Product Insert

AccuSure™ DNA Polymerase

Research Use Only

Product:
AccuSure™ DNA Polymerase

Description:
AccuSure™ DNA Polymerase is a heat-activated thermostable DNA Polymerase possessing 5'-3' DNA polymerase and 3'-5' proof-reading activities which prevents misincorporations during DNA Polymerase activity.

Catalogue No.:

BIO-21068	250u
BIO-21069	500u

Batch details:

Batch No:	See vial
Units per vial:	See vial
Concentration:	2.5 u / µl

Additional reagents supplied:
10x AccuBuffer: 600mM Tris-Cl, 60mM $(NH_4)_2SO_4$, 100mM KCl, 20mM $MgSO_4$, pH 8.3 at 25°C.
$MgCl_2$ Stock Solution: 50mM $MgCl_2$

Reaction Conditions (for a 50µl volume)

10x AccuBuffer	5 µl
50mM $MgCl_2$ Solution	0 - 2.0µl
100mM dNTP Mix (see below)	0.5-1.0 µl
Template and primers	as required
Enzyme	1-3 µl
Water (ddH_2O)	up to 50µl

Bioline 100mM dNTP Mix is available as a separate product (Catalogue number BIO-39028)

Activation step: Preheat at 95°C for 7-10 min.
Denature: 94-97°C;
Extension: 68-72°C allowing 1.5-2 mins per Kb

Owing to AccuSure's inherent 3'-5' exonuclease activity, the enzyme must be added last to a reaction in order to prevent primer damage.

This data is intended for use as a guide only; conditions will vary from reaction to reaction and may need optimisation.

Features and Applications:

- High Fidelity: AccuSure™ offers extremely high fidelity for primer extension (up to 47 times higher than *Taq*.
- Heat-activated
- Extremely high-specificity (elimination of non-specific reaction products)
- Polymerises regions of DNA such as secondary structures or microsatellites, which are difficult to process with other polymerases.
- AccuSure™ provides blunt-ended fragments suitable for direct incorporation into blunt-ended vectors without the need for prior treatment with Klenow enzyme or T4 DNA Polymerase.
- Up to a 3Kb product can be processed with high fidelity.

Specificity and Performance of the AccuSure™ DNA Polymerase can be increased with the addition of **2x Poly-Mate** (not supplied), which is designed for GC- or AT-rich DNA, "dirty" templates or sequences with a difficult melting profile.

Suggestions for use:
The enzyme must be activated by heat treatment before use. All reaction components (including AccuSure™) should be added to the reaction, and then **pre-incubated at 95ºC for 10 minutes**. Subsequently, the reaction can be treated according to the user's existing protocols for thermostable DNA polymerases. The suggested final concentration of Mg^{2+} in the reaction is likely to be 2-4mM, but some optimisation may be necessary to achieve the best possible results. Please, note that the reaction buffer already provides 2mM Mg^{2+}. For first tests, use no less than 2.5 units of Accusure in a 50µl reaction.

Storage Conditions:
Short-term: Storage at +4°C (1-4 weeks) or room temperature (1-7 days) will not affect performance of enzyme.
Long-term: 12 months at -20°C to prevent bacterial contamination. AccuSure will remain stable if stored as specified.
Storage buffer: 20mM Tris-HCl, pH 7.5, 100mM NaCl, 0.1mM EDTA, 2mM DTT, 50% Glycerol, and 0.1% Tween-20.

Shipping Conditions:
Suitable for shipping at room temperature.

Unit definition
One unit is defined as the amount of enzyme that incorporates 10nmoles of dNTPs into acid- insoluble form in 30 minutes at 72°C.

Associated products

Product Name	Pack Size	Cat No
dNTP Set	4 x 25µmol	BIO-39025
dNTP Mix 100mM total	1 x 500 µl	BIO-39028
dNTP Mix 40mM total	1 x 500 µl	BIO-39043
2x Poly-Mate Additive	2 x 1.2ml	BIO-37041
Accuzyme DNA polymerase	250 units	BIO-21051
Accuzyme DNA polymerase	500 units	BIO-21052
Hyper Ladder I	200 lanes	BIO-33025
Hyper Ladder I	500 lanes	BIO-33026
Agarose	500g	BIO-41025

This product contains a declaration of analysis at the time of manufacture