

Shrimp Alkaline Phosphatase, recombinant (rSAP)

- Heat-labile, all-purpose alkaline phosphatase
- Completely inactivated after 5 min at 65°C
- Fast and easy dephosphorylation of DNA, RNA and nucleotides

- Active in most restriction enzyme buffers, no need for extra addition of buffer or ions
- Excellent stability at 4°C and room temperature.

Properties

Recombinant Shrimp Alkaline Phosphatase is a multi-purpose alkaline phosphatase that can be fully inactivated by a short heat treatment (figure 1). This property simplifies most workflows involving alkaline phosphatase treatment.

The recombinant form of SAP replaces the native form of SAP that has been established on the market for several years. rSAP has all the properties of the well proven SAP, but with additional benefits. rSAP is far more stable at ambient temperature (figure 2), is also of high, consistent purity, and is available in large batches at high concentration.

Source: Arctic shrimp origin, recombinantly produced in *Pichia pastoris*.

Activity: Optimum working range for rSAP is between pH 7-9. rSAP is active in most restriction and PCR buffers. Mg²⁺ (>1 mM) is required for activity.

Heat inactivation: rSAP is completely inactivated by a 5 min incubation at 65°C.

Storage: Minimum shelf life is 2 years at -20°C. Storage at 4°C is possible for at least 6 months and 3 months at 25°C. The enzyme also tolerates multiple freeze-thaw cycles.

Purity: rSAP is highly pure and is tested free of contaminating nucleases.

Specific activity: > 2000 Units/mg.

Unit definition: One unit of rSAP release 1 µmol phosphate/min from 4-nitrophenyl phosphate in 0.1 M glycine-NaOH pH 10.4, 1 mM MgCl₂, 1 mM ZnCl₂ and 6 mM 4 nitrophenyl phosphate.

Easy and quick heat-inactivation

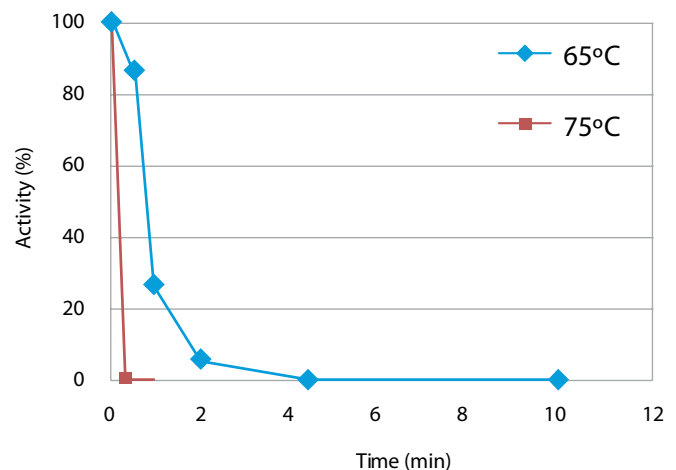


Figure 1: Heat inactivation of SAP at 65°C and 75°C

Stable at room temperature

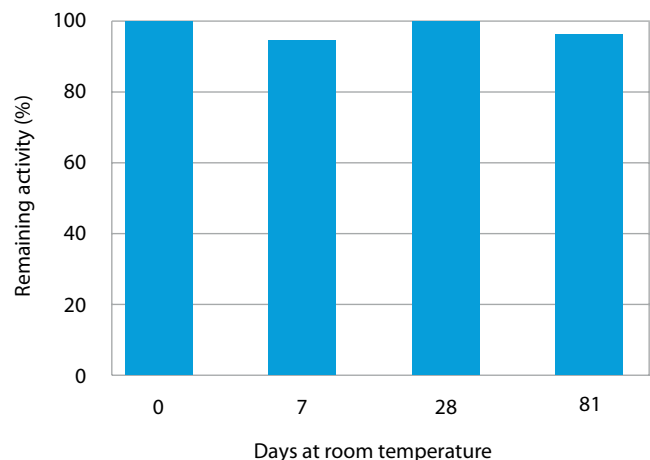
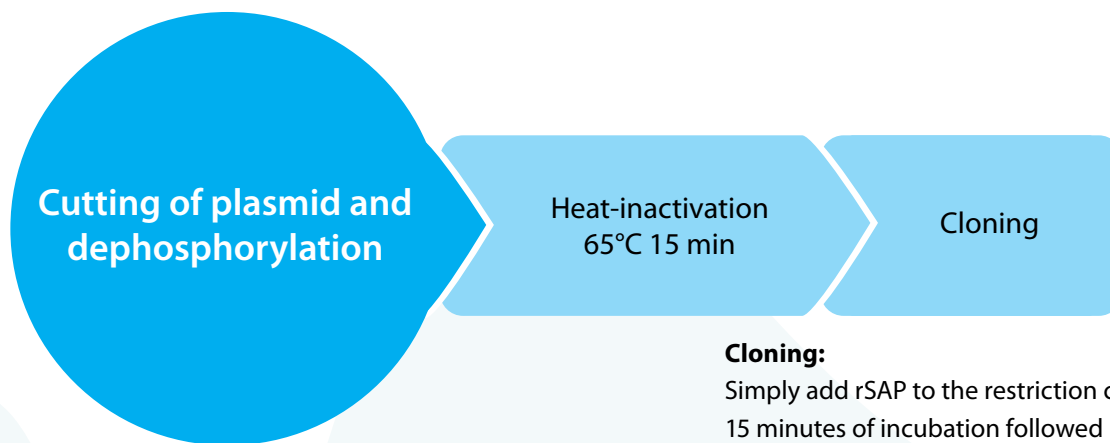
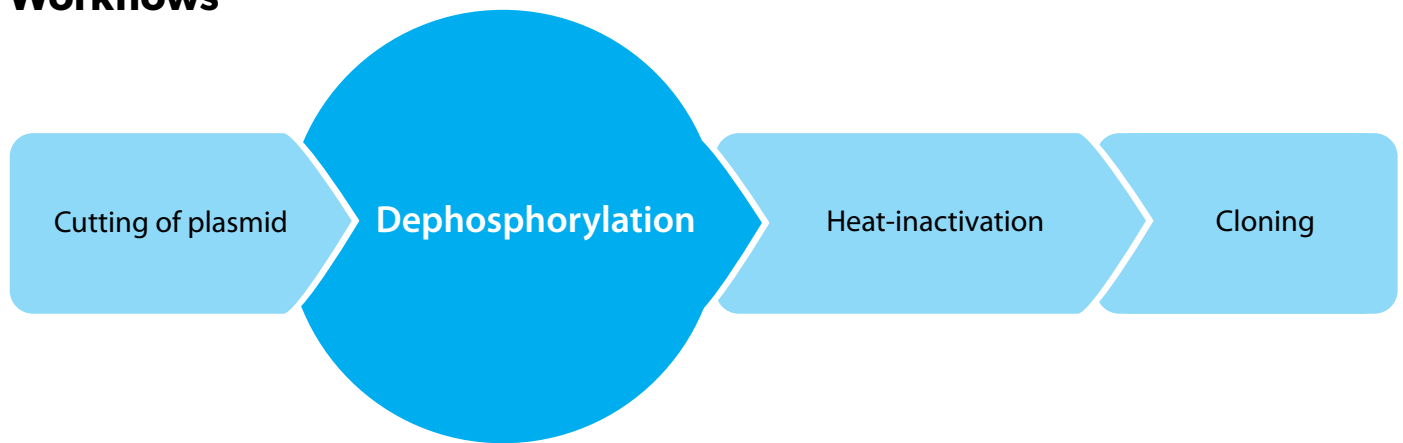


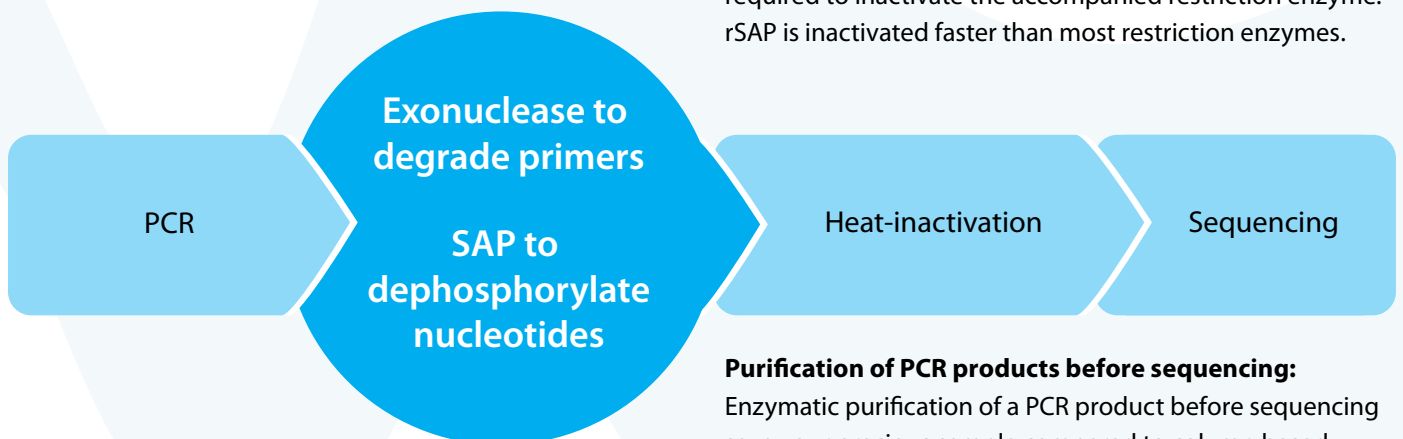
Figure 2: Stability of rSAP at room temperature

Workflows



Cloning:

Simply add rSAP to the restriction cutting reaction the last 15 minutes of incubation followed by the heat-inactivation required to inactivate the accompanied restriction enzyme. rSAP is inactivated faster than most restriction enzymes.



Purification of PCR products before sequencing:

Enzymatic purification of a PCR product before sequencing save your precious sample compared to column based purification. Combine and incubate the PCR product with rSAP and Exonuclease I to remove primers and nucleotides in the PCR product. After a heat-inactivation, the PCR product is ready as a template in the sequencing reaction.

For more information visit: www.arcticzymes.com/rsap

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