



PCR Reagents & Consumables





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Taq DNA Polymerase

Taq DNA Polymerase

Description

VOLO™ Taq DNA Polymerase는 고순도로 정제한 재조합 내열성 DNA 중합효소와 최적화된 buffer를 사용하여, 비특이적 산물의 생성을 감소시켜 원하는 PCR 산물을 특이적으로 생성합니다. 열에 안정적인 특징과 높은 processivity로 인해 fast PCR 실험이 가능하며, cloning 실험에 사용하는 미량의 bacterial colony에서 추출한 유전자, plant tissue에서 얻은 gDNA 및 mammalian gDNA 등, 소량의 주형 DNA로부터 빠른 유전자 증폭 결과를 확인할 수 있습니다. 본 제품은 premix 형태로도 제공되기 때문에, DNA 주형 및 primer만 첨가하여 간편하게 PCR 실험을 수행할 수 있습니다.

Feature

Thermal Stable & Fast	높은 Processivity를 통해 빠르고 정확한 PCR 결과 확인 가능
Specificity	비특이적 산물 생성 최소화
Sensitivity	Human gDNA의 경우 16pg의 주형 DNA로부터 유전자 증폭 가능
증폭 가능 PCR 산물 크기	Lambda / Human gDNA ≤6kb

Application

Standard PCR, Colony PCR, Fast PCR, T/A Cloning

1. Enzyme Unit에 따른 유전자 증폭 결과

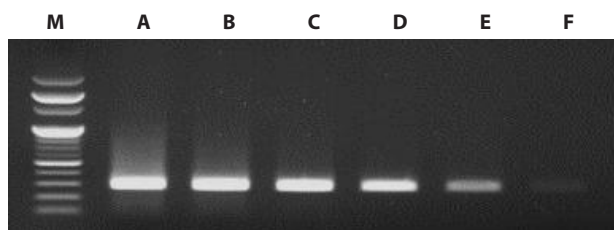


Figure 1. A 300bp fragment of β -globin gene was amplified from 10ng of human gDNA using different units of VOLO™ Taq DNA Polymerase. [95°C 5min, (95°C 30s, 60°C 30s, 72°C 30s) x 35 cycles, 72°C 5min]
Lane A: 5U, Lane B: 2.5U, Lane C: 1.25U, Lane D: 0.63U, Lane E: 0.312U, Lane F: 0.16U, M: 100bp ladder

2. Template 농도에 따른 PCR 결과

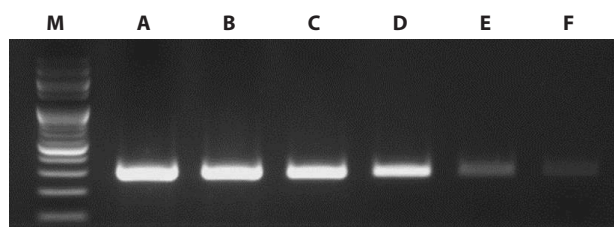


Figure 2. A 300bp fragment of β -globin gene was amplified from different amounts of human gDNA using 1.25 units of VOLO™ Taq DNA Polymerase. [95°C 5min, (95°C 30s, 60°C 30s, 72°C 30s) x 35 cycles, 72°C 5min]
Lane A: 50ng, Lane B: 10ng, Lane C: 2ng, Lane D: 0.4ng, Lane E: 0.08ng, Lane F: 0.016ng, M: 100bp ladder

3. 다양한 크기의 유전자 증폭 결과

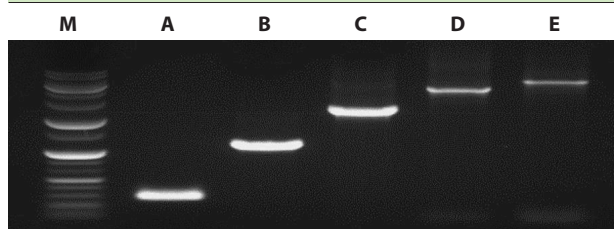


Figure 3. Amplification of specific sequences from lambda DNA using VOLO™ Taq DNA Polymerase. Up to 6kb of target gene was amplified. [95°C 5min, (95°C 30s, 60°C 30s, 72°C 30s) x 35 cycles, 72°C 5min]
Lane A: 0.3kb, Lane B: 1.2kb, Lane C: 2.6kb, Lane D: 4.5kb, Lane E: 6kb, M: 1kb ladder

4. 반응 조건에 따른 PCR 결과 비교

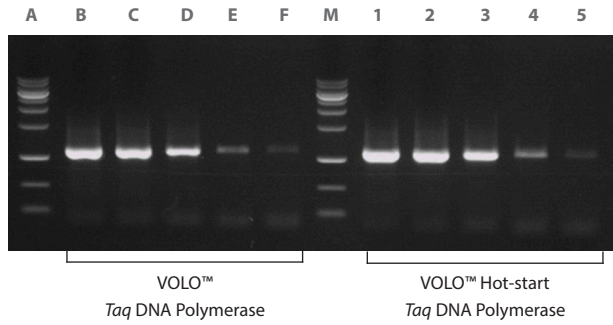
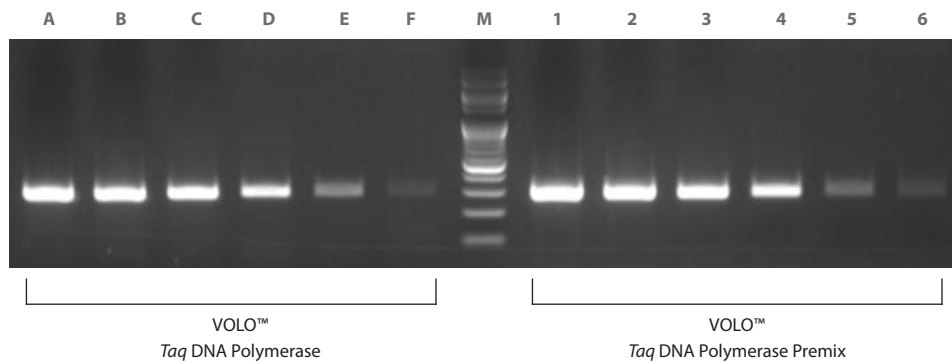


Figure 4. Comparative amplification of a 1.2kb fragment of the human β -globin gene was used to examine VOLO™ *Taq* DNA Polymerase with Hot-start *Taq* DNA Polymerase. The PCR was performed using a different amount of genomic DNA (100ng to 100pg).

95°C 3min, (95°C 15s, 60°C 15s, 72°C 18s) X 35cycles, 72°C 1min [1h 07min]

Lane A/1 : 100ng, Lane B/2 : 50ng, Lane C/3 : 10ng, Lane D/4 : 1ng, Lane E/5 : 100pg, M : 1kb ladder

5. *Taq* DNA Polymerase 제품별 결과 비교



Components	Volume
Human genomic DNA	5 μ l
Forward primer (10 μ M)	1 μ l
Reverse primer (10 μ M)	1 μ l
dNTP mixture (10 mM each)	0.2 μ l
10X PCR buffer	2 μ l
<i>Taq</i> DNA Polymerase (5U/ μ l)	0.2 μ l
DW	11.4 μ l
Total vol.	20 μ l

Components	Volume
Human genomic DNA	5 μ l
Forward primer (10 μ M)	1 μ l
Reverse primer (10 μ M)	1 μ l
2X <i>Taq</i> DNA Polymerase Premix	10 μ l
DW	3 μ l
Total vol.	20 μ l

Figure 5. The comparison results of VOLO™ *Taq* DNA Polymerase and VOLO™ *Taq* DNA Polymerase Premix. A 300bp fragments of β -globin gene were amplified from a 5-fold dilution series of a human genomic DNA with starting amounts of 50ng.

[95°C 5min, (95°C 30s, 60°C 30s, 72°C 30s) x 35cycles, 72°C 5min]

Lane A/1 : 50ng, Lane B/2 : 10ng, Lane C/3 : 2ng, Lane D/4 : 400pg, Lane E/5 : 80pg, Lane F/6 : 16pg, M : 100bp ladder

Item	Cat. No.	Size
VOLO™ <i>Taq</i> DNA Polymerase	VR-001	500 U
VOLO™ <i>Taq</i> DNA Polymerase	VR-002	1,000 U
VOLO™ <i>Taq</i> DNA Polymerase	VR-003	2,500 U
VOLO™ <i>Taq</i> DNA Polymerase Premix (tube type), 200 rxns (20 μ l)	VR-004	1 ml x 2
VOLO™ <i>Taq</i> DNA Polymerase Premix (tube type), 500 rxns (20 μ l)	VR-005	1 ml x 5
VOLO™ <i>Taq</i> DNA Polymerase Premix (8-strip type), 20 μ l Reaction	VR-006	96 T
VOLO™ <i>Taq</i> DNA Polymerase Premix (8-strip type), 20 μ l Reaction	VR-007	480 T

Hot-start *Taq* DNA Polymerase

Description

VOLO™ Hot-start *Taq* DNA Polymerase는 Anti-*Taq* Monoclonal Antibody를 이용하여 고온에서 빠른 시간 내에 활성을 나타내도록 변형한 DNA polymerase로, 주형 DNA의 양이 적거나 복잡한 구조를 갖고 있는 경우에 효과적으로 유전자를 증폭할 수 있습니다. 개별 유전자에 대한 증폭 특이성이 높은 장점 때문에 여러 유전자를 동시에 증폭하는 Multiplex 실험 및 분자진단 검사에 사용하여 빠른 유전자 증폭 결과를 확인할 수 있습니다.

Feature

Thermal Stable & Fast	높은 Processivity를 통해 빠르고 정확한 PCR 결과 확인 가능
Specificity	비특이적 산물 생성 최소화 및 증가된 PCR 산물 생성
Sensitivity	Human gDNA의 경우 16pg의 주형 DNA로부터 유전자 증폭 가능
증폭 가능 PCR 산물 크기	Lambda DNA / Human gDNA : ≤6kb

Application

Standard PCR, Colony PCR, Fast PCR, T/A Cloning, Multiplex PCR

1. Hot-start *Taq* DNA polymerase 증폭 결과

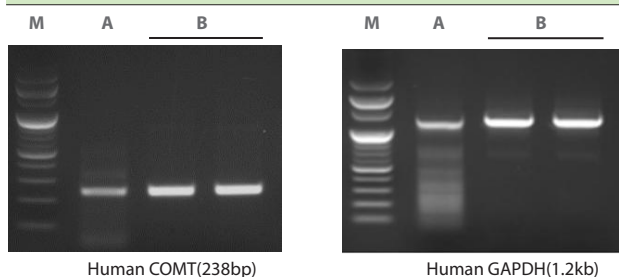


Figure 1. A 238bp fragment of human COMT gene and 1.2kb fragment of human GAPDH gene, were amplified using VOLO™ and VOLO™ Hot-start *Taq* DNA Polymerase.

[COMT : 95°C 3min, (95°C 30s, 60°C 30s, 72°C 30s) x 35cycles, 72°C 2min]
[GAPDH : 95°C 3min, (95°C 30s, 62°C 30s, 72°C 1min 30s) x 35cycles, 72°C 2min]

Lane A / 1 : VOLO™ *Taq* DNA Polymerase,
Lane B / 2 : VOLO™ Hot-start *Taq* DNA Polymerase, M : 100bp ladder

2. *Taq* DNA Polymerase 및 Hot-start *Taq* DNA Polymerase 증폭 결과 비교

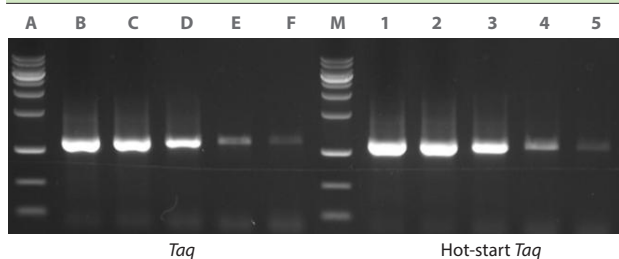


Figure 2. A 1.175kb fragment of β -globin gene was amplified from human genomic DNA, using VOLO™ *Taq* and VOLO™ Hot-start *Taq* DNA polymerase.

[95°C 3min, (95°C 15s, 60°C 15s, 72°C 18s) x 35cycles, 72°C 2min]

Lane A / 1 : 100ng, Lane B / 2 : 50ng Lane C / 3 : 10ng, Lane D / 4 : 1ng,
Lane E / 5 : 100pg, M : 1kb ladder

Item	Cat. No.	Size
VOLO™ Hot-start <i>Taq</i> DNA Polymerase	VR-101	500 U
VOLO™ Hot-start <i>Taq</i> DNA Polymerase	VR-102	1,000 U
VOLO™ Hot-start <i>Taq</i> DNA Polymerase	VR-103	2,500 U
VOLO™ Hot-start <i>Taq</i> DNA Polymerase Premix (tube type), 200 rxns (20 μ l)	VR-104	1 ml x 2
VOLO™ Hot-start <i>Taq</i> DNA Polymerase Premix (tube type), 500 rxns (20 μ l)	VR-105	1 ml x 5
VOLO™ Hot-start <i>Taq</i> DNA Polymerase Premix (8-strip type), 20 μ l Reaction	VR-106	96 T
VOLO™ Hot-start <i>Taq</i> DNA Polymerase Premix (8-strip type), 20 μ l Reaction	VR-107	480 T
VOLO™ Multiplex PCR Premix, (tube type), 20 μ l Reaction	VR-501	1 ml
VOLO™ Multiplex PCR Premix, (tube type), 20 μ l Reaction	VR-502	1 ml x 3
VOLO™ Multiplex PCR Premix, (tube type), 20 μ l Reaction	VR-503	1 ml x 5
VOLO™ Multiplex PCR Premix, (8-strip type), 20 μ l Reaction	VR-504	96 Rxn
VOLO™ Multiplex PCR Premix, (8-strip type), 20 μ l Reaction	VR-505	480 Rxn

Long Taq DNA Polymerase, Hot-start Version

Description

VOLO™ Long Taq DNA Polymerase, Hot-start version은 standard PCR에서 증폭할 수 있는 PCR 산물의 크기 뿐만 아니라, 비교적 긴 PCR 산물 증폭에 효과적입니다. 3'→5' Exonuclease 활성이 있으며, 비특이적 산물 생성 및 primer-dimer 형성을 억제하는 특징이 있고, 최대 15kb 크기까지 유전자 증폭이 가능합니다.

Feature

Proof-reading Function	3'-5' Exonuclease 활성을 통해 Fidelity 증가
Long-range PCR	비교적 긴 PCR 산물 증폭에 효과적 (Lambda DNA : ≤15kb , Human genomic DNA : ≤10kb)
Specificity	높은 증폭 효율 및 높은 민감도

Application

Standard PCR, Long-range PCR, RT-PCR, Primer Extension

1. 효소별 다양한 크기의 유전자 증폭 결과

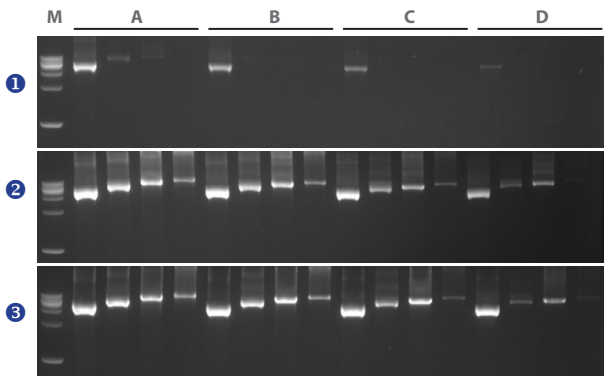


Figure 1. Amplification of variable fragments from lambda DNA using different DNA polymerases. A 4.5kb, a 6kb, a 8kb and a 10kb fragment (respectively) of lambda DNA were amplified and were compared with amplifications using variable DNA polymerase.

[95°C 3min, (95°C 20s, 60°C 20s, 72°C 1min/kb) x 35cycles, 72°C 2min]
Lane A : 2ng, Lane B : 0.4ng, Lane C : 0.08ng, Lane D : 0.016ng, M : 1kb ladder

- ① VOLO™ Hot-start Taq DNA Polymerase
- ② VOLO™ Long Taq DNA Polymerase
- ③ VOLO™ Long Taq DNA Polymerase (Hot-start Ver.)

2. VOLO™ Long Taq DNA Polymerase 증폭 결과

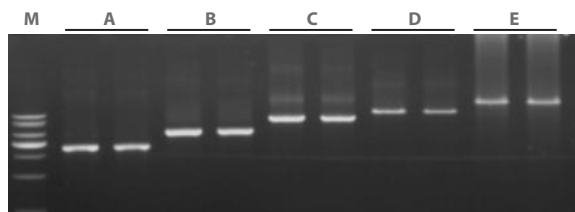


Figure 2. Amplification of variable fragments from lambda DNA using VOLO™ Hot-start Taq DNA Polymerase. Each PCR products of a 4.5kb, a 6kb, a 8kb, a 10kb and a 15kb(respectively) of lambda DNA were amplified using VOLO™ Long Taq DNA Polymerase.

[95°C 3min, (95°C 20s, 60°C 20s, 72°C 1min/kb) x 35cycles, 72°C 2min]
Lane A : 4.5kb, Lane B : 6kb, Lane C : 8kb, Lane D : 10kb, Lane E : 15kb ,
M : 1kb ladder

Item	Cat. No.	Size
VOLO™ Long Taq DNA Polymerase, Hot-start Version	VR-401	250 U
VOLO™ Long Taq DNA Polymerase, Hot-start Version	VR-402	500 U
VOLO™ Long Taq DNA Polymerase, Hot-start Version	VR-403	1,000 U
VOLO™ Long Taq DNA Polymerase Premix, HS Ver. (tube type), 200 rxns (20 µl)	VR-404	1 ml x 2
VOLO™ Long Taq DNA Polymerase Premix, HS Ver. (tube type), 500 rxns (20 µl)	VR-405	1 ml x 5
VOLO™ Long Taq DNA Polymerase Premix, HS Ver. (8-strip type), 20 µl Reaction	VR-406	96 T
VOLO™ Long TaqDNA Polymerase Premix, HS Ver. (8-strip type), 20 µl Reaction	VR-407	480 T

Fast Hot Start *Taq* DNA Polymerase

Description

VOLO™ Fast *Taq* DNA Polymerase는 변형된 효소로 증폭 산물의 생산성과 속도를 높이하고자 할 때 적합합니다. 특히, VOLO™ Fast *Taq* DNA Polymerase는 일반 *Taq* DNA Polymerase의 PCR 반응 시간보다 훨씬 짧기에 빠른 PCR 실험에 최적화되어 있습니다. 본 제품은 사용자의 편의를 높이하고자 premix 형태로 제공됩니다.

Feature

Extension times as low as 1 sec per kilobase (≤ 1 kb of target gene, 1~3 kb of target gene ; 15 sec/kb)

Higher specificity, sensitivity and yield

Single copy sensitivity

Application

Fast PCR and routine PCR, Multiplex PCR, Gene expression analysis, Genotyping study

1. Enzyme unit에 따른 유전자 증폭 결과

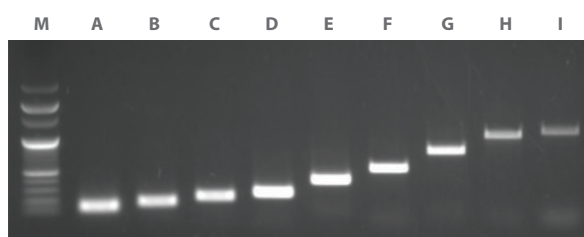


Figure 1. Target genes less than 1 kb were amplified. 10 ng of human genomic DNA was used as template DNA.
A, 120 bp ; B, 170 bp ; C, 222 bp ; D, 262 bp ; E, 391 bp ; F, 518 bp ; G, 751 bp ; H, 999 bp ; I, 1 kb ; M, 100 bp ladder
[95°C 3min, (95°C 15s, 60°C 15s, 72°C 1s) x 35cycles, 72°C 1min]

2. 다양한 크기의 유전자 증폭 결과 (1kb 이하)

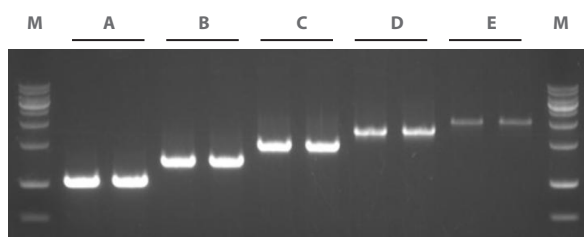


Figure 2. Target genes from 1 to 3 kb were amplified. 100 ng of human genomic DNA was used as template DNA.
A, 1 kb ; B, 1.5 kb ; C, 2 kb ; D, 2.5 kb ; E, 3 kb ; M, 1 kb ladder
[95°C 3min, (95°C 15s, 60°C 15s, 72°C 15s/kb) x 35cycles, 72°C 1min]

Item	Cat. No.	Size
VOLO™ Fast Hot Start <i>Taq</i> DNA Polymerase Premix (tube type), 200 rxns (20 μ l)	VR-201	1 ml x 2
VOLO™ Fast Hot Start <i>Taq</i> DNA Polymerase Premix (tube type), 500 rxns (20 μ l)	VR-202	1 ml x 5
VOLO™ Fast Hot Start <i>Taq</i> DNA Polymerase Premix (8-strip type), 20 μ l Reaction	VR-203	96 Tests
VOLO™ Fast Hot Start <i>Taq</i> DNA Polymerase Premix (8-strip type), 20 μ l Reaction	VR-204	480 Tests

1. Fast Real-time PCR

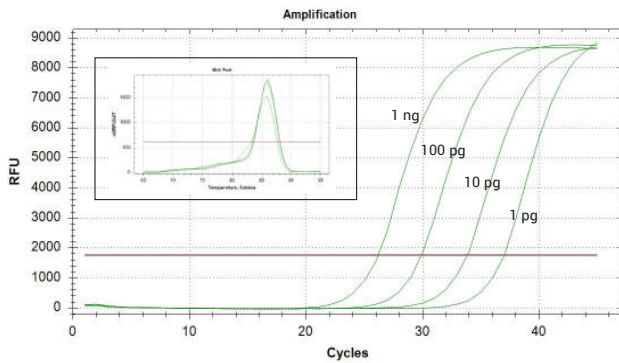


Figure 1. Linear detection of VOLO™ 2X Fast Real-time PCR Master Mix with SFC Green™ Dye. Real-time amplification plots from a 10-fold serial dilution samples of a HeLa cDNA amplified with starting amounts of 1 ng (Target gene : Human β -actin, 95 bp).
[95°C 30s, (95°C 2s, 58°C 5 s) x 45 cycles [Total reaction time: 47min]

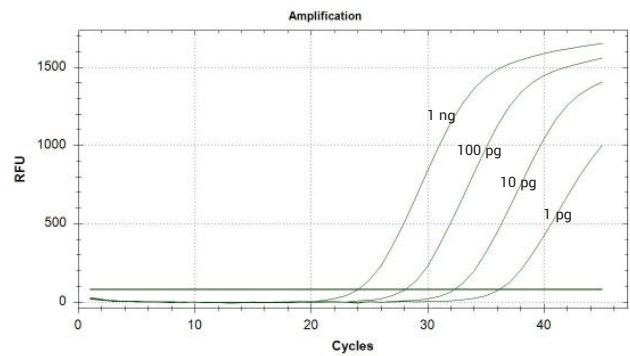


Figure 2. Linear detection of VOLO™ 2X Fast Multiplex Real-time PCR Master Mix (for probe). Real-time amplification plots from a 10-fold serial dilution samples of a HeLa cDNA amplified with starting amounts of 1 ng (Target gene : Human β -actin, 95 bp).
[95°C 30s, (95°C 2s, 60°C 30 s) x 45 cycles [Total reaction time: 1h 5min]

2. Fast One-Step qRT-PCR

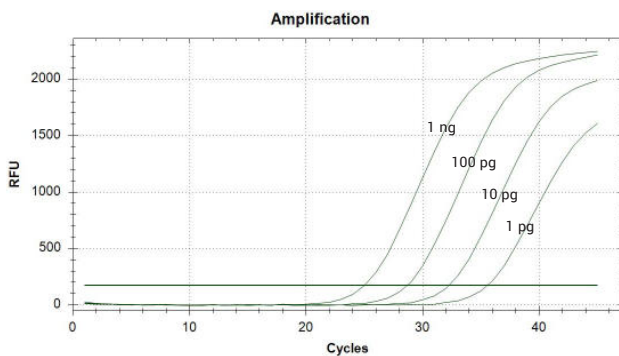


Figure 1. Linear detection of VOLO™ 2X Fast One-step qRT-PCR Master Mix (for Probe). Real-time amplification plots from a 10-fold serial dilution samples of a HeLa RNA with starting amounts of 1 ng (Target gene : Human β -actin, 95 bp).
[50°C 5min, 95°C 20s, (95°C 3sec, 60°C 30sec) x 45cycles]

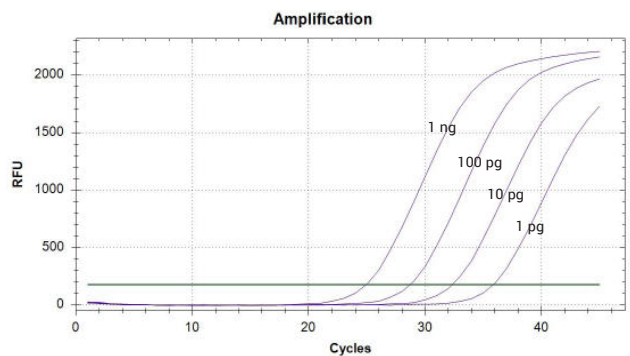


Figure 2. Linear detection of VOLO™ 4X Fast One-step qRT-PCR Master Mix (for Probe). Real-time amplification plots from a 10-fold serial dilution samples of a HeLa RNA with starting amounts of 1 ng (Target gene : Human β -actin, 95 bp).
[50°C 5min, 95°C 20s, (95°C 3sec, 60°C 30sec) x 45cycles]

3. Fast Covid-19, Influenza A & B Diagnosis Kit

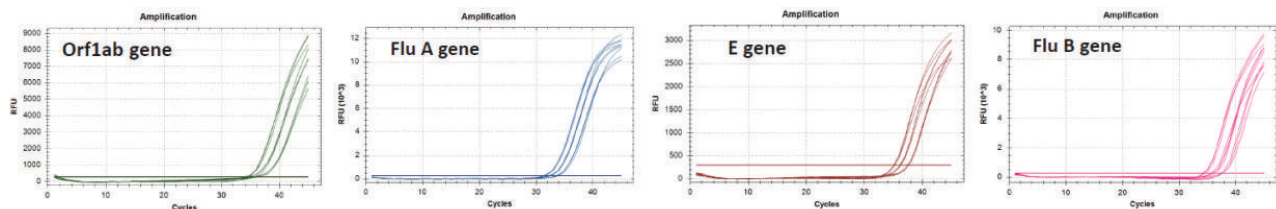


Figure 1. Fast Covid-19 and Influenza diagnosis kit results using VOLO™ 2X Fast One-step qRT-PCR Master Mix (for Probe). The real-time amplification plots from 10-fold serial dilution samples of each viral RNA were shown that influenza A, influenza B and two genes of COVID-19 were detected. [50°C 5min, 95°C 5min, (95°C 1sec, 60°C 30sec) x 45cycles]

cDNA Synthesis

cDNA Synthesis Kit & RT Premix

Description

RNA로부터 cDNA를 합성하는 제품은 반응 환경의 변화에도 안정된 cDNA 합성을 수행할 수 있어야 하는데, 자사의 핵심 구성 요소인 VOLO™ Reverse Transcriptase는 재조합 M-MLV 역전사 효소이며, 일반적인 역전사반응 온도인 50℃ 뿐만 아니라 보다 넓은 범위 (45~60℃)의 온도에서 안정된 cDNA 합성이 가능하기 때문에 다양한 실험에 효율적으로 사용할 수 있습니다. 관련 제품으로는 cDNA 합성에 필요한 시약들이 개별 tube로 제공되어 사용자가 직접 혼합하여 사용할 수 있는 VOLO™ cDNA Synthesis Kit와 사용자가 편리하게 희석하여 사용할 수 있도록 5X Premix 형태의 VOLO™ RT Master Mix가 있습니다. 이 두 제품은 수 pg ~ 수 µg에 해당하는 RNA를 이용하여 cDNA를 합성할 수 있으며, 최대 10kb의 cDNA를 생성할 수 있습니다.

Feature

다양한 농도 범위의 RNA 사용 가능

최대 10kb 길이의 cDNA 합성

넓은 범위의 역전사반응 온도(45~60℃)

Application

First-strand cDNA Synthesis, Two-step RT-PCR, Two-step RT-qPCR, Primer Extension Assay

1. RNA 농도별 cDNA 합성 결과 확인

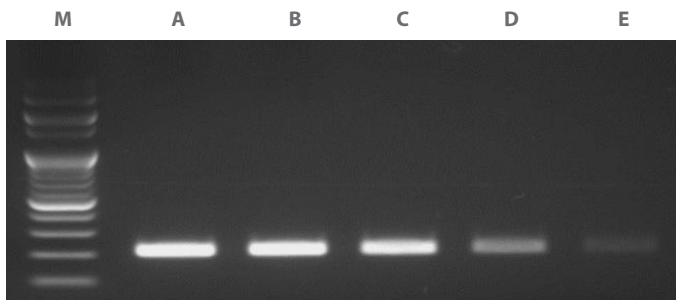


Figure 1. The amplification results of 213bp fragment of human GAPDH gene was amplified from cDNA synthesized using 10-fold dilution series of a HeLa total RNA with starting amounts of 100ng.

- cDNA synthesis : 50℃ 40min, 70℃ 15min
- Amplification : 95℃ 3min, (95℃ 30s, 60℃ 30s, 72℃ 30s) x 35cycles, 72℃ 5min

Lane A : 100ng, Lane B : 10ng, Lane C : 1ng, Lane D : 100pg, Lane E : 10pg,

M : 100bp ladder

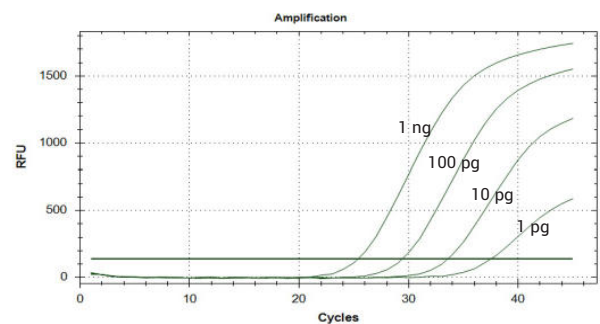
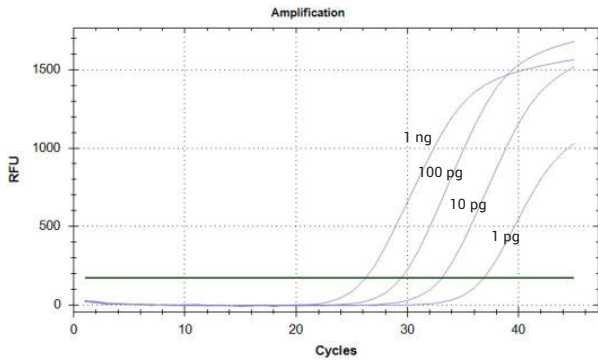


Figure 2. The real-time amplification results of 95bp fragment of human β -actin gene were amplified from cDNA synthesized using 10-fold dilution series of a HeLa total RNA with starting amounts of 1ng.

- cDNA synthesis : 50℃ 40min, 70℃ 15min
- Amplification : 95℃ 5min, (95℃ 15s, 60℃ 1min) x 45cycles

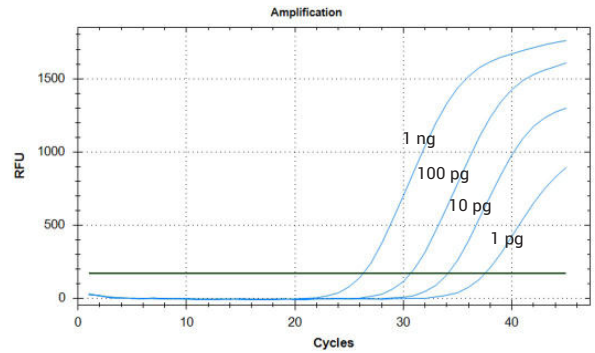
2. cDNA 합성 효율 비교

1) VOLO™ cDNA Synthesis Kit



RNA amounts	1ng	100pg	10pg	1pg
Cq value	26.18	29.37	33.07	36.82

2) Competitor cDNA Synthesis Kit

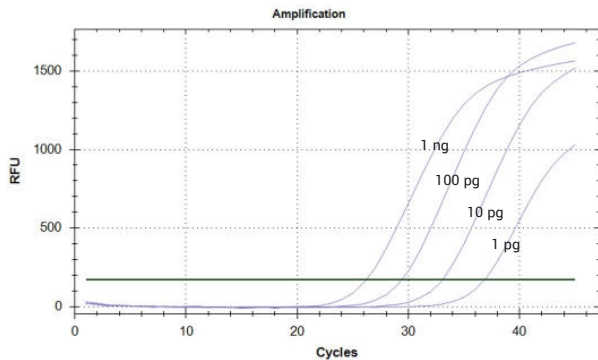


RNA amounts	1ng	100pg	10pg	1pg
Cq value	26.26	30.62	34.08	37.48

Figure 3. The comparison results of cDNA synthesis efficiency between VOLO™ cDNA Synthesis Kit and other company's kit by two-step. Despite using the same amount of HeLa RNA templates, the Cq value of cDNA synthesized using VOLO™ cDNA Synthesis Kit was lower than other company's kit (Target gene : human β -actin, PCR product size : 95bp).

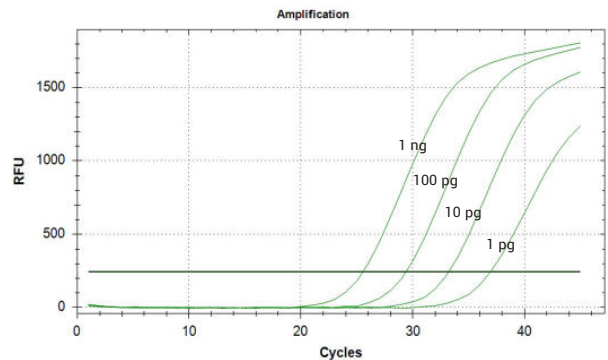
3. 제품별 cDNA 합성 결과 비교

1) VOLO™ cDNA Synthesis Kit



RNA amounts	1ng	100pg	10pg	1pg
Cq value	26.18	29.37	33.07	36.82

2) VOLO™ 5X RT Premix



RNA amounts	1ng	100pg	10pg	1pg
Cq value	25.50	29.36	33.18	36.93

Figure 4. The comparison results of cDNA synthesis efficiency between VOLO™ cDNA Synthesis Kit and VOLO™ 5X RT Premix by two-step RT-qPCR. The real-time amplification results of 95bp fragment of human β -actin gene were amplified from cDNA synthesized using 10-fold dilution series of a HeLa total RNA with starting amounts of 1ng.

Item	Cat. No.	Size
VOLO™ cDNA Synthesis Kit, 20 μ l Reaction	VR-704	50 Reaction
VOLO™ cDNA Synthesis Kit, 20 μ l Reaction	VR-705	100 Reaction
VOLO™ cDNA Synthesis Kit, 20 μ l Reaction	VR-706	200 Reaction
VOLO™ 5X RT Premix, 20 μ l Reaction	VR-707	100 Reaction
VOLO™ 5X RT Premix, 20 μ l Reaction	VR-708	200 Reaction
VOLO™ 5X RT Premix, 20 μ l Reaction	VR-709	500 Reaction

Real-time PCR

Real-time PCR Master Mix

Description

VOLO™ 2X Real Time PCR Master Mix(EvaGreen , SFCgreen™ 또는 Probe) 제품은 고순도 프리미엄 항체 기반의 Hot-start Taq DNA Polymerase를 사용하여 최적화된 버퍼 시스템으로 구성된 2X PCR Master Mix 형태로 제공됩니다. 다양한 Real-time PCR 실험 방식에 따라 적합한 제품을 선택할 수 있으며, 최적화된 버퍼 조성을 통해 Real-time PCR 반응 시 비특이적 증폭을 최대한 억제하여 정확한 유전자의 정량 분석이 가능합니다. 높은 Processivity를 통해 Fast PCR Protocol을 설정할 수 있으며, 빠르고 재현성 있는 결과를 얻을 수 있습니다.

Feature

Fast	빠르고 정확한 정량 분석 및 미량 유전자 검출 가능
Optimization	최적화된 버퍼 조성을 통해 비특이적 증폭 최소화
Reproducibility	반복적인 PCR 반응을 통해 재현성 있는 정량 분석 가능

Application

Real-time PCR, qRT-PCR, Gene Expression Profiling, SNP Genotyping, Fast Real-time PCR, Molecular Diagnostics, High-resolution Melt Analysis

1. 검출 방식에 따른 Real-time PCR 결과 (Green Dye 및 TaqMan Probe)

1) Standard Protocol

(1) EvaGreen®

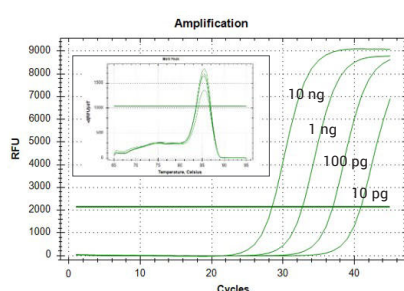


Figure 1. Linear detection of VOLO™ 2X Real-time PCR Master Mix with EvaGreen®. Real-time amplification plot from a 10-fold dilution series of a human genomic DNA with starting amounts of 10ng amplified.

- Target gene : Human β -globin (298bp)
- Thermal condition : 95°C 3min, (95°C 10s, 60°C 10s, 72°C 20s) x 45cycles [Total reaction time : 1h 10min]

(2) SFCgreen™

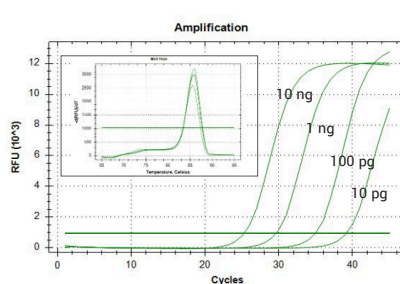


Figure 2. Linear detection of VOLO™ 2X Real-time PCR Master Mix with SFCgreen™. Real-time amplification plot from a 10-fold dilution series of a human genomic DNA with starting amounts of 10ng amplified.

- Target gene : Human β -globin (298bp)
- Thermal condition : 95°C 3min, (95°C 10s, 60°C 10s, 72°C 20s) x 45cycles [Total reaction time : 1h 10min]

(3) TaqMan Probe

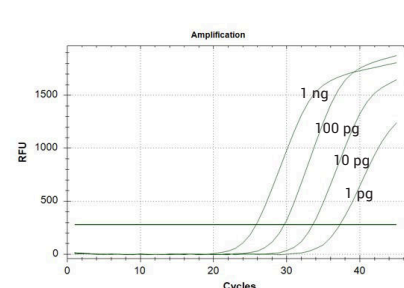


Figure 3. Linear detection of VOLO™ 2X Multi-plex Real-time PCR Master Mix(For Probe). Real-time amplification plot from a 10-fold dilution series of a HeLa cDNA with starting amounts of 1ng amplified.

- Target gene : Human β -actin (95bp)
- Thermal condition : 95°C 5min, (95°C 15s, 60°C 1min) x 45cycles [Total reaction time : 1h 42min]

2) Fast Protocol

(1) SFCgreen™

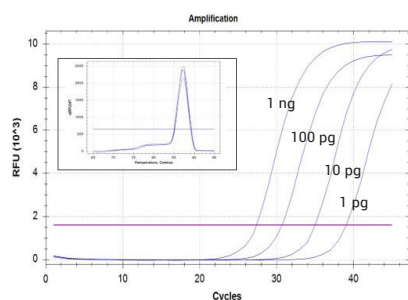


Figure 4. Linear detection of VOLO™ 2X Fast Real-time PCR Master Mix with SFCgreen™. Real-time amplification plot from a 10-fold dilution series of a HeLa cDNA with starting amounts of 1ng amplified.

- Target gene : Human GAPDH (213bp)
- Thermal condition : 95°C 30s, (95°C 2s, 58°C 5s) x 45cycles [Total reaction time : 47min]

(2) SFCgreen™

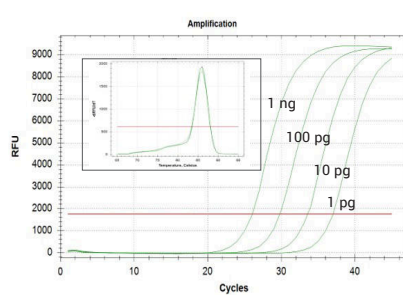


Figure 5. Linear detection of VOLO™ 2X Fast Real-time PCR Master Mix with SFCgreen™. Real-time amplification plot from a 10-fold dilution series of a HeLa cDNA with starting amounts of 1ng amplified.

- Target gene : Human β-actin (95bp)
- Thermal condition : 95°C 30s, (95°C 2s, 58°C 5s) x 45cycles [Total reaction time : 47min]

(3) TaqMan Probe

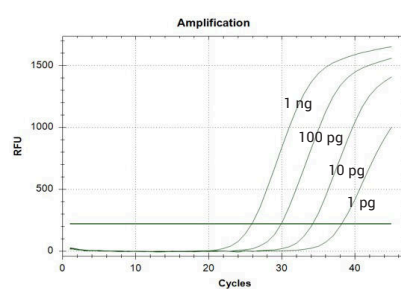


Figure 6. Linear detection of VOLO™ 2X Fast Multiplex Real-time PCR Master Mix (For Probe). Real-time amplification plot from a 10-fold dilution series of a HeLa cDNA with starting amounts of 1ng amplified.

- Target gene : Human β-actin (95bp)
- Thermal condition : 95°C 20s, (95°C 3s, 60°C 30s) x 45cycles [Total reaction time : 1h 5min]

Item	Cat. No.	Size
VOLO™ 2X Real-time PCR Master Mix with EvaGreen Dye, 20 µl Reaction	VR-601	1 ml x 5
VOLO™ 2X Fast Real-time PCR Master Mix with EvaGreen Dye, 20 µl Reaction	VR-602	1 ml x 5
VOLO™ 2X Real-time PCR Master Mix with SFCgreen Dye, 20 µl Reaction	VR-603	1 ml x 5
VOLO™ 2X Fast Real-time PCR Master Mix with SFCgreen Dye, 20 µl Reaction	VR-604	1 ml x 5
VOLO™ 2X Multiplex Real-time PCR Master Mix (for Probe), 20 µl Reaction	VR-605	1 ml x 5
VOLO™ 2X Fast Multiplex Real-time PCR Master Mix (for Probe), 20 µl Reaction	VR-606	1 ml x 5

One-Step qRT-PCR

One-step qRT-PCR Master Mix (SFCgreen™)

Description

VOLO™ 2X One-step qRT-PCR Master Mix with SFCgreen™ 제품은 주형인 RNA로부터 cDNA를 합성하는 역전사 반응과 Real-time PCR 반응을 한 번에 수행할 수 있는 Premix 형태의 제품이며, Green Dye인 SFCgreen™ 이 포함되어 있어 Specific Primer Set와 함께 사용할 수 있는 제품입니다.

One-step qRT-PCR 실험에 필수적인 VOLO™ Reverse Transcriptase와 VOLO™ Hot-start Taq DNA Polymerase를 포함하여 최적의 조성으로 구성된 본 제품은 빠르고 안정적인 cDNA의 합성이 가능하기 때문에 RNA를 사용하는 다양한 실험에 적용 가능합니다. 50 Copies 이하의 낮은 농도의 유전자도 검출 가능하며, Standard qPCR Protocol 뿐만 아니라, 실험 목적에 따라 Fast qPCR Protocol에 맞는 Master Mix 제품을 이용할 수 있어 신속하게 실험 결과를 확인할 수 있습니다. 또한 미량의 RNA 및 바이러스 RNA로부터 유전자 정량분석이 가능한 Dx 제품도 별도로 구성되어 있습니다.

Feature

Sensitivity	10-50 Copies의 소량 유전자 검출 가능.
Convenience	Master Mix 형태로 제공되므로, 주형 RNA와 Specific Primer Set만 첨가하여 간편하게 One-step qRT-PCR 가능

Application

Gene Expression Analysis, Fast One-step qRT-PCR

1. Standard One-step qRT-PCR protocol

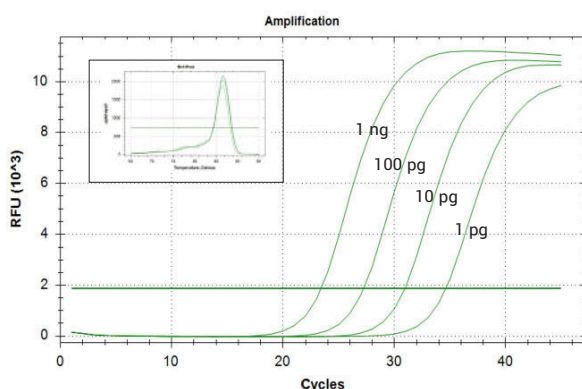


Figure 1. Linear detection of VOLO™ 2X One-step qRT-PCR Master Mix with SFCgreen™. Real-time amplification plot from a 10-fold dilution series of a HeLa RNA with starting amounts of 1ng amplified.

- Target gene : Human β -actin (95bp)
- Thermal condition : 50°C 20min, 95°C 5min, (95°C 15s, 60°C 1min) x 45cycles [Total reaction time : 2h 1min]

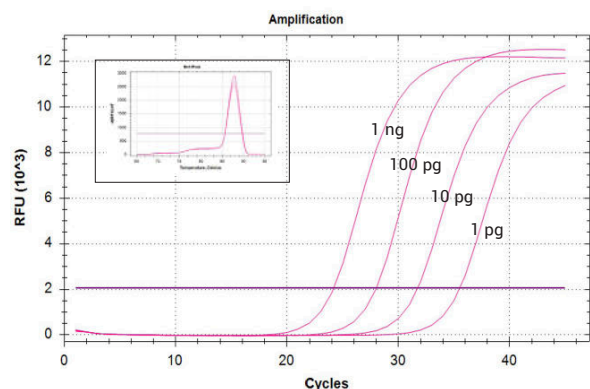


Figure 2. Linear detection of VOLO™ 2X One-step qRT-PCR Master Mix with SFCgreen™. Real-time amplification plot from a 10-fold dilution series of a HeLa RNA with starting amounts of 1ng amplified.

- Target gene : Human GAPDH (213bp)
- Thermal condition : 50°C 20min, 95°C 5min, (95°C 15s, 60°C 1min) x 45cycles [Total reaction time : 2h 1min]

2. Fast One-step qRT-PCR protocol

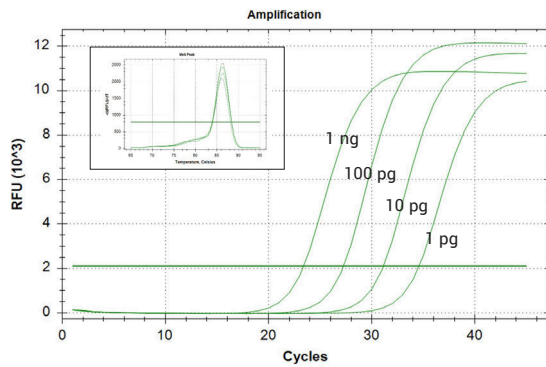


Figure 3. Linear detection of VOLO™ 2X One-step qRT-PCR Master Mix with SFCgreen™. Real-time amplification plot from a 10-fold dilution series of a HeLa RNA with starting amounts of 1ng amplified.

- Target gene : Human β -actin (95bp)
- Thermal condition : 50°C 5min, 95°C 20s, (95°C 3s, 60°C 30s) x 45cycles [Total reaction time : 1h 10min]

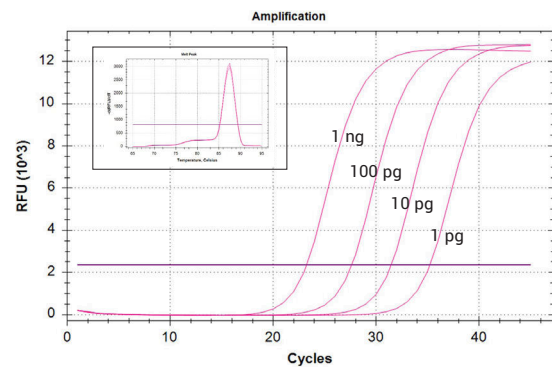


Figure 4. Linear detection of VOLO™ 2X One-step qRT-PCR Master Mix with SFCgreen™. Real-time amplification plot from a 10-fold dilution series of a HeLa RNA with starting amounts of 1ng amplified.

- Target gene : Human GAPDH (213bp)
- Thermal condition : 50°C 5min, 95°C 20s, (95°C 3s, 60°C 30s) x 45cycles [Total reaction time : 1h 10min]

3. IVD One-step qRT-PCR

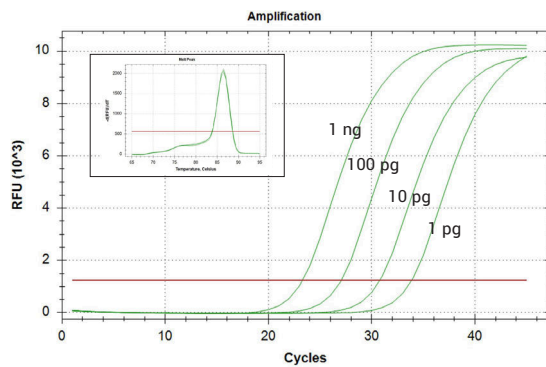


Figure 5. Linear detection of VOLO™ 2X One-step qRT-PCR Master Mix with SFCgreen™. Real-time amplification plot from a 10-fold dilution series of a HeLa RNA with starting amounts of 1ng amplified.

- Target gene : Human β -actin (95bp)
Thermal condition : 50°C 5min, 95°C 20s, (95°C 3s, 60°C 30s) x 45cycles
[Total reaction time : 1h 10min]

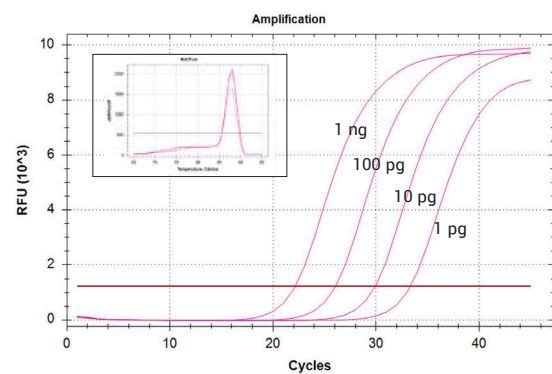


Figure 6. Linear detection of VOLO™ IVD-F 2X One-step qRT-PCR Master Mix with SFCgreen™. Real-time amplification plot from a 10-fold dilution series of a HeLa RNA with starting amounts of 1ng amplified.

- Target gene : Human GAPDH (213bp)
Thermal condition : 50°C 5min, 95°C 20s, (95°C 3s, 60°C 30s) x 45cycles
[Total reaction time : 1h 10min]

Item	Cat. No.	Size
VOLO™ 2X One-step qRT-PCR Master Mix with SFCgreen Dye, 20 μ l Reaction	VR-801	1 ml x 1
VOLO™ 2X One-step qRT-PCR Master Mix with SFCgreen Dye, 20 μ l Reaction	VR-802	1 ml x 5
VOLO™ 2X Fast One-step qRT-PCR Master Mix with SFCgreen Dye, 20 μ l Reaction	VR-803	1 ml x 1
VOLO™ 2X Fast One-step qRT-PCR Master Mix with SFCgreen Dye, 20 μ l Reaction	VR-804	1 ml x 5
VOLO™ IVD-S 2X One-step qRT-PCR Master Mix with SFCgreen Dye, 20 μ l Reaction	VR-805	1 ml x 1
VOLO™ IVD-S 2X One-step qRT-PCR Master Mix with SFCgreen Dye, 20 μ l Reaction	VR-806	1 ml x 5
VOLO™ IVD-F 2X One-step qRT-PCR Master Mix with SFCgreen Dye, 20 μ l Reaction	VR-807	1 ml x 1
VOLO™ IVD-F 2X One-step qRT-PCR Master Mix with SFCgreen Dye, 20 μ l Reaction	VR-808	1 ml x 5

One-step qRT-PCR Master Mix (for Probe)

Description

VOLO™ One-step qRT-PCR Master Mix(for Probe) 제품은 주형인 RNA로부터 cDNA를 합성하는 반응과 Real-time PCR 반응을 한 번에 수행할 수 있는 master mix 형태의 제품입니다. One-step qRT-PCR 실험에 필수적인 VOLO™ Reverse Transcriptase와 VOLO™ Hot-start Taq DNA Polymerase를 포함하여 최적의 조성으로 구성된 본 제품은 빠르고 안정적인 cDNA의 합성이 가능하기 때문에 RNA를 사용하는 다양한 실험에 적용할 수 있습니다.

분자진단 실험에 사용 시 각 유전자에 대해 높은 증폭 효율을 나타내기 때문에 Multiplex qRT-PCR 실험에 적용할 수 있고, 50 Copies 이하의 낮은 농도의 유전자도 검출 가능합니다. Standard qPCR Protocol 뿐만 아니라, 실험 목적에 따라 Fast qPCR Protocol에 맞는 master mix 제품을 이용할 수 있어, 신속한 실험 결과를 확인할 수 있습니다. 더욱 낮은 농도의 유전자나 바이러스 RNA 주형을 이용할 때에는 더 높은 검출 감도를 가진 IVD 제품의 사용을 권장합니다.

Feature

Sensitivity	10-50 Copies의 소량 유전자 검출 가능.
Multiplex	여러 개의 Target Gene을 사용해도 개별 유전자의 안정된 증폭 가능
Convenience	Master Mix 형태로 제공되므로, 주형 RNA와 Primer/Probe만 첨가하여 간편하게 One-step qRT-PCR 가능

Application

Molecular Diagnostics, Gene Expression Analysis, Fast One-step qRT-PCR, Multiplex Probe Detection

1. Standard One-step qRT-PCR protocol

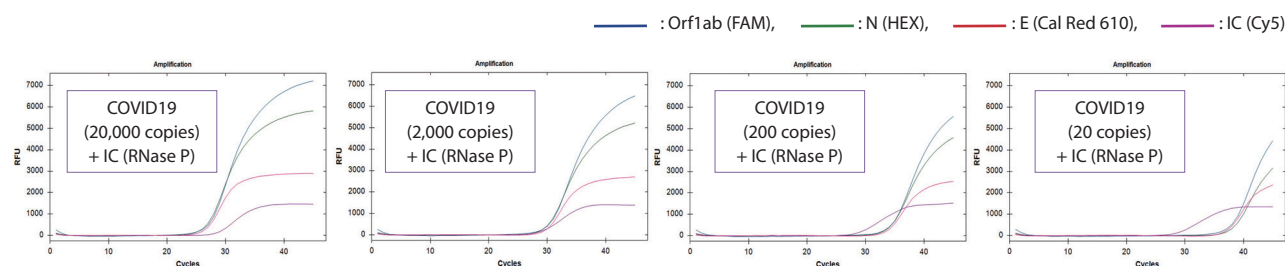


Figure 1. One-step qRT-PCR multiplex results using the VOLO™ 2X One-step qRT-PCR Master Mix(for probe). The real-time amplification plots from a 10-fold dilution series of COVID19 were shown three genes of COVID19 in unique amount of human RNA were detected. At least 20 copies of COVID19 were detected in this experiment. [50°C20min, 95°C 5min, (95°C15sec, 58°C 60sec) x 45cycles]

2. Fast One-step qRT-PCR

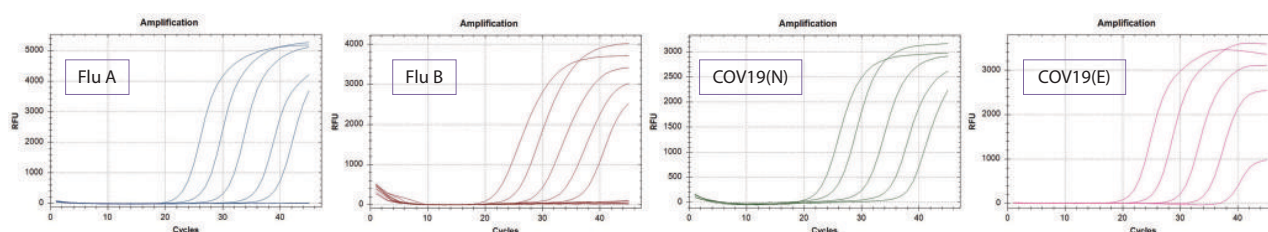


Figure 2. One-step qRT-PCR results using the VOLO™ 2X Fast One-step qRT-PCR Master Mix(for probe). The real-time amplification plots from a 10-fold dilution series of each viral RNA were shown Influenza A, Influenza B and two genes of COVID19 were detected. [50°C 5min, 95°C 20s, (95°C 3sec, 60°C 30sec) x 45cycles]

3. IVD One-step qRT-PCR

1) IVD-F 2X One-step qRT-PCR Master Mix (for Probe)

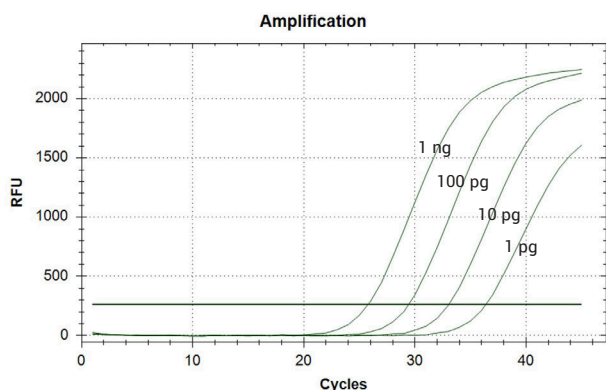


Figure 3. Linear detection of VOLO™ IVD-F 2X One-step qRT-PCR Master Mix (for Probe). Real-time amplification plot from a 10-fold dilution series of a HeLa RNA with starting amounts of 1ng amplified.

- Target gene : Human β -actin (95bp)
- Thermal condition : 50°C 5min, 95°C 20s, (95°C 3s, 60°C 30s) x 45cycles [Total reaction time : 1h 10min]

2) IVD-F 4X One-step qRT-PCR Master Mix (for Probe)

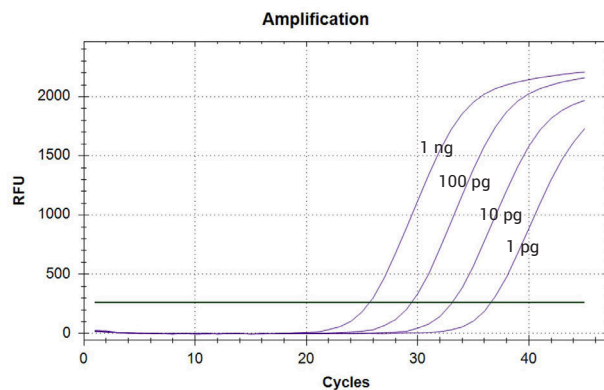


Figure 4. Linear detection of VOLO™ IVD-F 4X One-step qRT-PCR Master Mix (for Probe). Real-time amplification plot from a 10-fold dilution series of a HeLa RNA with starting amounts of 1ng amplified.

- Target gene : Human β -actin (95bp)
- Thermal condition : 50°C 5min, 95°C 20s, (95°C 3s, 60°C 30s) x 45cycles [Total reaction time : 1h 10min]

Item	Cat. No.	Size
VOLO™ 2X One-step qRT-PCR Master Mix (for Probe), 20 μ l Reaction	VR-809	1 ml x 1
VOLO™ 2X One-step qRT-PCR Master Mix (for Probe), 20 μ l Reaction	VR-810	1 ml x 5
VOLO™ 2X Fast One-step qRT-PCR Master Mix (for Probe), 20 μ l Reaction	VR-811	1 ml x 1
VOLO™ 2X Fast One-step qRT-PCR Master Mix (for Probe), 20 μ l Reaction	VR-812	1 ml x 5
VOLO™ IVD-S 2X One-step qRT-PCR Master Mix (for Probe), 20 μ l Reaction	VR-813	1 ml x 1
VOLO™ IVD-S 2X One-step qRT-PCR Master Mix (for Probe), 20 μ l Reaction	VR-814	1 ml x 5
VOLO™ IVD-F 2X One-step qRT-PCR Master Mix (for Probe), 20 μ l Reaction	VR-815	1 ml x 1
VOLO™ IVD-F 2X One-step RT-PCR Master Mix (for Probe), 20 μ l Reaction	VR-816	1 ml x 5
VOLO™ IVD-S 4X One-step qRT-PCR Master Mix (for Probe), 20 μ l Reaction	VR-817	1 ml x 1
VOLO™ IVD-F 4X One-step qRT-PCR Master Mix (for Probe), 20 μ l Reaction	VR-818	1 ml x 1

Antibody

Anti-Taq DNA Polymerase Monoclonal Antibody

Description

This product is a monoclonal antibody (IgG) to Taq DNA polymerase for use in hot start PCR. The antibody was derived from a hybridoma (mouse originated) and purified by affinity chromatographic step from the culture media. Isotype is IgG1 Kappa. When mixed with Taq DNA polymerase, it inhibits the polymerase activity and prevents non-specific amplification derived from misprinting of primer dimer before PCR cycling. The antibody is denatured during the initial denaturation step, so there is no need for a special denaturation step. This antibody provides convenience PCR that enhances the specificity and sensitivity.

Epitope

Full length Taq DNA polymerase

Application

Hot start PCR, Real-time PCR, One-step qRT-PCR, PCR diagnostics, SNP, and Genotyping

Specification

Product Name	VOLO™ Anti-Taq DNA Polymerase Monoclonal Antibody
Product Overview	Mouse Monoclonal Antibody to Taq DNA Polymerase
Specificity	Reacts with Various Commercial Taq DNA Polymerases
Immunogen	Full Length Taq DNA Polymerase
Isotype	IgG2a
Source/Host	Mouse
Clone Number	2D4
Purity/Purification	> 95% by SDS-PAGE (12% PAAG), DNase- and RNase-free
Storage Condition	10 mM Tris-HCl (pH 7.0), 50 mM KCl, 0.1 mM EDTA, 50% Glycerol
Storage Temperature	Stored at 2-8°C for 1 months and 1 year
Concentration	4 mg/ml
Size	100 mg

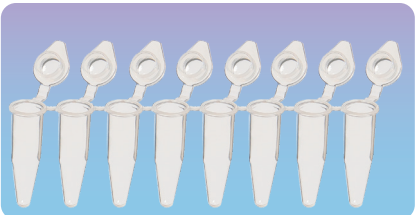
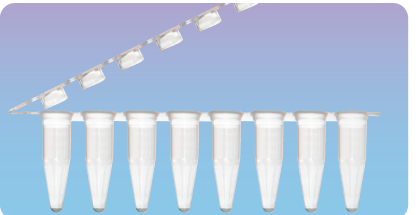
Item	Cat. No.	Size
VOLO™ Anti-Taq DNA Polymerase Monoclonal Antibody	VR-901	100 mg
VOLO™ Anti-Taq DNA Polymerase Monoclonal Antibody	VR-902	1,000 U
VOLO™ Anti-Taq DNA Polymerase Monoclonal Antibody	VR-903	2,500 U
VOLO™ Anti-Taq DNA Polymerase Monoclonal Antibody	VR-904	5,000 U

VOLO™ PCR Consumables

VOLO™ PCR Strip Tube

Optically clear caps & Innovative angular cap attachment

- Angularly attached cap : Tube와 Cap의 연결부위를 강화하여 주위 다른 cap, tube와의 간섭 제거
- Ultra thin wall : 0.25mm 두께의 tube wall을 통하여 효율적인 열 전달과 Crush 방지
- DNase, RNase, DNA, endotoxin and PCR inhibitor free
- Medical grade의 Polypropylene으로 제작하여 real time PCR시 불필요한 background signal을 제거

VOLO Indi-H Strip	VOLO Indi-S Strip	VOLO One-Shot Strip
		
• 휘어지지 않는 strip tube • Robust interwell linkages: 강화된 tube 연결부위를 통해 기존 strip tube이 쉽게 휘어지던 문제 해결	• 독립적으로 분리된 cap 디자인을 통해 sample 오염을 방지 • Customizable strips, 손쉬운 tube 분리로 맞춤형 실험 가능	• Hinged attached cap: 빠른 PCR 실험과 효율적인 scale up이 가능 • Optically clear cap을 통하여 real-time PCR에 최적화

Item	Size	Description	Packaging	
VOLO™ Indi-H Strip				
PP-101	0.2 ml standard	strips of 8, flat, optically clear	120 strips per unit	
PP-102	0.1 ml low profile	strips of 8, flat, optically clear	120 strips per unit	
VOLO™ Indi-S Strip				
PP-103	0.2 ml standard	strips of 8, dome, clear	120 strips per unit	
PP-104	0.2 ml standard	strips of 8, flat, optically clear	120 strips per unit	
VOLO™ One-Shot Strip				
PP-105	0.2 ml standard	strips of 8, flat, optically clear	125 strips per unit	
Strip Tubes with Strip Caps				
PP-106	standard	strips of 8, flat, clear cap strips	125 strips per unit	
PP-107	standard	strips of 8, dome, clear cap strips	125 strips per unit	
Corbett-Type Strip Tubes and Caps (Compatible with QIAGEN®/CORBETT® and Rotor-Gene® Instruments)				
PP-108	0.1 ml	4 tube strip and 4 cap strip	250 strips per unit	

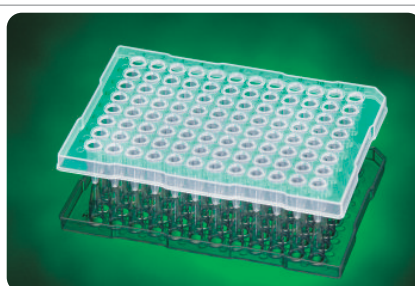
※ 10 units per case

VOLO™ PCR Plate

- Thermal cycler 장비들과의 높은 호환성.
- Ultra-thin walls를 통하여 amplification시 효율적인 열 전사능력 제공
- 높은 시인성을 가지도록 디자인 된 알파벳과 숫자 print로 정확한 sample 위치 인식
- Bar-code 표시된 semi, full skirted PCR plate 를 통하여 sample 추적 및 관리의 편의성 향상
- 24, 48 well의 size 옵션이 가능(Unskirted PCR Plate)



Unskirted PCR plates



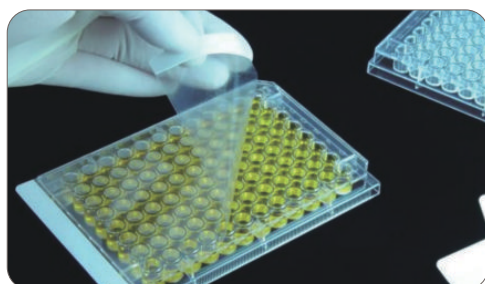
Semi-Skirted PCR plates



Full-Skirted PCR plates

Item	Bar-Coded Plate Item	Wells	Well Type	Cut Corner	Packaging
Unskirted PCR Plates - Also available in 24 and 48 well configurations					
PP-201	n/a	96	standard	A12	10 per unit, 10 units per case
PP-202	n/a	96	low profile	H12	20 per unit, 5 units per case
PP-203	n/a	96	chimney top, standard	H12	10 per unit, 10 units per case
Semi-Skirted PCR Plates					
PP-211	n/a	96	standard	A12	10 per unit, 10 units per case
PP-212	n/a	96	low profile	H1	10 per unit, 10 units per case
PP-213	Bar-Coded	96	raised rim, standard well	A12	10 per unit, 10 units per case
PP-214	n/a	96	low profile, FAST® type	A1	10 per unit, 10 units per case
PP-215	Bar-Coded	96	standard	A12	10 per unit, 10 units per case
PP-216	Bar-Coded	96	low profile, LightCycler® type	H12	10 per unit, 10 units per case
Full-Skirted PCR Plates					
PP-221	Bar-Coded	96	low profile	A12	10 per unit, 10 units per case
PP-222	Bar-Coded	384	two notch type	A24 & P24	10 per unit, 10 units per case
PP-223	Bar-Coded	384	one notch type	A24	10 per unit, 10 units per case

VOLO™ Sealing Film



VOLO RT (Real-Time) pressure released film

- Highest level of clarity : 최상의 선명도를 제공하여 Real Time PCR에 최적화된 film
- Non-tacky adhesion : Film 분리 시 plate에 접착 잔여물이 남지 않는 깔끔한 접착 능력으로 최상의 optical analysis 환경 제공

Item	Application	Description	Dimensions	Packaging
PP-301	PCR	ClearSEAL	total length of 5.335" (with tabs) total width of 3.083" workable length of 4.65"	100 per unit
PP-302	PCR	EasySEAL	total length of 5.63" (with tabs) total width of 3.208" workable length of 4.80"	100 per unit
PP-303	RT-PCR	OptiSEAL	total length of 5.50" (with tabs) total width of 3.083" workable length of 4.574"	100 per unit
PP-304	PCR Long-Term Storage	FoilSEAL	total length of 5.75" (with tabs) total width of 3.25" workable length of 4.938"	5 per unit, 10 units per case



비투바이오(주) | B2BIO Inc.

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