SuperScript IV Format

제품	SuperScript IV Reverse Transcriptase	SuperScript IV First-Strand Synthesis System	SuperScript IV VILO Master Mix
설명	샘플에 맞는 조건으로 직접 최적화 가능	합성에 필요한 모든 Component가 포함	가장 편리하고 간편한 Master Mix
형태	RTase 단품	cDNA합성 키트	cDNA 합성 마스터믹스
구성품	SuperScript IV RT, 5X RT buffer, 0.1 M DTT	SuperScript IV RT, 5X RT buffer, 0.1 M DTT, 10 mM dNTP mix, Oligo(dT)20, Random hexamers, Ribonuclease Inhibitor, E. coli RNase H, DEPC-treated water, Total HeLa RNA, Control Primer set	SuperScript IV VILO Master Mix, SuperScript IV VILO Master Mix 'No RT' Control, Nuclease-free water
최적 반응 온도	50-55°C	50-55°C	50°C
RT 반응시간	10분	10분	10분
SKU#	18090010 18090050 18090200	18091050 18091200	11756050 11756500

제품	SuperScript IV One-Step RT-PCR System	SuperScript IV UniPrime One-Step RT-PCR System		SuperScript IV CellsDirect cDNA Synthesis Kit
설명	하나의 튜브에서 RT부터 PCR까지 한번에 가능	하나의 튜브에서 RT부터 PCR까지 한번에 가능, visual tracking 가능한 시약으로 정확한 피펫팅에 도움		RNA isolation 과정 불필요 Cell에서 cDNA합성까지
형태	one-step 키트	one-step 키트		Cell direct 키트
구성품	SuperScript IV RT Mix, 2X Platinum SuperFi RT-PCR Master Mix, nuclease-free water	SuperScript IV RT Mix, Red (50 µL) 2X UniPrime RT-PCR Master Mix, Blue (625 µL), Nuclease-free water (1.25 mL)		SuperScript IV CellsDirect Lysis Solution, Stop Solution, Lysis Enhancer, Dnase I, RT Master Mix, No RT Control
최적 반응 온도	50°C	50°C		50°C
RT 반응시간	10분	10분		10분
SKU#	12594025 12594100	Colored 12597025 12597100 12597500	Uncolored 12596025 12596100 12596500	11750150 11750350

DNA Amplification - DNA 증폭

Platinum DNA Polymerases

Platinum DNA polymerases의 특징

Hot-start technology

- 항체 기반의 Hot-start 기술을 활용
- Room temperature에서 높은 안정성 제공
- 비 특이적 증폭과 Primer degradation 방지

Universal primer annealing

- Primer 온도 테스트 불필요
- 범용적으로 60도에서 모든 primer set 사용 가능
- 하나의 온도, 하나의 프로토콜로 여러 PCR검사 가능

Platinum SuperFi II DNA Polymerase

- **최대 300배 높은 정확성 (vs Taq)**
- GC-rich target, long 시퀀스에도 강력한 증폭
- 제품 type : DNA polymerase, PCR Master mix, Green PCR Master mix
- Main Application : Cloning, NGS, Multiplex

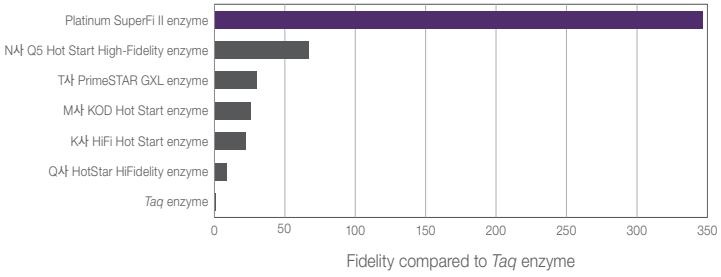
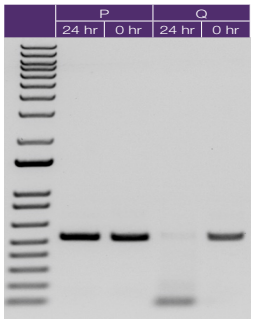
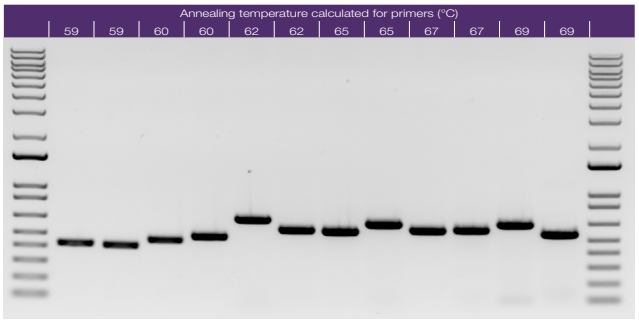


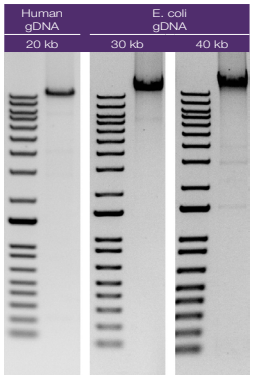
Figure 5. Fidelity comparison of commercially available enzymes and Taq enzyme. PCR amplicons (3.9 kb) obtained using di erent DNA polymerases were fragmented with a MuA transposase. Unique molecular identifi ers (UMIs) of 12 random nucleotides were introduced during fragmentation to tag each product individually. After next-generation sequencing, reads from the same UMI family were aligned to call errors. Errors were identifi ed only when present in all reads in the UMI family; otherwise they were discarded as sequencing errors. The fi delity values were normalized to Taq polymerase fi delity.



Benchtop stability for high-throughput applications

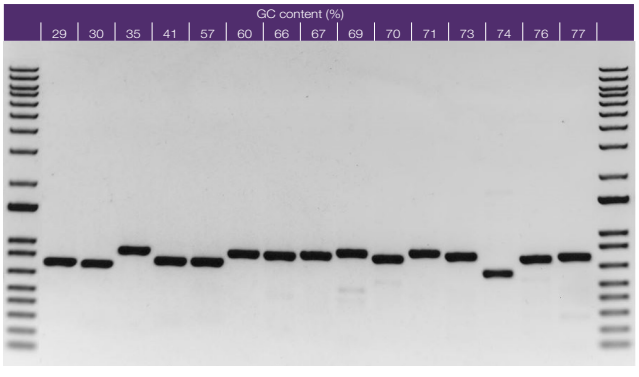


No need to calculate primer annealing temperature



High success with amplification of 20–40 kb sequences

Figure 6. Amplification of long fragments. A 20 kb target from human gDNA and 30–40 kb targets from E. coli gDNA were successfully amplified using Platinum SuperFi II DNA Polymerase.



No additives needed for GC-rich amplification

Figure 7. Robust amplification of GC-rich targets. Fifteen targets with a range of GC content were amplified from human gDNA without any supplementary buffer additives.

Platinum II Taq Hot-Start DNA Polymerase

- **일반적인 Taq 제품보다 최대 4배 빠른 합성 속도**
- 높은 inhibitor 저항성, GC-rich targe을 위한 Enhancer 제공
- 제품 type : DNA polymerase, PCR Master mix, Green PCR Master mix
- Main Application : Gene expression, sanger sequencing

Fast DNA synthesis at 15 sec/kb

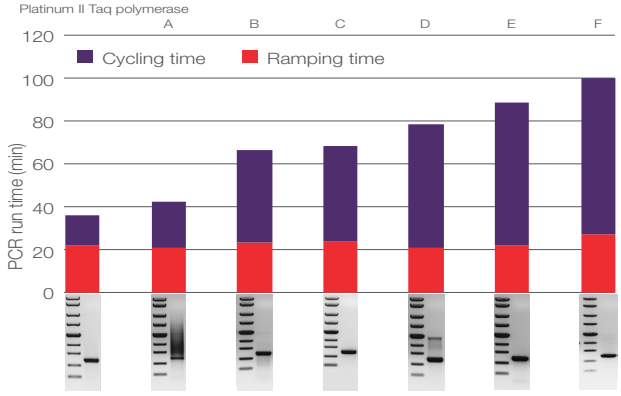


Figure 8. Fast cycling reduces PCR run time. A 0.5 kb fragment was amplified for 35 cycles, using Platinum II Taq Hot-Start DNA Polymerase and hot-start DNA polymerases from other suppliers (A–F).

High sensitivity and specificity

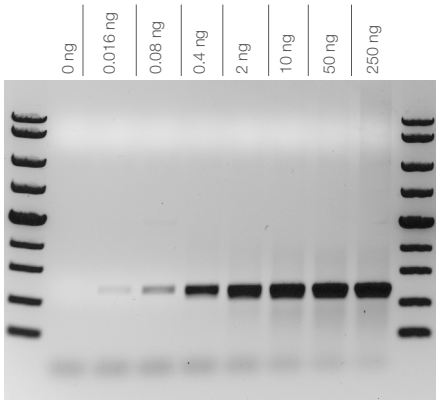


Figure 9. High sensitivity and reliable amplification from low amounts of input DNA. A 0.5 kb fragment was amplified from a range of human gDNA input, using Platinum II Taq Hot-Start DNA Polymerase.

Platinum Direct PCR Universal Master Mix

- **DNA 정제(Purification) 과정없이 Direct PCR 가능**
- Master Mix 제품으로 간편한 사용
- 하나의 제품으로 다양한 샘플에 사용 가능
- Sample Type : Cell, Tissue, Insect, Fish, Plant, Bacteria 등
- 구성품 : Universal Master Mix, Lysis Buffer, Proteinase K, GC Enhancer, Nuclease-free water

Two protocols to fit your needs

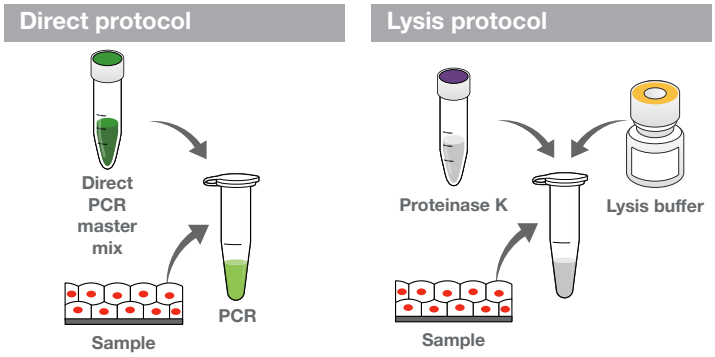


Figure 10. Direct and lysis protocols. Two protocols are available to amplify target DNA directly from crude samples. The direct protocol offers a shorter workflow, whereas the lysis protocol allows flexibility and long-term storage.

Multiple PCR targets in the same reaction

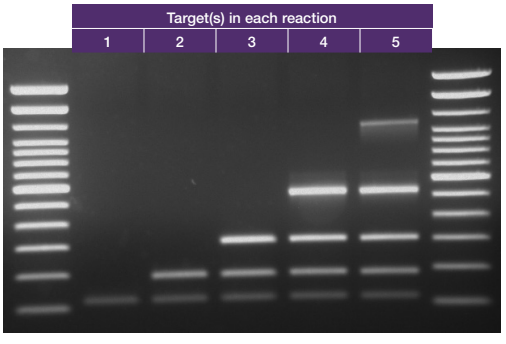


Figure 11. Efficient multiplexing in direct PCR. Five fragments of 0.1–1.1 kb were amplified from mouse tail in singleplex to 5-plex reactions, using the lysis protocol.

Ordering information

SuperScript Family

Product Label	Size	SKU#
SuperScript™ II Reverse Transcriptase	2,000 units	18064022
	10,000 units	18064014
	4 x 10,000 units	18064071
SuperScript™ First-Strand Synthesis System for RT-PCR	50 reactions	11904018
SuperScript™ One-Step RT-PCR System with Platinum™ Taq DNA Polymerase	100 reactions	10928042
SuperScript™ VILO™ cDNA Synthesis Kit	50 reactions	11754050
SuperScript™ VILO™ Master Mix	50 reactions	11755050
	250 reactions	11755250
SuperScript™ III Reverse Transcriptase	2,000 units	18080093
	10,000 units	18080044
	4 x 10,000 units	18080085
SuperScript™ III First-Strand Synthesis System	50 reactions	18080051
SuperScript™ III First-Strand Synthesis SuperMix	50 reactions	18080400
SuperScript™ III First-Strand Synthesis SuperMix for qRT-PCR	50 reactions	11752050
	250 reactions	11752250
SuperScript™ III One-Step RT-PCR System with Platinum™ Taq DNA Polymerase	25 reactions	12574018
	100 reactions	12574026
SuperScript™ III One-Step RT-PCR System with Platinum™ Taq High Fidelity DNA Polymerase	25 reactions	12574030
	100 reactions	12574035
SuperScript™ III CellsDirect™ cDNA Synthesis Kit	25 reactions	18080200
	100 reactions	18080300
SuperScript™ IV Reverse Transcriptase	2,000 units	18090010
	10,000 units	18090050
	4 x 10,000 units	18090200
SuperScript™ IV First-Strand Synthesis System	50 reactions	18091050
	200 reactions	18091200
SuperScript™ IV First-Strand Synthesis System with ezDNase™ Enzyme	50 reactions	18091150
	200 reactions	18091300
SuperScript™ IV One-Step RT-PCR System	25 reactions	12594025
	100 reactions	12594100
SuperScript™ IV One-Step RT-PCR System with ezDNase™	25 reactions	12595025
	100 reactions	12595100
15% 할인중 SuperScript™ IV UniPrime One-Step RT-PCR System	25 reactions	12596025
	100 reactions	12596100
	500 reactions	12596500
15% 할인중 SuperScript™ IV UniPrime One-Step RT-PCR System, Colored	25 reactions	12597025
	100 reactions	12597100
	500 reactions	12597500
SuperScript™ IV VILO™ Master Mix	50 reactions	11756050
	500 reactions	11756500
SuperScript™ IV VILO™ Master Mix with ezDNase™ Enzyme	50 reactions	11766050
	500 reactions	11766500
SuperScript™ IV CellsDirect™ cDNA Synthesis Kit	50 reactions	11750150
	500 reactions	11750350
SuperScript™ IV CellsDirect™ Lysis Reagents	500 reactions	11750550

Platinum Family

Product Label	Size	SKU#
Platinum™ Taq DNA Polymerase	120 reactions	10966018
	300 reactions	10966026
	600 reactions	10966034
Platinum™ Taq DNA Polymerase High Fidelity	100 reactions	11304011
	500 reactions	11304029
Platinum™ Taq Green Hot Start DNA Polymerase	600 reactions	11966034
Platinum™ PCR SuperMix High Fidelity	100 reactions	12532016
Platinum™ Hot Start PCR Master Mix (2X)	50 reactions	13000012
	200 reactions	13000013
Platinum™ Green Hot Start PCR Master Mix (2X)	50 reactions	13001012
	200 reactions	13001013
	1,000 reactions	13000014
Platinum™ SuperFi™ DNA Polymerase	100 units	12351010
	500 units	12351050
Platinum™ SuperFi™ PCR Master Mix	100 reactions	12358010
	500 reactions	12358050
	5 x 500 reactions	12358250
Platinum™ Multiplex PCR Master Mix	50 reactions	4464268
	250 reactions	4464269
Platinum™ II Taq Hot-Start DNA Polymerase	100 reaction	14966001
	500 reactions	14966005
Platinum™ II Hot-Start PCR Master Mix (2X)	50 reactions	14000012
	200 reactions	14000013
	1,000 reactions	14000014
Platinum™ II Hot-Start Green PCR Master Mix (2X)	50 reactions	14001012
	200 reactions	14001013
	1,000 reactions	14001014
Platinum™ SuperFi II DNA Polymerase	100 reactions	12361010
	500 reactions	12361050
Platinum™ SuperFi II PCR Master Mix	100 reactions	12368010
	500 reactions	12368050
	5 x 500 reactions	12368250
Platinum™ SuperFi II Green PCR Master Mix	100 reactions	12369010
	500 reactions	12369050
	5 x 500 reactions	12369250
Platinum™ Direct PCR Universal Master Mix	100 reactions	A44647100
	500 reactions	A44647500
	4 x 500 reactions	A44647200

Find out more at **thermofisher.com**

Thermo Fisher Scientific 써모 피셔 사이언티픽 솔루션스 유한회사
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