



April 25, 2012

**VIA EDGAR**

Amanda Ravitz  
Assistant Director  
United States Securities and Exchange Commission  
Division of Corporate Finance, 100 F Street N.E.  
Washington, D.C. 20549-9303

Re: CryoLife, Inc.  
Registration Statement on Form S-3

Filed February 22, 2012  
File No. 333-179629

Dear Ms. Ravitz:

On behalf of our client, CryoLife, Inc. ("CryoLife"), we are submitting this letter in response to the comments of the Staff of the Securities and Exchange Commission (the "Commission") in a letter dated March 19, 2012, with respect to the above referenced Registration Statement on Form S-3 (the "Registration Statement"). For the convenience of the Staff, each of the Staff's comments is restated in italics prior to the response to such comment.

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>.*

On April 6, 2012, CryoLife filed its definitive proxy statement for the 2012 Annual Meeting of Stockholders. The definitive proxy statement includes all information required by Part III of Form 10-K, with the exception of the information concerning executive officers required by Item 10 of Part III, which was included in Part I, Item 4A, "Executive Officers of the Registrant" of CryoLife's Annual Report on Form 10-K filed with the Commission on February 17, 2012.

- 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.*

With respect to the above referenced confidential treatment requests, the Commission granted confidential treatment for the exhibits pursuant to (i) an order dated April 2, 2012 with respect to the exhibit to the Form 10-K for the fiscal year ended December 31, 2011 and (ii) an order dated April 23, 2012 with respect to the exhibit to the Form 10-Q for the quarterly period ended June 30, 2011. Additionally, the Commission granted confidential treatment for Exhibit 10.1 to CryoLife's Form 8-K filed on January 30, 2012 pursuant to an order dated April 23, 2012. As such, there are no unresolved or pending confidential treatment requests outstanding for CryoLife as of this date.

We would welcome any further discussion regarding this matter. Please feel free to contact me at your convenience.

Sincerely,

ARNALL GOLDEN GREGORY LLP

/s/ B. Joseph Alley, Jr.  
B. Joseph Alley, Jr.

cc: Jeffrey W. Burris, CryoLife, Inc.  
Daniel Morris, Special Counsel, United States Securities and Exchange Commission  
Tom Jones, United States Securities and Exchange Commission

