



UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

DIVISION OF
CORPORATION FINANCE

May 17, 2012

Via E-mail

Ms. Jan A. Bertsch
Chief Financial Officer
Sigma-Aldrich Corporation
3050 Spruce Street
St. Louis, MO 63103

**Re: Sigma-Aldrich Corporation
Form 10-K for the Fiscal Year Ended December 31, 2011
Filed February 13, 2012
Definitive Proxy Statement on Schedule 14A
Filed March 12, 2012
File No. 0-08135**

Dear Ms. Bertsch:

We have completed our review of your filings. We remind you that our comments or changes to disclosure in response to our comments do not foreclose the Commission from taking any action with respect to the company or the filing and the company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States. We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filings to be certain that the filings include the information the Securities Exchange Act of 1934 and all applicable rules require.

Sincerely,

/s/ John Cash

John Cash
Accounting Branch Chief