Recombinant PCR-Grade Proteinase K – Experience Superior Stability...

The technique used to produce this unique genetically engineered protease ensures a product of exceptionally high purity and activity.

...With Denaturing Reagents

Recombinant Proteinase K is effective over a wide range of operating conditions and meets stringent standards for robustness. The enzyme has a strong proteolytic activity on denatured and native proteins. It is stable in buffers with denaturing reagents such as urea, sodium dodecylsulfate (SDS), and guanidinium salts, it even shows higher activity in the presence of these reagents.

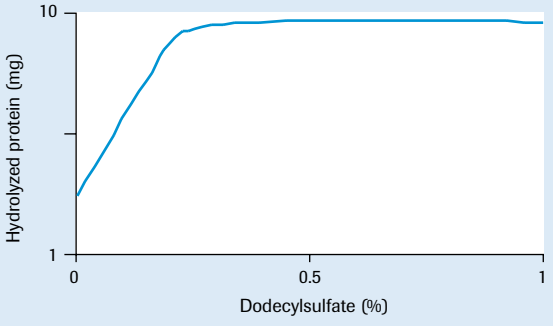

Figure 1: Activation by SDS. The presence of SDS results in a 7-fold stimulation of enzyme activity.

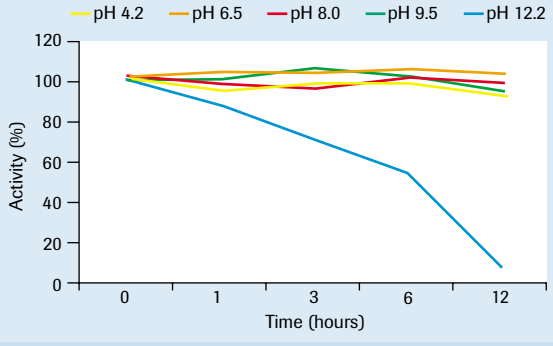

Figure 2: The pH stability of recombinant Proteinase K at 25°C. Optimal functionality is achieved at pH values of 6.5–9.5.

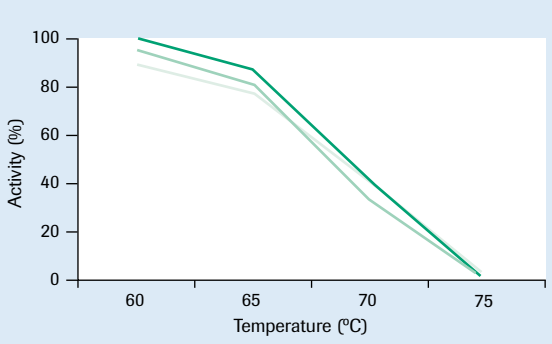

Figure 3: Thermostability. Three different lots of the enzyme were tested. The enzyme is stable at 20–60 °C, the activity decreased at 65 °C.

To test the activation by SDS, 25 µg of recombinant Proteinase K was incubated with 9.5 mg bovine serum albumin (BSA) in Tris buffer (50 µM, pH 7.4) for 60 minutes at 37 °C. Proteolysis was quantified by high performance liquid chromatography (HPLC). The presence of SDS resulted in a 7-fold stimulation of enzyme activity (Figure 1).

...At Different pH-Values

To test Proteinase K activity at different pH values, the enzyme (1 mg/ml) was incubated in a Tris buffer (1 mM Tris, 1 mM calcium acetate, varying pH value) for up to 21 hours. It can be shown that the enzyme is stable over a wide pH range (pH 4.0–10.0). Optimal functionality is achieved at pH values of 6.5–9.5, and a decrease in stability is observed at high basic pH values (Figure 2).

...At Higher Temperatures

Stimulated enzyme activity is also observed at higher temperatures. Recombinant Proteinase K has a broad temperature profile, retaining more than 80% of its activity at temperatures of 20–60 °C over several hours. To test the thermostability, the enzyme (1 mg/ml) was incubated in Tris buffer (1 mM Tris, 1 mM calcium acetate,

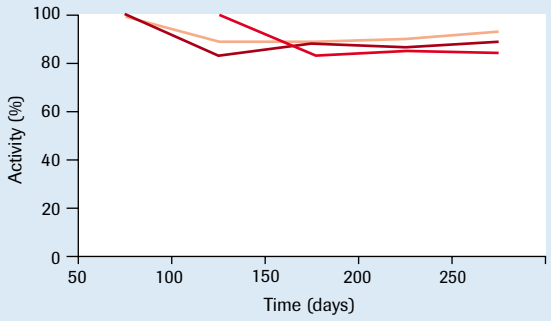

Figure 4: Accelerated temperature stability. The real-time stability data of three different lots of recombinant PCR-grade Proteinase K solution at 35 °C is shown.

pH6.5) for 10 minutes at different temperatures. Only at temperatures higher than 65 °C did Proteinase K show decreasing activity (Figure 3).

Accelerated stability tests at high temperatures illustrated the robustness of the enzyme. Three different lots of Proteinase K, recombinant PCR-grade solution were tested for nearly one year at 35 °C. Only a minor activity loss was observed at this high temperature (Figure 4).

The improved stability of the recombinant Proteinase K, which could be shown in a wide range of assay conditions, and the broad substrate specificity make the enzyme useful for a wide variety of sample preparations. With this enzyme, the isolation of undamaged high molecular weight nucleic acids from various sample materials is readily possible. ■

Order INFO

Product	Pack Size	Cat. No.
Proteinase K, recombinant, PCR Grade (Solution)	1.25 ml	3 115 887
	5 ml	3 115 828
	25 ml	3 115 844
Proteinase K, recombinant, PCR Grade (Lyophilizate)	25 mg	3 115 836
	100 mg	3 115 879
	2 x 250 mg	3 115 801
	4 x 250 mg	3 115 852