



**The ENZYME Company**

## SNPase

Cat: 108205      500 units

### Features

- High specificity and very low background in allele-specific primer extension (AS-PEX), allele-specific PCR (AS-PCR) and minisequencing
- High-fidelity incorporation of deoxy- and dideoxynucleotides.

### Applications

- Highly suited to SNP genotyping by AS-PCR, AS-PEX and minisequencing,

### Description

SNPase DNA Polymerase is an optimized version of *Taq* DNA polymerase designed for SNP genotyping. This enzyme has only 5'-3' polymerase activity and is recommended for SNP genotyping by allele-specific PCR (AS-PCR), allele-specific primer extension (AS-PEX) and minisequencing procedures.

SNPase DNA Polymerase is a unique enzyme among the analogues existing in the market due to the presence of special point mutation in the active site of the enzyme. SNPase DNA Polymerase provides extremely high enzymatic specificity and high fidelity incorporation of deoxy- and dideoxynucleotides. The relative mutation rate during polymerization is 10-15 fold lower for SNPase DNA Polymerase as compared with *Taq* DNA polymerase.

The unique properties of SNPase DNA Polymerase make it ideal enzyme for SNP genotyping by high fidelity minisequencing, AS-PEX and AS-PCR techniques.

Minisequencing SNP genotyping with SNPase DNA Polymerase can be carried out by the procedure described in (1).

1) Reference for minisequencing protocol: Lovmar L, Fredriksson M, Liljedahl U, Sigurdsson S, Syvänen AC. Quantitative evaluation by minisequencing and microarrays reveals accurate multiplexed SNP genotyping of whole genome amplified DNA. *Nucleic Acids Res.* 2003;**31**:e129.

**Concentration:            20-25 u/μl (50X)**

### Additional reagents supplied:

10x PCR buffer with Mg<sup>2+</sup>; or  
5x buffer without Mg<sup>2+</sup>  
MgCl<sub>2</sub> solution: 100mM

**Magnesium Concentration.** SNPase DNA polymerase provides successful PCR amplification in a range of Mg<sup>2+</sup> concentration from 2.5 mM to 4 mM in the 1x reaction mixture. Increase of Mg<sup>2+</sup> concentration from 2.5 mM up to 4 mM can provide higher yield of PCR products. On the other hand, low magnesium concentration favours specific PCR. Mg<sup>2+</sup> concentration can be easily optimized for your PCR by supplied 25mM MgCl<sub>2</sub> solution. **3.0-3.5 mM** is recommended as a starting 1x concentration of Mg<sup>2+</sup> in any PCR amplification.

### Associated Activities

Endonuclease and exonuclease activities were not detectable after 2 and 1 hour incubations, respectively, of 1 μg lambda DNA and 0.22 μg of EcoRI digested lambda DNA at 72°C in the presence of 25 units of SNPase DNA polymerase.

### 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.

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### Bioron International

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### Allele-specific PCR with SNPase DNA polymerase

SNPase DNA polymerase can discriminate 3' mismatched primers with high efficiency and can be used for SNP genotyping by AS-PCR. SNPase DNA polymerase is recommended for high fidelity allele-specific amplification of DNA fragments up to 400 bp from Human genomic DNA and 500 bp from  $\lambda$  DNA.

#### Protocol

1. Add the following components to the PCR reaction tube:

Component	Volume	Final conc.
10x PCR buffer	2.5 $\mu$ l	1x
MgCl <sub>2</sub> (100mM)	as required	2.5 - 3.5 mM
10x dNTP mix (2 mM each)	2.5 $\mu$ l	0.2 mM each
Primer mix (5 $\mu$ M each)	1 $\mu$ l	5 pmol (each) per 25 $\mu$ l
Template DNA (genomic)	as required	75 – 125 ng per 25 $\mu$ l
SNPase DNA polymerase	0.2 – 0.5 $\mu$ l	5 – 12.5U/25 $\mu$ l
Water	to 25 $\mu$ l	
	Total volume 25 $\mu$ l	

2. Perform 30 – 40 cycles of PCR as follows:

Predenaturation	94 °C for 1 – 2 min
Denaturation	94 °C for 30 s
Annealing	59 °C – 68 °C for 15-30 s
Elongation	68-72°C for 30 s

3. Analyze the amplification products by electrophoresis.

#### Ordering Information

Catalog #	Description	Pack size
108205	SNPase	500 units
108225	SNPase	2500 units

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