

Product: **Thermostable dUTPase, recombinant**
Catalog #: **12-4307**
Amount: **500IU/50µl**

DESCRIPTION: Thermostable dUTPase(*pyrococcus fruriosus*) maximizes the efficiency of high-fidelity PCR (using proofreading DNA polymerases). It removes contaminating dUTP present in PCR reactions and dNTP solutions. The presence of dUTPase in a proofreading DNA polymerase reaction can prevent dUTP misincorporation by maintaining dUTP levels below their inhibitory concentrations despite the constant generation of the molecule by the spontaneous deamination of dCTP. The incorporation of dUTP into PCR products causes mutations within the amplified product, proofreading polymerases to stall and slows down non-proofreading polymerases such as *Taq*. The dUTPase increase in PCR product yield, length and fidelity enables further down-stream applications. These effects make dUTPase useful in PCR fidelity and yield-sensitive applications such as cloning and subsequent recombinant protein technology, and gene expression analysis (semi-quantitative RT-PCR techniques and real-time PCR analysis), where small differences in product accumulation can have a significant impact on gene expression analysis. dUTPase is specific for dUTP and is critical for the fidelity of DNA replication and repair. dUTPase hydrolyzes dUTP to dUMP and pyrophosphate, simultaneously reducing dUTP levels and providing the dUMP for dTTP biosynthesis.

SOURCE: *Escherichia coli*
MOLECULAR WEIGHT: 31.7 kDa
PURITY: > 98%, as determined by: reducing and non-reducing SDS-PAGE stained Coomassie blue gel and RP-HPLC
UNIT DEFINITION: One unit of enzyme catalyzes hadrylization of 10 nanomoles of dUTP to dUMP in one hour at 85 Centigrade.
ACTIVITY: Measured by its ability to hydrolyze dUTP to dUMP in reaction buffer 20mM Hepers pH7.5,
 A) pH7.5, 150mM KCl, 5mM MgCl₂, 10mM dUTP at 85 Centigrade for 1 hour.
 The PPI production was quantified by using the enzymatic determination kit from SIGMA
 B) Enhancing PCR amplication: 50ul of Pfu PCR reaction system with 1-3u of dUTPase to amplify genomic DNA target up to 15-19 kb in length
SPECIFIC ACTIVITY: 1MIU/mg
FORM: dUTPase is supplied in 20mM Tris-HCl (pH 8.2), 1mM DTT, 0.1mM EDTA, 100mM KCl, 0.1% Nonidet P40, 0.1% Tween 20 and 50% glycerol at concentration of 10u/ul of the enzyme.
STORAGE: -20°C (aliquot), avoid freezing and thawing cycles

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