



DB Ultima H RNase Inhibitor

The Most Stable and Potent
Inhibitor on the Market



DB Ultima H RNase Inhibitor



RNase inhibitors are common mammalian proteins inactivating ribonucleases to protect the integrity of cellular RNA. Their inhibition is **extremely potent**, making them indispensable to most applications studying RNA. However, all known RNase inhibitors are **highly unstable** and are inactivated at elevated temperatures, during long-term storage and due to their oxidative instability even after exposure to common assay buffers. **DB Ultima H solves all these issues.**

Exceptional thermostability

The only protein RNase inhibitor stable above 55 °C.



Full oxidative resistance

Retains activity without DTT.
Fully active even at 2% H₂O₂.



High buffer/storage stability

Stable at room temperature in usual PCR buffers for months.



Suitable for direct RT-PCR

Even higher activity than human RNase inhibitor in human tissues.



Cost efficient

Can be produced on a large scale and cost efficiently.

Advantages of DB Ultima H RNase Inhibitor

DB Ultima H is the highly engineered RNase inhibitor of **human origin** that inhibits the activity of common RNases found in human tissues and body fluids.

DB Ultima H displays the **unmatched stability and activity** in the most challenging conditions and outperforms all known competitors on the market.

DB Ultima H is available in both glycerol and glycerol-free (lyo-ready) formulations.

Patent pending

Exceptional Thermostability

Residual Inhibitor Activity (%)

after 5 min incubation in optimal buffer at various temperatures

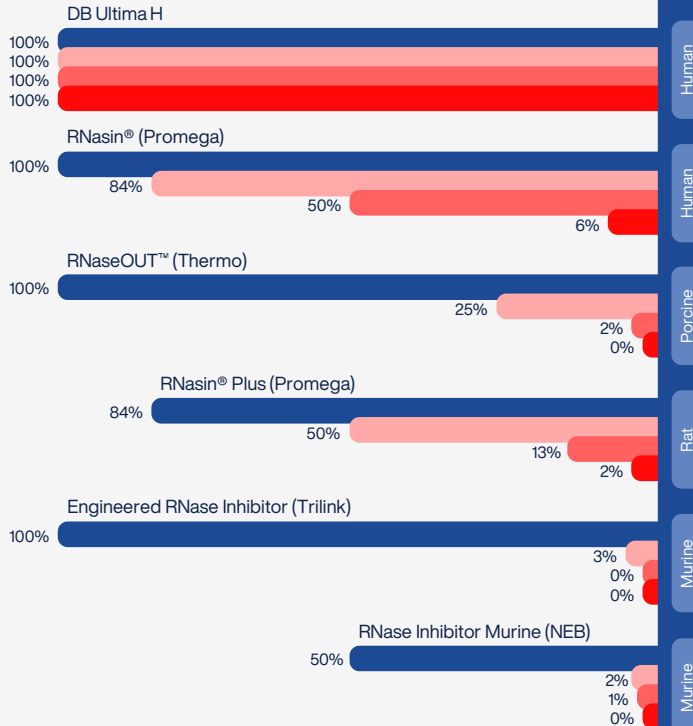
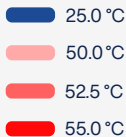


DB Ultima H is the only RNase Inhibitor active at temperatures above 55 °C

55 °C or even higher temperatures are optimal for reverse transcription, increasing the activity of mutated M-MLV reverse transcriptase and leading to the complete inactivation of thermolabile Uracil-DNA glycosylase.

DB Ultima H enables RT-PCR in direct RT-qPCR at higher temperatures, increasing yields and sensitivity.

Tested temperatures



Full Oxidative Resistance

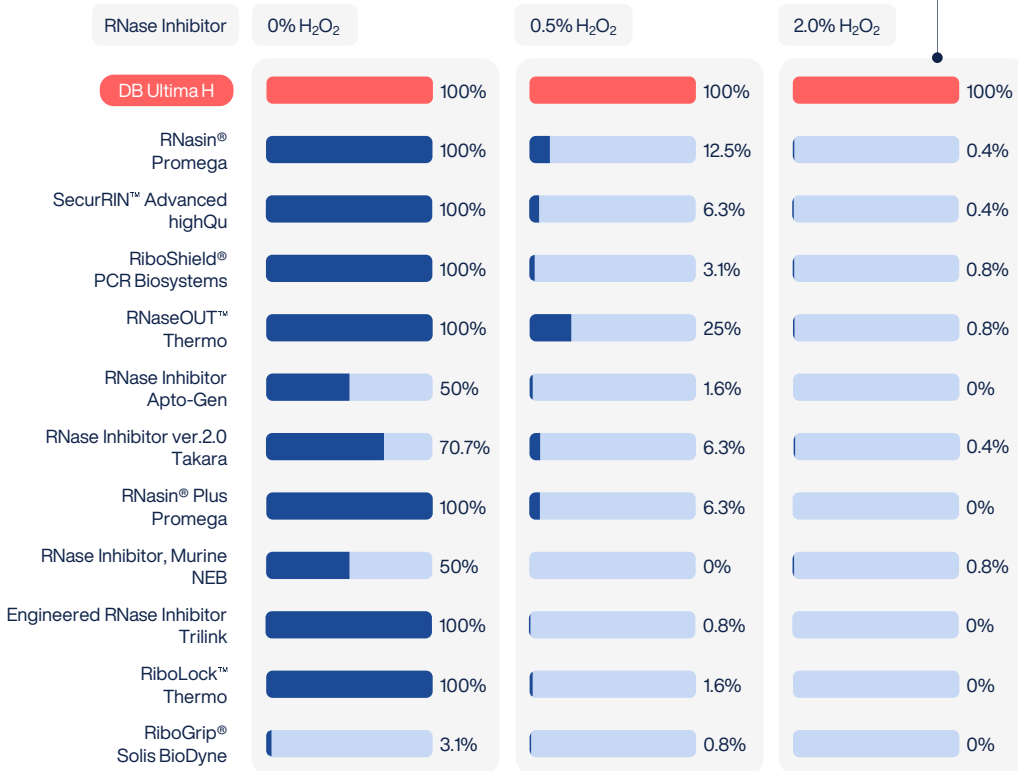


Residual Inhibitor Activity (%)

after pre-incubation with hydrogen peroxide (H₂O₂) for 20 min (no DTT)

DB Ultima H is the only truly oxidatively resistant RNase inhibitor

Retains full activity at 2.0% H₂O₂



Excellent Storage and Assay Stability

Residual Inhibitor Activity (%)

after freeze/thaw cycle at -80 °C
(and) one-week storage at 25 °C



DB Ultima H shows exceptional reaction and storage stability

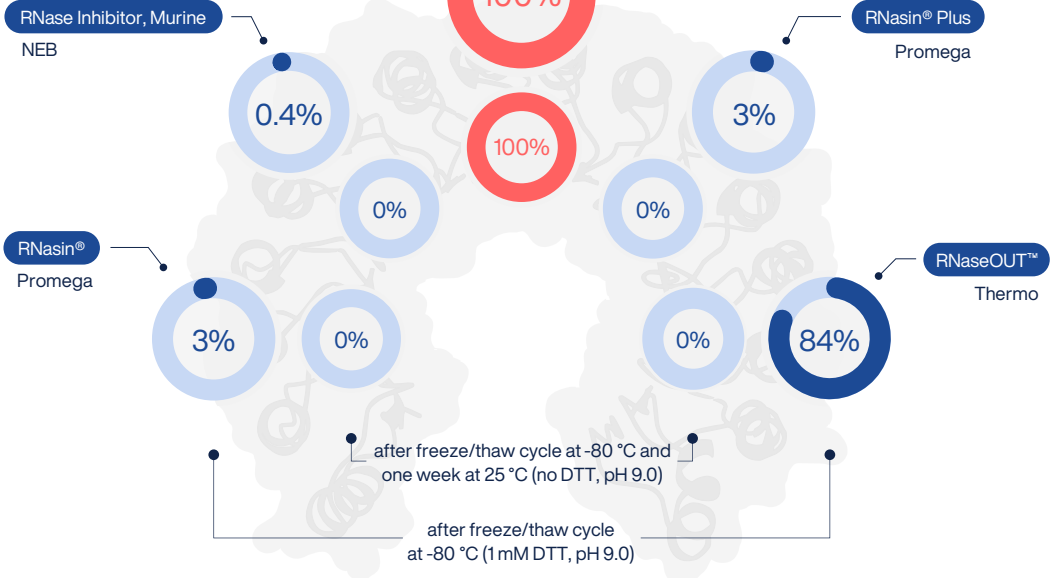
Stable for at least two months at 25 °C with 1mM DTT

Stable for at least one week at 25 °C without DTT

DB Ultima H

DB Ultima H survives in a wider pH range

Remains fully active in alkaline pH (9.0)

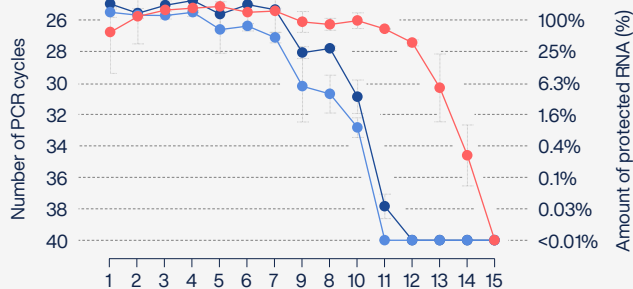


High Performance in Direct RT-PCR



RNA protection
during direct RT-qPCR
from human samples

Direct RT-PCR from 10-fold diluted human serum



DB Ultima H can protect
100% of RNA in both
human body fluids

Many viruses could be detected directly from human tissues without nucleic acid extraction; however, human tissues contain complex mixtures of various RNases.

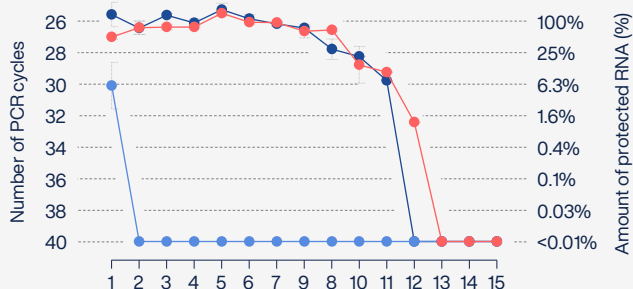
DB Ultima H ensures full protection of RNA during direct RT-PCR from human body fluids.

DB Ultima H ●

RNasin® (Promega) ●

RNaseOUT™ (Thermo) ●

Direct RT-PCR from 5-fold diluted human saliva



Units of RNase inhibitor
added to 50 µL reaction

1	100 U	6	3.1 U	11	0.10 U
2	50 U	7	1.6 U	12	0.05 U
3	25 U	8	0.78 U	13	0.025 U
4	13 U	9	0.39 U	14	0.012 U
5	6.3 U	10	0.20 U	15	0.006 U

Ordering information

Provided as 40 U/ μ L solution.
Store at -18 °C to -25 °C.

Size	Catalogue number
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2.5 kU

DB-1306-2.5kU

10 kU

DB-1306-10kU

40 kU

DB-1306-40kU

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

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

Applications

In vitro transcription and translation

RNA structural and functional studies

Direct RT-PCR from human samples

cDNA synthesis for subsequent cloning

Expression profiling from single cells

DB Ultima H ensures RNA protection across all molecular biology applications

Does not interfere with the activity of reverse transcriptases, DNA and RNA polymerases

N.D. = Not Determined

Overview of competitors

RNase Inhibitor	Vendor	Thermal stability	Oxidative stability	Storage stability	Direct RT-PCR
DB Ultima H	DIANA	✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓✓
RNasin®	Promega	✓✓	✗	✗	✓✓
RNaseOUT™	Thermo	✗	✓	✓	✗
RNase Inhibitor, Murine	NEB	✗✗	✗✗	✗	N.D.
RNasin® Plus	Promega	✓	✗	✗	N.D.

RNasin® is a registered trademark of Promega Corporation. RNaseOUT™ and RiboLock™ are trademarks of Thermo Fisher Scientific Inc. SecurRN™ is a trademark of highQu GmbH. RiboShield® is a registered trademark of PCR Biosystems Ltd. RiboGrip® is a registered trademark of Solis BioDyne OÜ.



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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.

LSPR2509V1EN