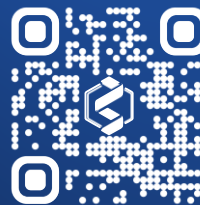


Reverse Transcriptases

DBscript 2.0

DBscript Turbo

Engineered to Outperform
Every cDNA Synthesis



 www.dianabiotech.com

 lifescience@dianabiotech.com

DIANA Biotechnologies is a Czech biotech company producing top-quality molecular biology reagents and enzymes for R&D and diagnostics. Powered by a team of top scientists in chemistry, biochemistry and molecular biology we offer unique proprietary products and technologies not only in molecular biology, but also in engineered proteins & enzymes, custom monoclonal antibody development, kinase profiling and advanced PCR diagnostics.

DBscript Reverse Transcriptases



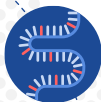
Reverse Transcriptases are essential enzymes in molecular biology applications that enable synthesis of complementary DNA strands from RNA templates. Conventional reverse transcriptases often suffer from poor thermostability and slow protocols, leading to reduced yields and specificity at elevated temperatures. DBscript Reverse Transcriptases solve these issues and deliver superior performance at higher reaction temperatures in a shorter time.

Advantages of DBscript Reverse Transcriptases



High thermostability

Display optimum RT activity at high temperatures (50–60°C).



High ribosomal cDNA yield

Provide exceptional cDNA yield from complex RNAs (including rRNA).



High speed for long transcripts

High processivity ensures greater yields for longer cDNA transcripts.



Exceptional sensitivity

Optimized for RT-qPCR workflows with low copy number RNAs.



Inhibitor tolerance

Highly resistant to common reverse transcription inhibitors.

DBscript 2.0 and DBscript Turbo are highly engineered M-MLV Reverse Transcriptases with increased processivity and thermostability.

Derived from our legacy DBscript Reverse Transcriptase, they are next-generation enzymes in the panel of our life science reagents.

DBscript 2.0 and DBscript Turbo enable fast and efficient cDNA synthesis at higher temperatures and outperform all known competitors in single- and multiplex RT-qPCR.

Available as stand-alone enzymes or in ready-to-use cDNA synthesis kits.

Patent pending

Key Features and Applications

DBscript 2.0

Ultra-sensitive for most applications

New version of DBscript improved in every aspect.

Enzyme of choice for 1-step RT-PCR and maximum sensitivity (e.g., in diagnostics), with strong performance in all applications.

Better alternative to SuperScript™ III and III Flash.



Reverse transcription (RT) at up to 70°C



One-step RT-PCR and diagnostic applications



RT with low copy number targets (down to ~1 copy)

Ultra-fast for full-length cDNA

DBscript Turbo

RT-PCR workflows with short protocols



New version of DBscript, even faster and more processive than DBscript 2.0.

Enzyme of choice for long RNAs (> 5 kbs) and/or short protocols (speed up to 1 kb per 30 sec).

Better alternative to SuperScript™ IV.

Full-length RNA-seq library preparation



cDNA synthesis with long RNA templates (>5 kbs)



Exceptional Thermostability



Approximate cDNA yield (%)
after 5 min pre-incubation at various temperatures
followed by transcription for 10 min at 55°C

DBscript 2.0 and DBscript Turbo
show excellent thermostability

DBscript 2.0 and DBscript Turbo ensure efficient
cDNA synthesis after pre-incubation at 60°C

Reverse Transcriptase

Pre-incubation at 55°C

Pre-incubation at 60°C

DBscript Turbo



100%



80%

DBscript 2.0



80%

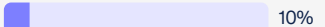


80%

DBscript

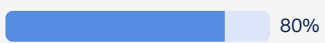


70%

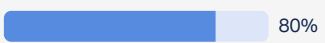


10%

SuperScript™ III Flash
Thermo

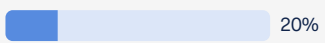


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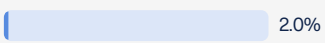


80%

SuperScript™ IV
Thermo



20%



2.0%

SuperScript™ III
Thermo



40%



9.0%

SuperScript™ II
Thermo

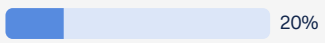


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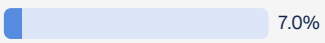


0.1%

Induro®
NEB

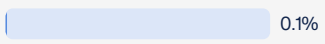


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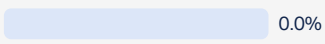


7.0%

Transcriptor
Roche

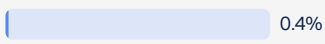


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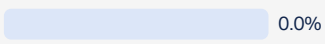


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SMARTScribe™
Takara Bio

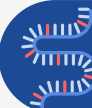


0.4%



0.0%

High Ribosomal RNA Yield



Approximate cDNA yield (%)
from bacterial ribosomal RNA (~200 bases)
at various temperatures after 10 min

DBscript 2.0 and DBscript Turbo
provide the highest cDNA yields

DBscript 2.0 and DBscript Turbo enable
transcription at 60°C or even 65°C

Reverse Transcriptase

50°C

55°C

60°C

65°C



20%



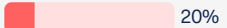
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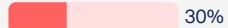
90%



100%



20%



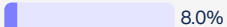
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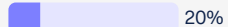
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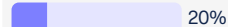
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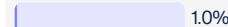
8.0%



20%



20%



1.0%



8.0%



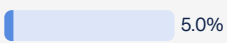
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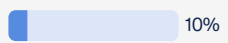
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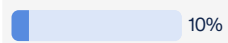
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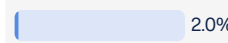
5.0%



10%



10%



2.0%



9.0%



20%



20%



0.9%



2.0%



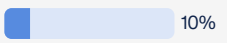
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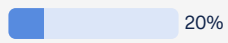
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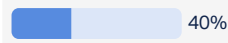
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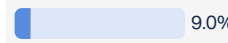
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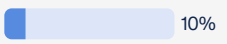
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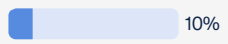
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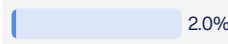
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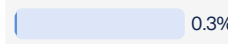
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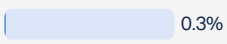
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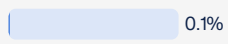
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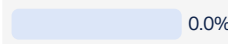
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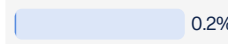
0.3%



0.1%



0.0%



0.2%

Values are rounded to one significant figure for clarity.

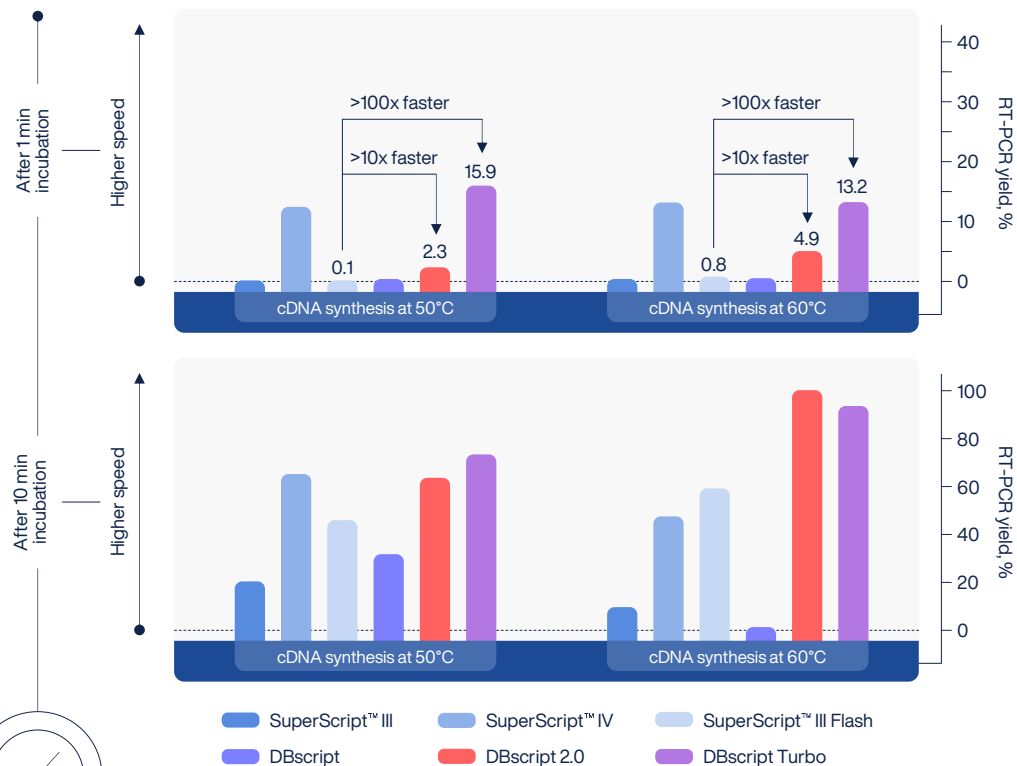
High Speed for Long Transcripts



Approximate cDNA yield (%)
for 2000 nt long cDNA transcript
at various temperatures

DBscript 2.0 and DBscript Turbo
are highly processive

DBscript 2.0 is >10 times faster than SuperScript™ III
DBscript Turbo is >100 times faster than SuperScript™ III



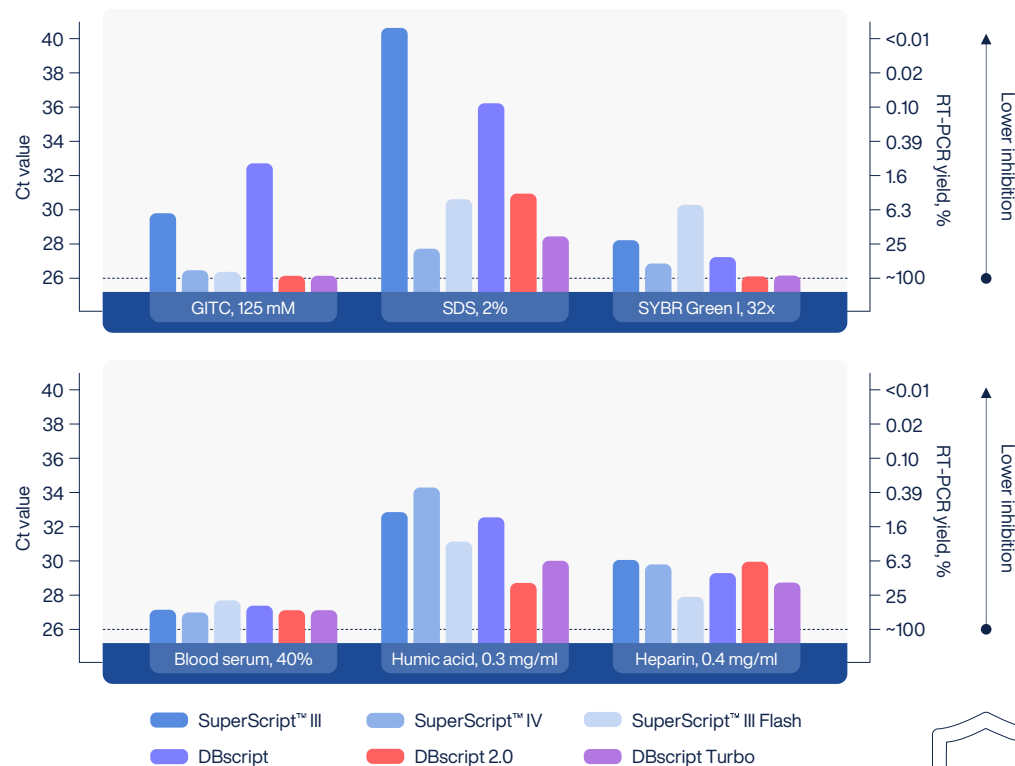
Resistance to inhibitors



cDNA synthesis efficiency (%)
in the presence of common inhibitors
of reverse transcription

DBscript 2.0 and DBscript Turbo perform on
top of tested RTs with all common inhibitors

DBscript 2.0 and DBscript Turbo show exceptional
resistance to GITC, SYBR Green I and Humic acid



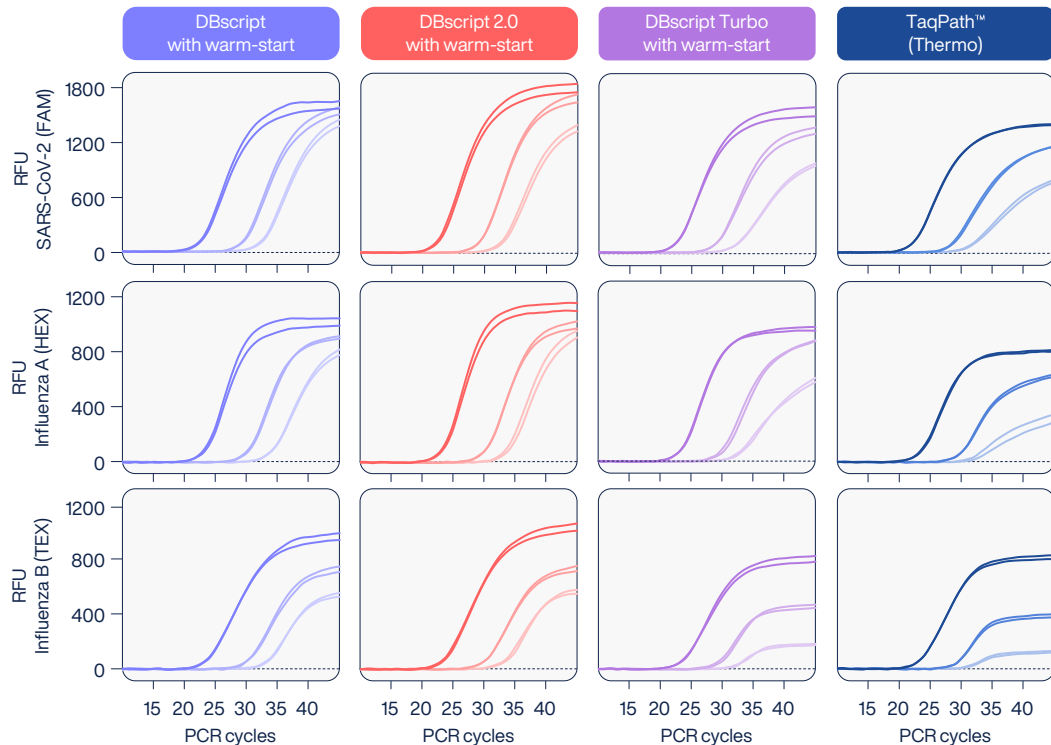
Exceptional Sensitivity



Sensitivity in multiplex RT-PCR

Multiplex 1-step RT-PCR after 24 h pre-incubation with primers, no RNA template (UDG + dUTP included)

Viral RNA template: 20,000–200–20 copies/rxn



DBscript RTs show higher sensitivity than TaqPath™ 1-step RT-qPCR Master Mix

Addition of DB Thermolabile UDG enables detection of low copy number targets even after 24-hour pre-incubation with the primers

DB Warm-Start Additive

An optional warm-start enhancement for the DBscript RTs family

Warm-Start RT Additive is a complementary reagent that adds temperature-gated control of reverse transcriptase activity to your existing RT workflow. Used together with DBscript 2.0, DBscript Turbo, or other M-MLV reverse transcriptases, it reversibly inhibits RT activity at ambient temperature - limiting non-specific primer extension and primer-dimer formation during reaction assembly. Inhibition is fully released at $\geq 50^\circ\text{C}$, where the enzyme reaches full activity for specific and efficient cDNA synthesis. It is designed for assays that benefit from an added warm-start step, such as prolonged setups, handling at room temperature, or applications demanding maximum specificity.

Add to your RT of choice

One and two-step RT-PCR;
Compatible with all DBscript RTs and other M-MLV RTs*

Ordering information

Size

Catalogue #

50 rxns

DB-1336-50rxns

250 rxns

DB-1336-250rxns

Fully reversible inhibition

Complete RT activity restored at $\geq 50^\circ\text{C}$, no loss of yield

Reduced background

Suppresses non-specific extension and primer-dimer formation at room temperature

Improved specificity

Particularly in assays with prolonged or ambient-temperature setup

Effortless to use

Use 1 μL per 20 μL reaction mix, add before primers

* Compatibility with other M-MLV reverse transcriptases should be verified by the user.

Key performance comparison of DBscript reverse transcriptases



SuperScript™ and TaqPath™ are trademarks of Thermo Fisher Scientific Inc. Induro® is a registered trademark of New England Biolabs, Inc. SMARTScribe™ is a trademark of Takara Bio Inc. Transcriptor™ is a trademark of Roche Diagnostics GmbH. All other trademarks are the property of their respective owners. All performance data are based on internal benchmarking.

Relative performance based on internal benchmarking under standardized conditions.

DBscript 2.0 Reverse Transcriptase



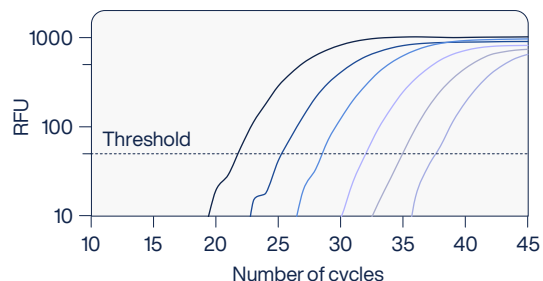
Sensitivity in a wide linear range

TBP amplification with oligo(dT)₂₀-VN primers from HEK293 total RNA at 50 °C for 10 min

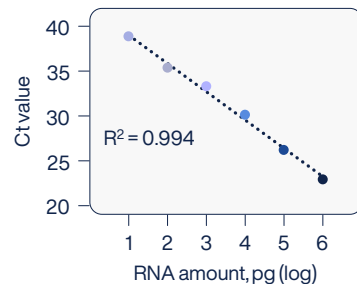
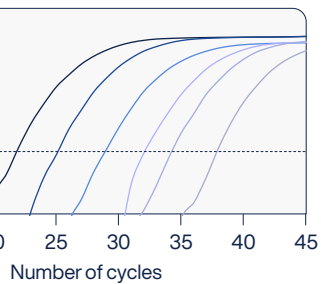
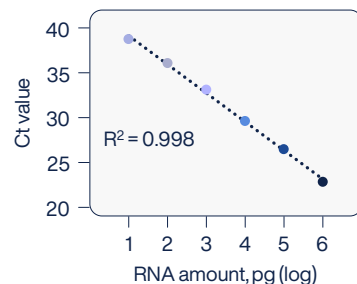
DBscript 2.0 demonstrates wide-range sensitivity in both formulations (as a stand-alone enzyme and cDNA synthesis kit)

cDNA synthesis can be performed with 10 pg to 1 µg of RNA template in two-step RT-PCR protocols

Amplification plot



Standard curve



Amount of total RNA from HEK293 cells

10⁶ pg 10⁵ pg 10⁴ pg

10³ pg 10² pg 10¹ pg

DBscript 2.0 Reverse Transcriptase

Our stand-alone enzyme is suitable for both first-strand cDNA synthesis and one-step RT-qPCR, including *in vitro* diagnostics applications.

Supplied with a reaction buffer RT Buffer B (5X) that contains all necessary components including DTT, dNTPs, optimal concentrations of MgCl₂ and KCl, enhancers and stabilizers.



DBscript 2.0 Reverse Transcriptase



Optimized reaction buffer

DBscript 2.0 cDNA Synthesis Kit

Our high-yield cDNA Synthesis Kit provides all components required for fast and efficient cDNA synthesis.

To streamline your protocol, all components are included into a single reaction mix (2X) that contains DBscript 2.0 RT, RNase Inhibitor, DTT, dNTPs and optimized reaction buffer.

Supplied with oligo(dT)₂₀ primer, random hexamers and PCR grade water.



DBscript 2.0 Reverse Transcriptase



DB Ultima H RNase Inhibitor



Oligo(dT)₂₀ primer
Random hexamers

Ordering information

Size	Catalogue #
2 kU	DB-1332-2kU
10 kU	DB-1332-10kU
40 kU	DB-1332-40kU

Also available in glycerol-free (lyo-ready) formulation.

Ordering information

Size	Catalogue #
10 rxns	DB-1334-10rxns
50 rxns	DB-1334-50rxns

Free sample size is available upon request.

For large inquiries, contact us via lifescience@dianabiotech.com

DBscript Turbo Reverse Transcriptase



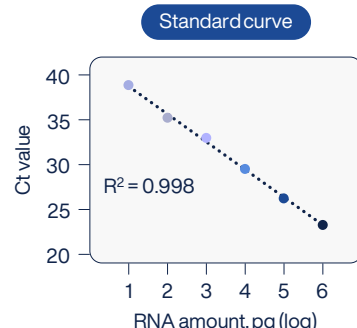
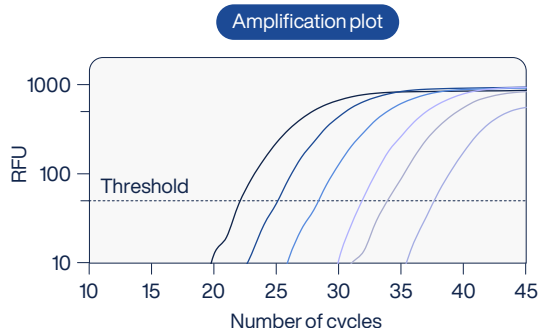
Sensitivity in a wide linear range

TBP amplification with oligo(dT)₂₀-VN primers from HEK293 total RNA at 50 °C for 10 min

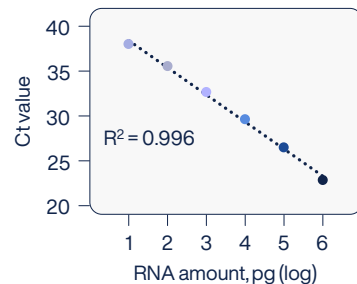
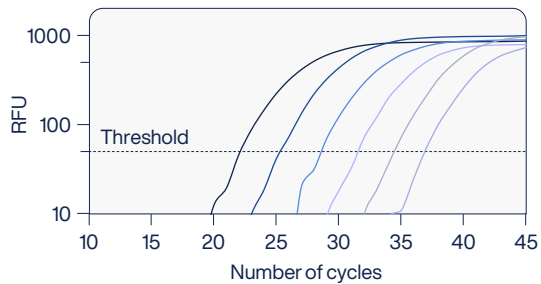
DBscript Turbo demonstrates wide-range sensitivity in both formulations (as a stand-alone enzyme and cDNA synthesis kit)

cDNA synthesis can be performed with 10 pg to 1 µg of RNA template in two-step RT-PCR protocols

Stand-alone enzyme



cDNA synthesis kit



Amount of total RNA from HEK293 cells

10⁶ pg 10⁵ pg 10⁴ pg

10³ pg 10² pg 10¹ pg

Ordering information

DBscript Turbo Reverse Transcriptase

Our stand-alone enzyme is suitable for both first-strand cDNA synthesis and one-step RT-qPCR, especially with long RNA templates.

Supplied with a reaction buffer RT Buffer B (5X) that contains all necessary components including DTT, dNTPs, optimal concentrations of MgCl₂ and KCl, enhancers and stabilizers.



DBscript Turbo Reverse Transcriptase



Optimized reaction buffer

DBscript Turbo cDNA Synthesis Kit

Our high-yield cDNA Synthesis Kit provides all components required for fast and efficient cDNA synthesis.

To streamline your protocol, all components are included into a single reaction mix (2X) that contains DBscript 2.0 RT, RNase Inhibitor, DTT, dNTPs and optimized reaction buffer.

Supplied with oligo(dT)₂₀ primer, random hexamers and PCR grade water.



DBscript Turbo Reverse Transcriptase



DB Ultima H RNase Inhibitor



Oligo(dT)₂₀ primer Random hexamers

Ordering information

Size	Catalogue #
2 kU	DB-1333-2kU
10 kU	DB-1333-10kU
40 kU	DB-1333-40kU

Also available in glycerol-free (lyo-ready) formulation.

Ordering information

Size	Catalogue #
10 rxns	DB-1335-10rxns
50 rxns	DB-1335-50rxns

Free sample size is available upon request.

For large inquiries, contact us via lifescience@dianabiotech.com