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

FORM 10-K/A (Amendment No. 1)

(Mark One)

R ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2009

or

£ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF SECURITIES EXCHANGE ACT OF 1934

For the transition period from to

Commission file number 0-15327

CytRx Corporation (Exact name of Registrant as specified in its charter)

Delaware 58-1642740 (State or other jurisdiction of incorporation or organization) Identification No.)

11726 San Vicente Blvd, Suite 650, Los Angeles, California (Address of principal executive offices)

90049 (Zip Code)

Registrant's telephone number, including area code: (310) 826-5648

Securities registered pursuant to Section 12(b) of the Act:

Title of each class Name of exchange on

which registered

Common Stock, The NASDAQ

\$0.001 par value per Series A Junior
Participating
Preferred Stock
Purchase Rights

Securities Registered Pursuant to Section 12(g) of the Act: None

Indicate by check mark if the Registrant is a well-known seasoned issuer (as defined in Securities Act Rule 405). Yes £ No R

Indicate by check mark if the Registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934.

Yes £ No R

Indicate by check mark whether the Registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months and (2) has been subject to such filing requirements for the past 90 days. Yes R No £

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes £ No £

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of the Registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. R

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. (Check one):

Large accelerated filer \pounds Accelerated filer R Non-accelerated filer \pounds Smaller reporting company \pounds (Do not check if a smaller reporting company)

Indicate by check mark whether the Registrant is a shell company (as defined in Rule 2b-2 of the Act). Yes £ No R

Based on the closing price as reported on The Nasdaq Capital Market, the aggregate market value of the Registrant's common stock held by non-affiliates on June 30, 2009 (the last business day of the Registrant's most recently completed second fiscal quarter) was approximately \$102.0 million. Shares of common stock held by directors and executive officers and their respective affiliates have been excluded from this calculation, because such stockholders may be deemed to be "affiliates" of the Registrant. This is not necessarily determinative of affiliate status for other purposes. The number of outstanding shares of the Registrant's common stock as of March 12, 2010 was 108,908,105, exclusive of treasury shares.

EXPLANATORY NOTES

CytRx Corporation ("CytRx," "we," "our," "us" and the "Company") is amending our Annual Report on Form 10-K for fiscal year ended December 31, 2009, which we sometimes refer to in this amendment as our "original Form 10-K," for the sole purpose of amending the signature page to the original Form 10-K to include the signatures required by General Instruction D of Form 10-K.

Except for the foregoing, this amendment does not modify any disclosures contained in our original Form 10-K. Additionally, the text of this amendment, except for the information in the foregoing, speaks as of the filing date of the original Form 10-K and does not attempt to update the disclosures in our original Form 10-K or to discuss any developments subsequent to the date of the original filing. In accordance with the rules and regulations of the Securities and Exchange Commission, the information contained in the original Form 10-K and this amendment is subject to updated or supplemental information contained in reports filed by us with the Securities and Exchange Commission subsequent to the filing dates of the original Form 10-K and this amendment.

SIGNATURES

In accordance with Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

CYTRX CORPORATION

Date: July 16, 2010 By: /s/ STEVEN A. KRIEGSMAN

Steven A. Kriegsman

President and Chief Executive

Officer

In accordance with the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant in the capacities and on the dates indicated.

Signature	Title	Date
/s/ STEVEN A. KRIEGSMAN	Director, President and Chief Executive Officer	July 16, 2010
Steven A. Kriegsman	(Principal Executive Officer)	
/s/ JOHN Y. CALOZ	Chief Financial Officer	July 16, 2010
John Y. Caloz	(Principal Financial Officer and Principal Accounting Officer)	
/s/ MAX LINK	Chairman of the Board	July 16, 2010
Max Link, Ph.D.		
/s/ MARVIN R. SELTER	Vice-Chairman of the Board	July 16, 2010
Marvin R. Selter		
/s/ LOUIS IGNARRO	Director	July 16, 2010
Louis Ignarro, Ph.D.		
/s/ JOSEPH RUBINFELD	Director	July 16, 2010
Joseph Rubinfeld, Ph.D.		
/s/ RICHARD L. WENNEKAMP Richard L. Wennekamp	Director	July 16, 2010

INDEX TO EXHIBITS

Exhibit		
Number	Description	
31.1	Certification of Chief Executive Officer Pursuant to 15 U.S.C. Section 7241, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002	
31.2	Certification of Chief Financial Officer Pursuant to 15 U.S.C. Section 7241, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002	
32.1	Certification of Chief Executive Officer Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002	
32.2	Certification of Chief Financial Officer Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002	