

## Calcium Sponge™ S

### Introduction

Molecular Probes' Calcium Sponge™ S consists of the Ca<sup>2+</sup>-selective BAPTA chelator coupled to a polymer matrix. Polycations including Ca<sup>2+</sup> and Zn<sup>2+</sup> can be selectively removed from aqueous solutions simply by stirring a solution with the water-insoluble Calcium Sponge S polymer. For example, free Ca<sup>2+</sup> can be reduced to almost undetectable levels (<10 nM) (measured with fura-2) by passing 3 mL of a 100 μM CaCl<sub>2</sub> solution through one gram of Calcium Sponge S. The polymer can be regenerated several times by washing it with pH 4 buffer then readjusting to neutral pH with base.

### Materials

Calcium Sponge S is supplied in solid form in units of 1 g (C-3047). When stored desiccated at room temperature, the product is stable for at least six months. To prepare for use, suspend Calcium Sponge S in ultrapure distilled water. Whenever possible, use plastic containers and tubing because glass and metals may leach ions into the aqueous suspension, thereby reducing the Ca<sup>2+</sup>-binding capacity. **AQUEOUS SUSPENSIONS OF CALCIUM SPONGE S MUST NOT BE FROZEN.**

### Application

Calcium Sponge S has a K<sub>d</sub> for Ca<sup>2+</sup> of approximately 300 nM. To activate Calcium Sponge S, pack it in a small column (100 μL to 1 mL) and wash with 1–2 column volumes of ultrapure distilled water. Then equilibrate the column with working buffer until the pH of the buffer is unchanged after passing through the column. The buffer should not contain divalent ions as these may saturate the column. To regenerate Calcium Sponge S after saturation, wash the column four times with buffer that has been adjusted to pH 4 with HCl. Then equilibrate with working buffer as described above. The buffer will replace protons with its principal cations (for example, Na<sup>+</sup> or K<sup>+</sup>).

A fluorescent calcium indicator can be used to determine the efficiency of Ca<sup>2+</sup> chelation by Calcium Sponge S. The indicator should first be calibrated by recording its spectra in solutions containing known free Ca<sup>2+</sup> concentrations such as those provided in Molecular Probes' Calcium Calibration Buffer kits. From the resulting spectra, a plot of fluorescence versus calcium concentration can be generated. This calibration plot can be used to determine the calcium concentration of the solution before and after treatment with Calcium Sponge S.

**Product List** *Current prices may be obtained from our Web site or from our Customer Service Department.*

Cat #	Product Name	Unit Size
C-3047	Calcium Sponge™ S (BAPTA polystyrene) .....	1 g

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## Contact Information

Further information on Molecular Probes' products, including product bibliographies, is available from your local distributor or directly from Molecular Probes. Customers in Europe, Africa and the Middle East should contact our office in Leiden, the Netherlands. All others should contact our Technical Assistance Department in Eugene, Oregon.

Please visit our Web site — [www.probes.com](http://www.probes.com) — for the most up-to-date information

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