

User Guide

Heat-labile Cod Uracil-DNA Glycosylase

Recombinant, from *E. coli***SRE0111 (Triton-free)****SRE0112 (Triton-free, Glycerol-free)**

Product Overview

Description

Heat-labile Cod Uracil-DNA Glycosylase (UNG or UDG) prevents the carryover of unwanted DNA contaminants (e.g. from previous PCRs) through cleavage of uracil incorporated into the phosphodiester backbone of DNA amplified using dUTP in the dNTP mix.¹ The enzyme undergoes irreversible deactivation at 55 °C, making it compatible with one step RT-qPCR experiments and any application where evaluation of stored DNA product post-PCR is necessary.

Heat-labile Cod UNG is supplied at 1 U/μL (SRE0111) or 50 U/μL (SRE0112). The Atlantic Cod enzyme is expressed recombinantly in a *ung-* strain of *E. coli* to eliminate contamination with thermostable versions of the enzyme.

Features

- Heat-labile
- Compatible with JumpStart™ Taq DNA Polymerase
- Compatible with one-step RT-qPCR
- Triton (alkylphenol ethoxylate)-free
- Glycerol-free (SRE0112 only)

Applications

- PCR and qPCR
- RT-PCR and RT-qPCR
- LAMP and RT-LAMP

Unit Definition

One unit of UNG is defined as the amount of enzyme required to release 1 nmol uracil from uracil-containing DNA per hour at 37 °C in 70 mM Tris-HCl, 10 mM NaCl, 1 mM EDTA and 0.1 mg/ml BSA.

Reagents Provided

Heat-labile Cod Uracil-DNA Glycosylase

- SRE0111, 1 U/μL
- SRE0112, 50 U/μL glycerol-free

Materials and Reagents Required (not included)

- PCR product amplified with dUTP
- Nuclease-free PCR tubes
- Thermocycler or incubator

Precautions and Disclaimer

This product is for R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Store at -20 °C.

Suggested Protocols

PCR Carryover Elimination

1. Add 0.2 U UNG to a 20 μL PCR product generated with dUTP
2. Pre-incubate 5 minutes at room temperature
Note: the pre-incubation step can be skipped if UNG amount is increased to 1 U per 20 μL PCR product generated with dUTP
3. Run PCR

RT-qPCR Contamination Cleanup

1. Add 0.2 U of UNG to a 20 µL PCR product generated with dUTP
2. Pre-incubate 5 minutes at room temperature
Note: the pre-incubation step can be skipped if UNG amount is increased to 1 U per 20 µL PCR product generated with dUTP
3. Reverse transcribe RNA at 50 – 55 °C if using a thermostable polymerase; incubate at 55 °C for 5 minutes and then reverse transcribe RNA at manufacturer-recommended temperature if using MMLV or other non-thermostable polymerase.
4. Run PCR

RT-LAMP or LAMP

1. Add 1 U UNG per 30 µL RT-LAMP or LAMP reaction containing dUTP on ice
Note: Run a preliminary experiment to ensure RT-LAMP is compatible with dUTP by testing different dUTP:dTTP ratios in the dNTP mix side by side (e.g., 100% dUTP, 90% dUTP, 80% dUTP and 0% dUTP)
2. Run reaction at 65 °C

References

1. Longo MC, et al., Gene, 93,125-128 (1990).

Technical Assistance

Visit the tech service page at SigmaAldrich.com/techservice.

Terms and Conditions of Sale

Warranty, use restrictions, and other conditions of sale may be found at SigmaAldrich.com/terms.

Contact Information

For the location of the office nearest you, go to SigmaAldrich.com/offices.

Product Ordering

Order products at SigmaAldrich.com.

Description	Catalogue Number
Water, Microbial DNA-free	MBD0025
JumpStart™ Taq DNA Polymerase	D4184
M-MLV Reverse Transcriptase	M1302
Quantitative RT-PCR ReadyMix™	QR0200
Deoxynucleotide Set, 100 mM	DNTP100
2'-Deoxyadenosine 5'-triphosphate sodium salt solution (dATP)	D4788
2'-Deoxycytidine 5'-triphosphate disodium salt (dCTP-Na ₂)	D4913
2'-Deoxyguanosine 5'-triphosphate trisodium salt solution (dGTP-Na ₃)	D5038
2'-Deoxyuridine 5'-triphosphate sodium salt solution (dUTP sodium salt)	D0184
Nuclease-Free Water, for Molecular Biology	W4502

Notice

We provide information and advice to our customers on application technologies and regulatory matters to the best of our knowledge and ability, but without obligation or liability. Existing laws and regulations are to be observed in all cases by our customers. This also applies in respect to any rights of third parties. Our information and advice do not relieve our customers of their own responsibility for checking the suitability of our products for the envisaged purpose.

The information in this document is subject to change without notice and should not be construed as a commitment by the manufacturing or selling entity, or an affiliate. We assume no responsibility for any errors that may appear in this document.

The life science business of Merck operates as MilliporeSigma in the U.S. and Canada.

Merck and Sigma-Aldrich are trademarks of Merck KGaA, Darmstadt, Germany or its affiliates. All other trademarks are the property of their respective owners. Detailed information on trademarks is available via publicly accessible resources.

© 2022 Merck KGaA, Darmstadt, Germany and/or its affiliates. All Rights Reserved.
SRE0111-0112ug Rev 09/22

MERCK