



Saporin

a ribosome-inactivating protein from *Saponaria officinalis*

Catalog Number: PR-01
Quantity: 100 micrograms
Format: PBS (0.14 M Sodium Chloride; 0.003 M Potassium Chloride; 0.002 M Potassium Phosphate; 0.01 M Sodium Phosphate; pH 7.4), no preservative. Sterile-filtered.

Background: Saporin is obtained from the seeds of the Soapwort plant (*Saponaria officinalis*), a plant that grows wild in Britain and other parts of Europe. Saporin is a plant enzyme with N-glycosidase activity that depurinates a specific nucleotide in the ribosomal RNA 28S, thus irreversibly blocking protein synthesis. It belongs to the well-characterized family of ribosome-inactivating proteins (RIPs). There are two types of RIPs: type I (like Saporin) are much less cytotoxic due to the lack of the B chain and type II, which are distinguished from type I RIPs by the presence of the B chain and their ability to enter cells on their own. However, type I RIPs can still be internalized by fluid-phase endocytosis. Upon internalization, the ribosomes are inactivated, resulting in cell death.

Specificity & Preparation: Saporin (molecular weight 30 kDa) has no known specificity. Saporin is purified from the seeds of the Soapwort plant (*Saponaria officinalis*). The product is routinely tested for activity by a protein synthesis inhibition assay.

Usage: Saporin serves as a control for targeted saporin immunotoxins or ligand toxins.

Storage: Gently spin down material 5-10 seconds in a microfuge before use. Aliquot and store frozen at -20 or -80°C. Avoid repeated freezing and thawing. For disposal: autoclave, or expose to 0.2 M NaOH, materials that come into contact with the toxin.

Sample Protocol: For most targeted toxins, there are control conjugates available; these are the most accurate controls to use. For a few products, saporin is used as control. Calculate amount of saporin needed on a molar basis. For example, FGF-SAP (Cat. #IT-38) has an average molecular weight of 63 kDa, and 71% of that is saporin (approximately 1.5 molecules of saporin per molecule of cytokine). For injections of 5 µg of immunotoxin, an appropriate control quantity would be 3.6 µg.



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Selected References:

1. Stirpe F, Barbieri L, Battelli MG, Soria M, Lappi DA. (1992) Ribosome-inactivating proteins from plants: present status and future prospects. *Bio/Technol* 10:405-412.
2. Lappi DA, Esch FS, Barbieri L, Stirpe F, Soria M. (1985) Characterization of a *Saponaria officinalis* seed ribosome-inactivating protein: immunoreactivity and sequence homologies. *Biochem Biophys Res Commun* 129:934-942.
3. Stirpe F, Gasperi-Campani A, Barbieri L, Falasca A, Abbondanza A, Stevens WA. (1983) Ribosome-inactivating proteins from the seeds of *Saponaria officinalis* L. (soapwort) of *Agrostemma githago* L. (corn cockle) and of *Asparagus officinalis* (asparagus) and from the latex of *Hura crepitans* L. (sandbox tree). *Biochem J* 216:617-625.

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