invitrogen
by life technologies

CorrectASE™

Cat. nos.:	Size:	Store at –20°C
A14972	50 reactions	
A14973	200 reactions	

Pub. Part no. 100017011 **Pub. no.** MAN0007164 **Rev.** 1.00

Kit Contents

Cat. no.	CorrectASE™	10X CorrectASE™ Reaction Buffer
A14972	50 µL	500 µL
A14973	4 × 50 µL	2 × 500 µL

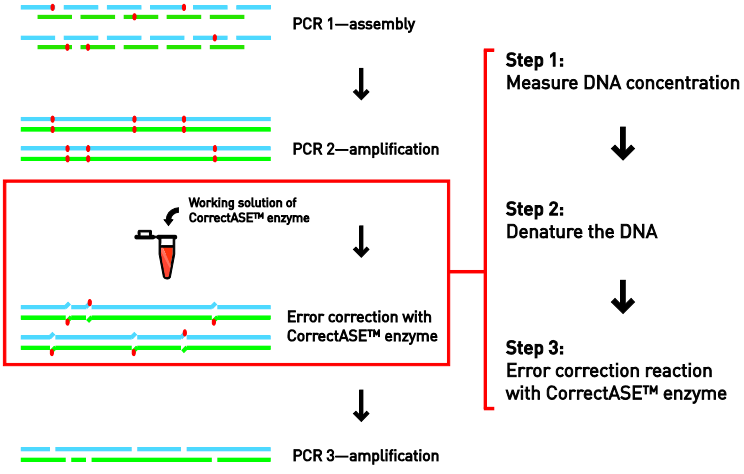
Description

CorrectASE™ is a proprietary enzyme formulation for removing frameshift (deletions and insertions) and mismatch mutations caused by errors in oligonucleotides during gene synthesis. The addition of the CorrectASE™ error correction step in gene synthesis workflows after the initial PCR assembly/amplification of synthetic oligonucleotides results in a 3–10-fold decrease in the error rates in synthetic genes or fragments, and reduces the number of colonies that have to be screened to isolate the construct with the correct sequence.

In addition to the stand-alone CorrectASE™ error correction enzyme, Life Technologies also offers the GeneArt® Gene Synthesis Kit (Cat. no. A14971), a complete workflow solution for do-it-yourself gene synthesis. For more information on CorrectASE™ error correction enzyme and gene synthesis workflows using the GeneArt® Gene Synthesis Kit, refer to our website at **www.lifetechnologies.com**.

CorrectASE™ Error Correction Workflow

Use the CorrectASE™ enzyme after the PCR assembly/amplification step in the gene synthesis reaction to remove the mismatches in the assembled gene, which originate from the initial errors in the oligonucleotides that compose it.



Note: The stand-alone CorrectASE™ enzyme mix (Cat. nos. A14792, A14793) provides the reagents necessary to perform **only** the error correction reaction (Step 3). For the complete do-it-yourself gene synthesis workflow, we recommend using the GeneArt® Gene Synthesis Kit (Cat. no. A14971) available from Life Technologies. For more information, refer to our website at **www.lifetechnologies.com**.

CorrectASE™ Error Correction Protocol

1. Measure the DNA concentration from the PCR assembly/amplification step of the gene synthesis reaction.

   Note: We recommend the Quant-iT™ PicoGreen® dsDNA Assay Kit for measuring the DNA concentration. Measure the DNA concentration in the 1–100 ng range with 485-nm excitation and 525-nm emission settings. Quant-iT™ PicoGreen® dsDNA Assay Kit is available separately (Cat. no. P7589) or as part of the GeneArt® Gene Synthesis Kit (Cat. no. A14971).
2. In a PCR tube, dilute the DNA to 20–25 ng/µL in 1X CorrectASE™ Reaction Buffer in a final volume of 50 µL (i.e., mix the appropriate amount of DNA with 5 µL of 10X CorrectASE™ Reaction Buffer and bring the volume up to 50 µL with deionized water).
3. Denature and re-anneal the diluted DNA to create mismatches using the following conditions:

   98°C for 2 minutes

   4°C for 5 minutes

   37°C for 5 minutes

   4°C hold
4. Place the re-annealed DNA dilution **on ice** and transfer 10 µL to a separate PCR tube.
5. To 10 µL of the re-annealed DNA dilution, add 1 µL of CorrectASE™ enzyme and incubate at 25°C for 1 hour.
6. After the incubation, immediately place the reaction mix **on ice** and add 1 µL of 50 mM EDTA to slow the CorrectASE™ reaction.
7. Proceed immediately to the final PCR amplification step in the gene synthesis workflow.

IMPORTANT! It is crucial that the final PCR amplification step of the gene synthesis workflow is commenced immediately after the CorrectASE™ error correction reaction. To minimize the time between the error correction reaction and the final PCR amplification, set up the components of the PCR (minus the primers and the error-corrected DNA) during error correction. The CorrectASE™ enzyme is not completely stopped until the denaturation step in the final PCR.

Technical Support

For additional product and technical information, such as Safety Data Sheets (SDS), Certificates of Analysis, etc., visit our website at **www.lifetechnologies.com**. For further assistance, email our Technical Support team at **techsupport@lifetech.com**.

Limited Product Warranty

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