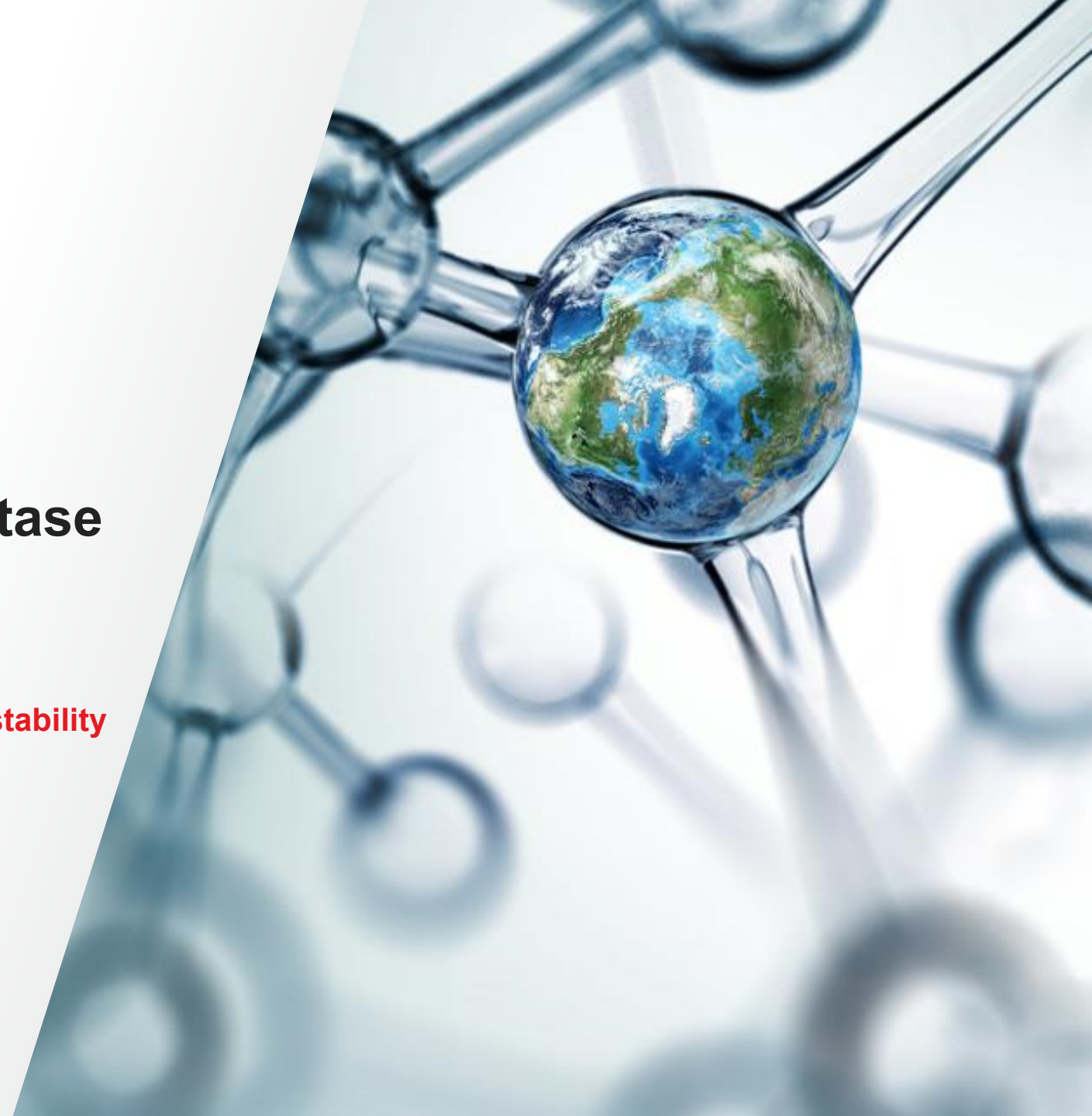


SuperScript V Reverse Transcriptase SuperScript V VILO Master Mix

Excellent performance • Easy setup • Exceptional stability



Why move to the next generation of reverse transcriptase (RT)

Today's cDNA synthesis workflows demand high performance across challenging samples—with greater speed and flexibility.

01 Performance

Confidence across diverse RNA

Sensitive, robust cDNA synthesis across high- and low-input RNA, variable sample quality, and challenging matrices

02 Easy setup

Faster, more flexible workflows

Faster protocols, fewer handling steps, room-temperature reaction setup, and flexible reaction timing can simplify routine, high-throughput, and automated workflows

03 Stability

Easier reagent handling and logistics

Greater room-temperature reagent stability, ambient shipping, and longer shelf life can reduce dependence on continuous cold handling

Invitrogen™ SuperScript™ V RT brings excellent performance, easy setup, and exceptional stability together in one product family

Excellent performance. Easy setup. Exceptional stability.

SuperScript V RT offers premium performance with simple, flexible workflows

Excellent performance

Reliable cDNA synthesis across routine and challenging samples

0.1 pg

Sensitivity down to 0.1 pg total RNA

20 kb

Efficient synthesis of cDNA up to 20 kb

- Strong inhibitor tolerance
- Thermostability up to 65°C
- Robust performance with low-input, degraded, highly structured, and inhibitor-rich RNA

Easy setup

Simplified workflows with fewer setup and timing constraints

10 min

cDNA synthesis in as little as 10 min or less

DTT-free

No separate dithiothreitol (DTT) addition required

- Convenient Invitrogen™ SuperScript™ VILO™ Master Mix and primer-free formats
- Integrated gDNA removal with Invitrogen™ ezDNase™ Master Mix

Exceptional stability

Greater flexibility in reagent handling, storage, and logistics

Room temperature stable

Extended room-temperature reagent stability

4–24 h

Assembled reactions stable at room temperature up to 24 h

- Supports ambient shipping
- Room-temperature reaction setup
- Longer shelf life

One product family, multiple workflow options

Choose the format that best matches your workflow—from maximum reaction control to ready-to-use convenience

SuperScript V Reverse Transcriptase

Flexibility and customization

Stand-alone RT for customized cDNA synthesis

Choose for

- RT—flexible priming and optimization of reaction components; broad range of cDNA synthesis applications

SuperScript V VILO Master Mix

One-tube convenience

Ready-to-use master mix with optimized oligo(dT) and random primers

Choose for

- VILO—fast and convenient setup for RT-qPCR and RT-PCR; routine and high throughput gene expression analysis workflows

SuperScript V VILO Master Mix, Primer-Free

Flexible priming

Ready-to-use master mix without primers, Invitrogen™ SuperScript™ V VILO™ Master Mix, Primer-Free

Choose for

- VILO, primer-free—fast and convenient setup; flexible priming for broad cDNA synthesis applications

Available across the product family

± ezDNase enzyme gDNA removal

Sample sizes for evaluation

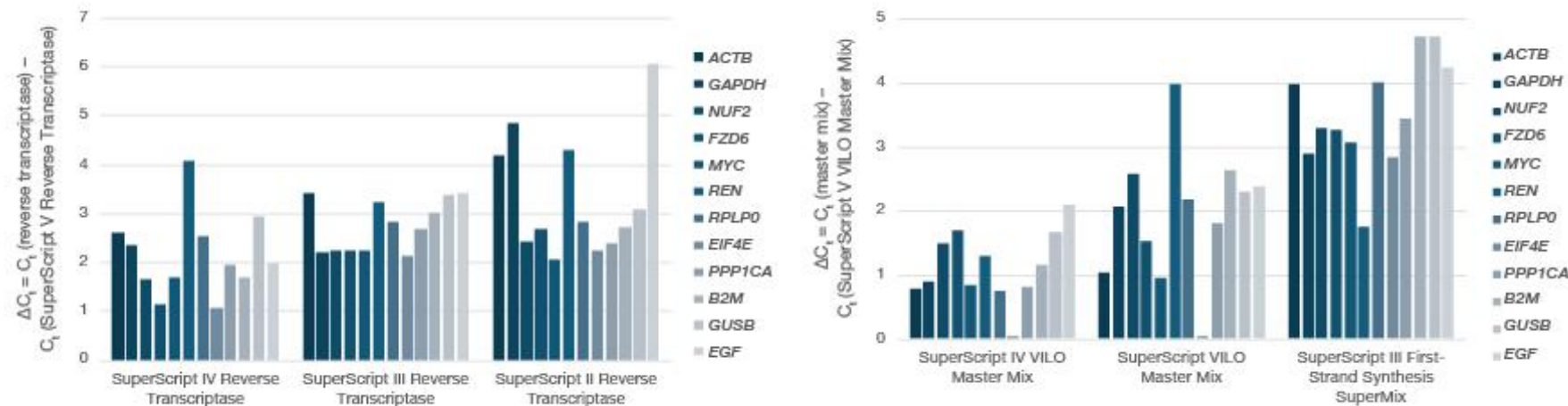
High-throughput/bulk formats

OEM/commercial options

More amplifiable cDNA across a broad gene panel



SuperScript V RT products show consistently earlier C_t values than earlier-generation SuperScript products across 12 gene-expression targets



Positive ΔC_t indicates earlier C_t with SuperScript V RT. The advantage was observed across 12 tested targets in both stand-alone RT and SuperScript VILo master mix comparisons.

WHAT THE DATA SHOW

12 targets

Earlier C_t advantage across the full gene panel

Two formats

Consistent trend with stand-alone RT and SuperScript VILo master mix

Broad step-up

Performance improvement is not limited to a single target

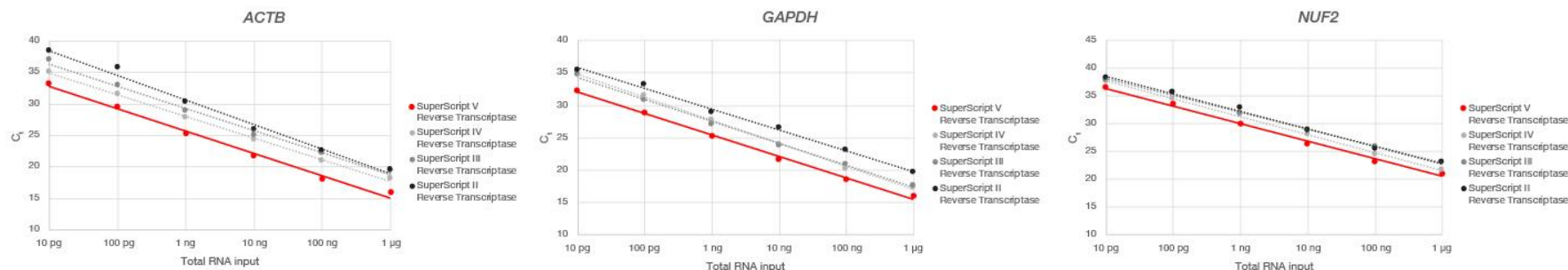
Why it matters

A broad performance advantage can provide greater confidence across routine gene-expression targets—not just selected assays.

SuperScript V RT helps deliver earlier C_t values

Comparison across three gene-expression targets and a 10 pg–1 μ g total RNA input range

Earlier C_t values across a broad RNA input range



SuperScript V RT (red) was compared with SuperScript IV, III, and II RTs across *ACTB*, *GAPDH*, and *NUF2*. The downward C_t trends remain linear across six RNA inputs from 10 pg to 1 μ g, while SuperScript V RT generally tracks below the earlier-generation enzymes.

What the data show

Earlier C_t

SuperScript V RT generally shows earlier C_t than SuperScript IV, III, and II RTs

3 targets

Consistent trend across *ACTB*, *GAPDH*, and *NUF2*

10 pg–1 μ g

Performance maintained across a 5-order-of-magnitude input range

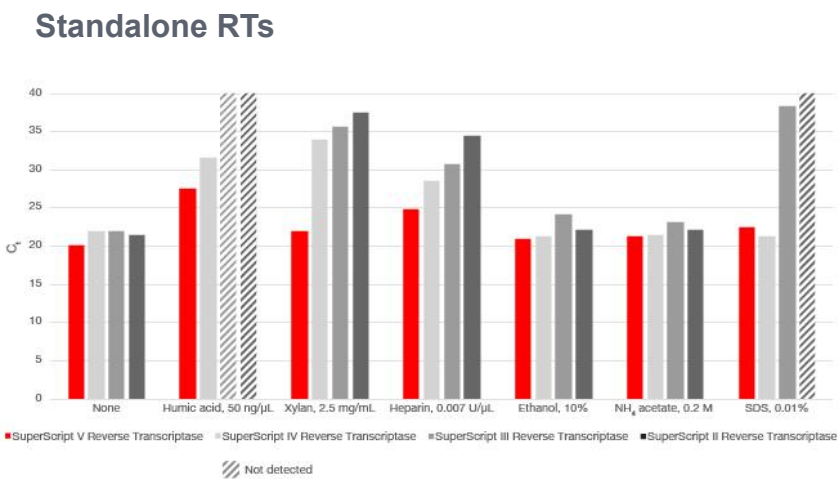
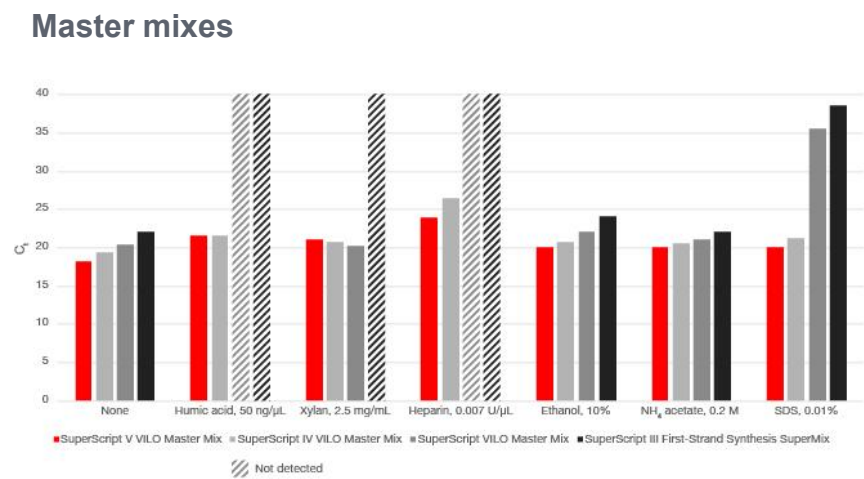
Why it matters

Shows a clear performance step-up versus earlier generations of SuperScript RT across routine gene-expression targets.

Robust performance in the presence of inhibitors



SuperScript V RT maintains reliable cDNA synthesis across common inhibitor conditions



RT-qPCR comparison across common inhibitor conditions

What the data show

6 conditions

Performance evaluated across multiple common RT inhibitors

Earlier C_t

Maintained for SuperScript V RT across all tested conditions

Robust inhibitor tolerance

Indicated by consistent target detection

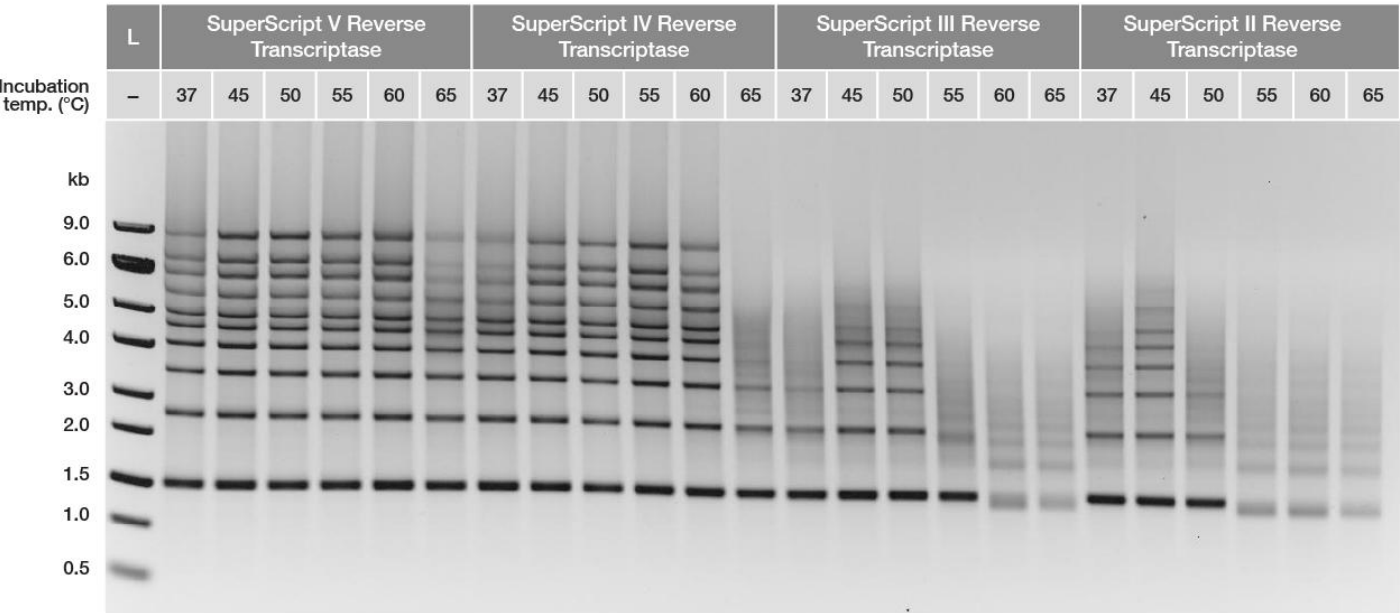
Why it matters

Greater inhibitor tolerance can improve confidence with challenging or incompletely purified RNA samples.

cDNA synthesis across a broad temperature range



SuperScript V Reverse Transcriptase supports efficient long-cDNA synthesis from 37–65°C, providing greater flexibility for challenging RNA templates



cDNA synthesis across 37–65°C compared with earlier-generation SuperScript RTs

What the data show

37–65°C

Broad RT temperature range demonstrated

Up to 9 kb

Long cDNA synthesized across the tested temperature range

Greater temperature flexibility

Performance is maintained at elevated temperatures where earlier-generation enzymes show reduced capability

Why it matters

SuperScript V RT offers greater temperature flexibility than earlier generations of SuperScript RT, supporting challenging, structured, or GC-rich RNA targets

Reduce RNA-to-cDNA workflow time with fewer and faster steps

SuperScript V VILO Master Mix streamlines the recommended workflow to approximately 13 minutes, including rapid gDNA removal

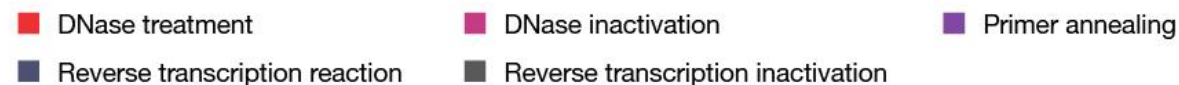
Traditional reverse transcriptase workflow with DNase I (105 min)



SuperScript IV VILO Master Mix workflow with ezDNase enzyme (27 min)



SuperScript V VILO Master Mix workflow with ezDNase enzyme (13 min)



Streamlined RNA-to-cDNA workflow

What the data show

~13 min

Standard workflow with gDNA removal

Fewer steps

No separate primer-annealing step

1 min

Reverse transcriptase inactivation

Why it matters

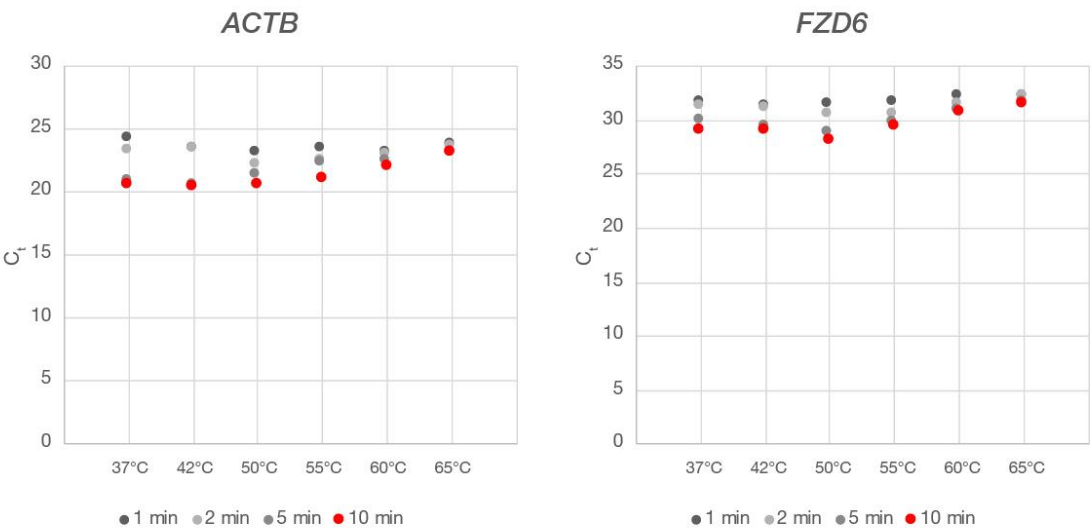
A shorter, streamlined workflow reduces processing time and hands-on complexity.

Tailor RT incubation time to target length and workflow needs



SuperScript V RT enables very rapid cDNA synthesis, while longer incubation supports extended transcript coverage

Rapid target detection



1 min

Reliable target detection demonstrated

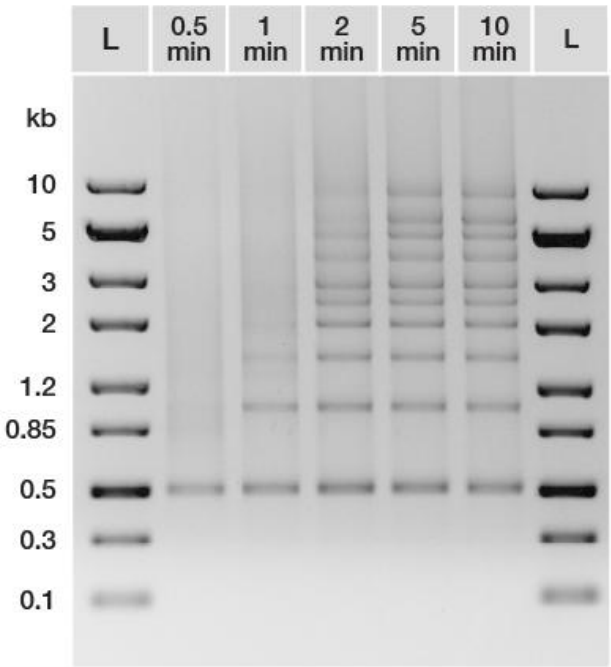
High- and low-

Abundance targets detected

37–65°C

broad RT temperature range

RT time vs. cDNA length



30–60 seconds

Short cDNA detectable

5–10 minutes

cDNA synthesis demonstrated up to ~9 kb

Longer target

Allow more time*

* For long targets up to 20 kb, reaction time can be extended up to 60 min.

Why it matters

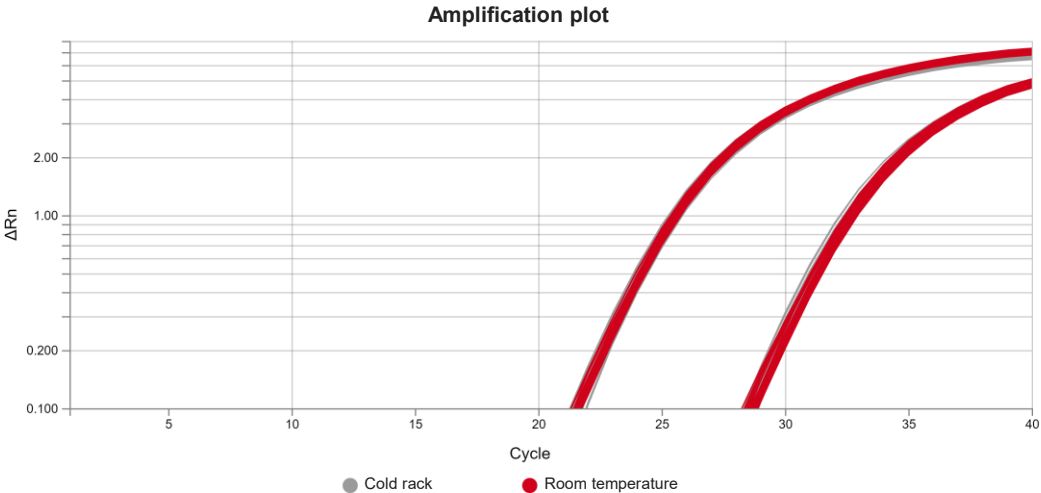
- RT time can be shortened when rapid detection of shorter targets is the priority
- Longer incubation helps provide greater transcript coverage when longer cDNA is required

Set up RT reactions on your schedule



Room-temperature reaction setup and extended stability of assembled reactions reduce timing and temperature constraints.

Room-temperature setup



<0.3 C_t

difference between
room-temperature
and cooled setup

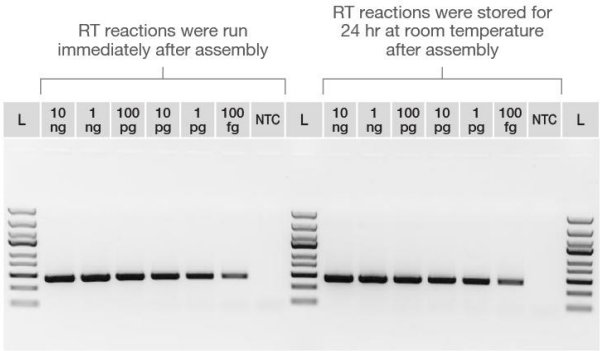
<0.8% CV

(coefficient of variance)
high consistency across
replicate reactions

24 replicates

consistent performance
across plate setup

Assembled-reaction stability

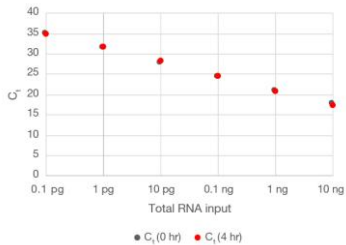


Up to 24 h*

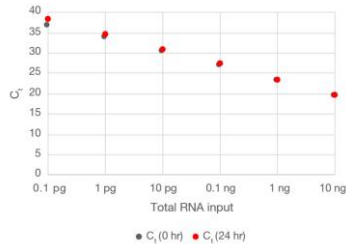
assembled reactions stable
at room temperature

* 24 h with probe qPCR;
4 hr with SYBR green assay.

SYBR green assay



Probe qPCR



Consistent C_t

performance maintained after
extended benchtop holding

Why it matters

- Reduces dependence on ice, cooling racks, and cooled automation deck positions during setup
- Supports greater flexibility for plate staging, batching, queueing, and unexpected workflow delays

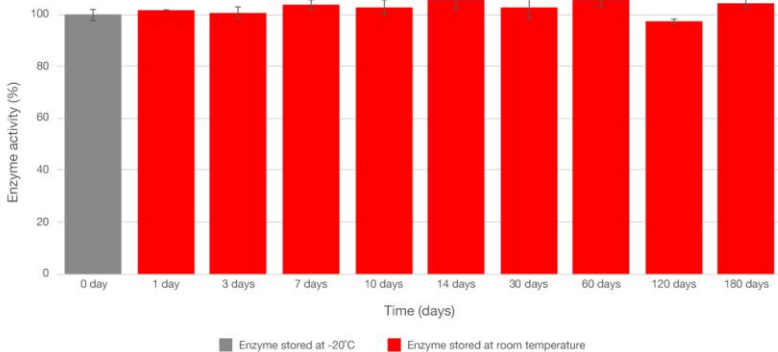
Greater stability for more flexible handling and logistics



Extended room-temperature stability reduces dependence on continuous cold handling while supporting flexible storage and shipping

Stand-alone reverse transcriptase

Up to
6 months
room-temperature
stability demonstrated



Ambient shipping supported

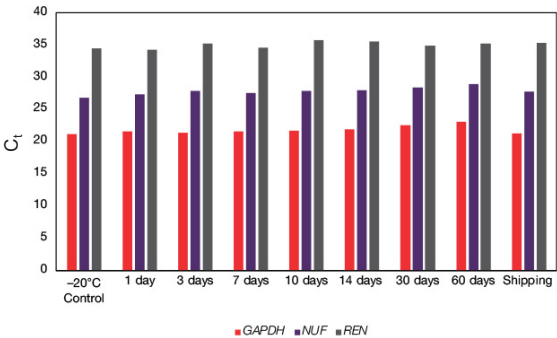
Why it matters

- Reduces dependence on continuous cold handling during routine reagent use
- Provides greater flexibility for reagent storage, shipping, and temperature excursions

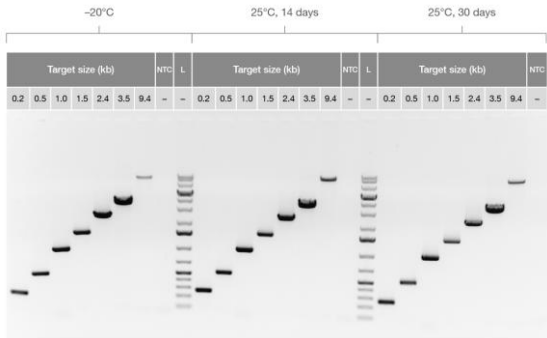
SuperScript VILO Master Mix

Up to
1 month
room-temperature stability
demonstrated

Consistent RT-qPCR performance



Consistent RT-PCR performance



Why switch to SuperScript V RT?

Three reasons to move to the next generation of SuperScript reverse transcription

01 Excellent performance

Reliable cDNA synthesis across routine and challenging RNA

- Earlier C_t across diverse gene-expression targets
- Thermostability up to 65°C
- Strong inhibitor tolerance
- Robust performance with low-input, degraded, highly structured, and inhibitor-rich RNA

02 Easy setup

Faster workflows with fewer setup and timing constraints

- ~11-minute standard workflow
- RT time can be tailored to target length (down to 1 min)
- Room-temperature reaction setup
- Assembled reactions stable at room temperature up to 24 h*

03 Exceptional stability

More flexible reagent storage, handling, and shipping

- Stand-alone, room-temperature stable up to 6 months at room temperature
- SuperScript VILO master mix stable up to 1 month at room temperature
- Ambient shipping supported
- Reduced dependence on continuous cold handling

* Up to 24 h with TaqMan Assays; 4 h with SYBR assays.

Premium RT performance—with meaningful improvements in workflow flexibility and reagent handling

SuperScript generations at a glance



Each generation advances reverse transcription performance, with SuperScript V RT adding faster setup and differentiated reagent stability.

Specification	SuperScript II RT	SuperScript III RT	SuperScript IV RT	SuperScript V RT
Optimal RT temperature	42°C	50°C	50–55°C	50–55°C
Temperature capability	Up to 50°C	Up to 55°C	Up to 65°C	Up to 65°C
cDNA synthesis time	50 min	30–50 min	10 min	10 min
Sensitivity	1 ng	10 pg	1–10 pg	0.1 pg
Maximum cDNA length	Up to 12.3 kb	Up to 12.3 kb	>12 kb/~13 kb	Up to 20 kb
Inhibitor tolerance	Lower	Improved	Strong	Strong
Challenging RNA	Lower	Improved	Strong	Strong
DTT supplied/required	Yes	Yes	Yes	No
Room-temperature reaction setup	—	—	—	Yes
Assembled-reaction stability at room temperature	—	—	—	Up to 24 h*
Room-temperature reagent stability	—	—	—	Up to 6 months**
Ambient shipping	No	No	No	Supported

* Up to 24 h with TaqMan Assays; 4 h with SYBR chemistry assays.
** Standalone enzyme can be stored at room temperature for up to 6 months; Master mixes can be stored at room temperature for up to 1 month.

Thank you

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