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December 20, 2006

VIA FACSIMILE AND EDGAR

Ms. Cecilia D. Blye
Chief, Office of Global Security Risk
Division of Corporation Finance
U.S. Securities and Exchange Commission
100 F Street, NE
Washington, D.C. 20549

**Re: CryoLife, Inc.
Form 10-K for the year ended December 31, 2005**

File No. 1-13165

Dear Ms. Blye:

On behalf of CryoLife, Inc. ("CryoLife" or the "Company"), we transmit for filing CryoLife's responses to the staff's letter of comment dated November 29, 2006. For your convenience, the comments contained in that letter are reprinted below in italics.

CryoLife's responses are as follows:

Form 10-K for the Year Ended December 31, 2005

General

1. *We note that on your website you list International BioGlue Distributors, including distributors in Iran (with a note that you are no currently shipping there) and Syria. Your 10-K does not include any information regarding contacts with these countries. In light of the fact that Iran and Syria have been identified by the U.S. State Department as state sponsors of terrorism, and are subject to U.S. economic sanctions, please describe for us the extent and nature of your past, current, and anticipated contacts with those countries, whether through distributors or other direct or indirect arrangements. Discuss the materiality to you of such contacts, individually and in the aggregate; and whether those contacts, individually or in the aggregate, constitute a material investment risk for your security holders.*

Response:

For the convenience of the staff, the response to this comment has been combined with the response to Comment No. 2 below.

2. *Your materiality analysis should address materiality in quantitative terms, including the approximate dollar amount of any revenues, assets and liabilities associated with Iran and Syria. Please also address materiality in terms of qualitative factors that a reasonable investor would deem important in making an investment decision, including the potential impact of corporate activities upon a company's reputation and share value.*

We note, for example, that Arizona and Louisiana have adopted legislation that requires their state retirement systems to prepare reports regarding state pension fund assets invested in, and/or permits divestment of state pension fund assets from, companies that do business with U.S.-designated state sponsors of terrorism. Pennsylvania's General Assembly has passed a resolution mandating assessment and reporting of state pension fund assets invested in companies that do business with certain U.S.-designated state sponsors of terrorism. The Missouri Investment Trust has established an equity fund for the investment of certain state-held monies that screens out stocks of companies that do business with U.S.-designated state sponsors of terrorism. Your materiality analysis should address the potential impact of the investor sentiment evidenced by such actions directed toward companies that operate in Iran and Syria.

Response:

Over the past six years, the Company has had a relatively small amount of sales of BioGlue® in Iran, and of two product lines, BioGlue® and the CryoLife-Ross® pulmonary heart valve, in Syria. The Ross heart valve was only sold in Syria in 2001 and 2002 during that period. The Company discontinued all sales in Iran in 2004. As sales to Iran ceased in 2004, the Company has now removed Iran from the list of International BioGlue® Distributors on the Company's website. Company sales in Iran and Syria for the last six years are set forth below:

| Year | Iran | Syria | Total Company Revenue (rounded) |
|-------|----------|-----------|---------------------------------|
| 2006* | 0 | \$ 43,916 | Not yet reported |
| 2005 | 0 | \$ 71,275 | \$ 69,282,000 |
| 2004 | \$ 7,696 | \$ 36,233 | \$ 62,384,000 |
| 2003 | 0 | \$ 9,358 | \$ 59,532,000 |
| 2002 | 0 | \$ 63,199 | \$ 77,795,000 |
| 2001 | \$ 7,815 | \$ 27,605 | \$ 87,671,000 |

* estimated

As is apparent from the sales figures provided above, the Company does not consider its operations in these countries material to the Company's operations, either on an aggregate or product-level basis. Further, given that total sales in such countries accounted for approximately one-tenth of one percent (0.1%) of total Company revenue for the period ended December 31, 2005, and are not expected to exceed that percentage for 2006, the Company does not believe such de minimis amounts, individually or in the aggregate, constitute a material investment risk for the Company's security holders.

In 2005, the Company's BioGlue® product line was classified as EAR99 by the United States Department of Commerce Bureau of Industry and Security. Products designated as EAR99 may be shipped "no license required," unless the exporter knows or is informed that the items will be used for certain malevolent purposes or for prohibited destinations. BioGlue® sales are conducted in Syria exclusively pursuant to a letter agreement between CryoLife Europa, Ltd., a wholly owned subsidiary of the Company, and a Syrian distributor.

As noted above, the quantitative level of contact with Iran and Syria has been de minimis in both absolute dollar amounts and relative to the Company's total revenue. Sales in Iran have ceased, and sales in Syria are expected to continue to be de minimis. Qualitatively, the products sold by the Company in those countries are medical devices intended to improve the health of patients and, as such, are humanitarian in nature. Additionally, to the Company's knowledge, the Company has not received any inquiries or expressions of concern from investors regarding transactions in such countries. For all of these reasons, we do not believe that the conduct described above should influence or affect decisions of CryoLife investors.

CryoLife acknowledges that:

- it is responsible for the adequacy and accuracy of the disclosure in the filings;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filings;
- it 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; and
- the Division of Enforcement has access to all information provided by CryoLife to the staff in its review of CryoLife's filings or in response to staff comments on CryoLife's filings.

If you have any questions, please do not hesitate to contact me at (404) 873-8688.

Very truly yours,

ARNALL GOLDEN GREGORY LLP

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

cc: Peggy Fisher, Division of Corporation Finance
Brian Cascio, Division of Corporation Finance
Jack Guggenheim, Division of Corporation Finance
Steven G. Anderson, CryoLife, Inc.