

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

DIVISION OF CORPORATION FINANCE

May 4, 2011

Michael V. Greco Associate General Counsel and Corporate Secretary Alexion Pharmaceuticals, Inc. 352 Knotter Drive Cheshire, Connecticut 06410

> Re: Alexion Pharmaceuticals, Inc. Form 10-K for the Fiscal Year Ended December 31, 2010 Filed February 17, 2011 Definitive Proxy Statement Filed April 18, 2011 File No. 000-27756

Dear Mr. Greco:

We have completed our review of your filings and do not have any further comments at this time.

Sincerely,

Jeffrey P. Riedler Assistant Director