
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

**POST-EFFECTIVE AMENDMENT NO. 2
TO
FORM S-3
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933**

CryoLife, Inc.

(Exact Name of Registrant as Specified in its Charter)

Florida
(State or Other Jurisdiction
of Incorporation or Organization)

59-2417093
(I.R.S. Employer
Identification No.)

**1655 Roberts Boulevard, NW
Kennesaw, Georgia 30144
(770) 419-3355**

(Address, Including Zip Code, and Telephone Number, Including Area Code, of Registrant's Principal Executive Offices)

**J. Patrick Mackin,
Chairman, President and
Chief Executive Officer
CryoLife, Inc.
1655 Roberts Boulevard, NW
Kennesaw, Georgia 30144
(770) 419-3355**

(Name, Address, Including Zip Code, and Telephone Number, Including Area Code, of Agent for Service)

Copies to:
**Paul Tobias
Vinson & Elkins L.L.P.
2801 Via Fortuna, Suite 100
Austin, Texas 78746
Tel: (512) 542-8400
Fax: (512) 236 - 3266**

Approximate date of commencement of proposed sale to the public: From time to time after the effective date of this registration statement as determined by market conditions and other factors.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box:

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box:

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer

Accelerated

filer

Non-accelerated filer (Do not check if a smaller reporting company)

Smaller

reporting company

DEREGISTRATION OF SECURITIES

This Post-Effective Amendment No. 2 (this “Post Effective Amendment”) relates to the Registration Statement of CryoLife, Inc. (the “Company”) on Form S-3 (File No. 333-210046) filed with the Securities and Exchange Commission (the “SEC”) on March 23, 2016 and declared effective by the SEC on March 29, 2016 (the “Registration Statement”), pursuant to which the Company registered the resale up to 3,703,699 shares of common stock of the Company (the “Shares”). The Shares were registered to permit resale by selling stockholders, as named in the Registration Statement, who acquired the Shares in connection with the Company’s acquisition of **On-X Life Technologies Holdings, Inc.**

The Company seeks to deregister all of the Shares that remain unsold under the Registration Statement as of the date hereof because it no longer has an obligation to keep the Registration Statement effective pursuant to the terms of its registration rights agreement with the selling stockholders. Accordingly, the Company is filing this Post-Effective Amendment to terminate the effectiveness of the Registration Statement and, in accordance with an undertaking made by the Company in Part II of the Registration Statement to remove from registration by means of a post-effective amendment any of the securities registered which remain unsold at the termination of the offering, remove from registration any and all Shares registered but unsold under the Registration Statement as of the date hereof.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant certifies that it has reasonable grounds to believe that it meets all the requirements for filing on Form S-3 and has duly caused this Post-Effective Amendment to the Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Kennesaw, State of Georgia on November 11, 2016.

CryoLife, Inc.

Date: November 11, 2016

By: /s/ D. Ashley Lee
Name: D. Ashley Lee
Title: Executive Vice President, Chief Operating Officer and Chief Financial Officer

POWER OF ATTORNEY

Pursuant to the requirements of the Securities Act of 1933, as amended, this Post-Effective Amendment to the Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
* J. Patrick Mackin	Chairman of the Board, Chief Executive Officer, President and Director (Principal Executive Officer)	November 11, 2016
D. Ashley Lee	Executive Vice President, Chief Operating Officer, Chief Financial Officer and Treasurer (Principal Financial Officer)	November 11, 2016
* Amy D. Horton	Vice President, Chief Accounting Officer (Principal Accounting Officer)	November 11, 2016
* Thomas F. Ackerman	Director	November 11, 2016
* James S. Benson	Director	November 11, 2016
* Daniel J. Bevevino	Director	November 11, 2016

<hr/> *	Director	November 11, 2016
Ronald C. Elkins		
<hr/> *	Director	November 11, 2016
Ronald D. McCall		
<hr/> *	Director	November 11, 2016
Harvey Morgan		
<hr/> *	Director	November 11, 2016
Jon W. Salvesson		

*By: /s/ D. Ashley Lee
D. Ashley Lee
Attorney-in-fact