



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

DIVISION OF  
CORPORATION FINANCE

March 19, 2012

Via E-mail

Jeffrey W. Burris, Esq.  
Vice President and General Counsel  
CryoLife, Inc.  
1655 Roberts Boulevard, NW  
Kennesaw, Georgia 30144

**Re: CryoLife, Inc.  
Registration Statement on Form S-3  
Filed February 22, 2012  
File No. 333-179629**

Dear Mr. Burris:

We have limited our review of your registration statement to those issues we have addressed in our comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by amending your registration statement and providing the requested information. Where you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing your amendment to your registration statement and the information you provide in response to these comments, we may have additional comments.

Where you can find more information, page 36

1. We note that you have incorporated by reference your Annual Report on Form 10-K into this Form S-3. We also note that the information required by Part III of Form 10-K was not provided in that filing, but will be incorporated by reference from your proxy statement. Please note that before you request that the effective date of this registration statement be accelerated, you should either (1) file your definitive proxy statement with all required information; or (2) file an amendment to your Form 10-K to include the information required by Part III. Refer to Question 123.01 of the Division of Corporation Finance's Compliance and Disclosure Interpretations, Securities Act Forms, available on our website at <http://sec.gov/divisions/corpfin/guidance/safinterp.htm>.

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2. We note that you have requested confidential treatment for portions of an agreement filed as an exhibit to your Form 10-K for the fiscal year ended December 31, 2011 and of an agreement filed as an exhibit to your Form 10-Q for the quarterly period ended June 30, 2011. Please resolve your pending confidential treatment requests prior to requesting effectiveness of this registration statement.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing include the information the Securities Act of 1933 and all applicable Securities Act rules require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

Notwithstanding our comments, in the event you request acceleration of the effective date of the pending registration statement please provide a written statement from the company acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as a confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

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Please contact Tom Jones at (202) 551-3602 or Daniel Morris, Special Counsel, at (202) 551-3314 with any questions.

Sincerely,

/s/ Daniel Morris for

Amanda Ravitz  
Assistant Director

cc (via e-mail): B. Joseph Alley, Jr., Esq.