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

FORM 8-K

CURRENT REPORT
Pursuant to Section 13 or 15(d)
of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): March 24, 2015

Mast Therapeutics, Inc.
(Exact name of registrant as specified in its charter)

Delaware	**001-32157**	**84-1318182**
(State or other jurisdiction of incorporation)	**(Commission File Number)**	**(IRS Employer Identification No.)**

3611 Valley Centre Drive, Suite 500, San Diego, California	**92130**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code: (858) 552-0866

Not Applicable
Former name or former address, if changed since last report

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Item 2.02. Results of Operations and Financial Condition.

On March 24, 2015, Mast Therapeutics, Inc. issued a press release announcing its financial results for the three months and year ended December 31, 2014. A copy of the press release is furnished as Exhibit 99.1 hereto.

Item 9.01. Financial Statements and Exhibits.

(d) Exhibits.

The list of exhibits called for by this Item is incorporated by reference to the Exhibit Index immediately following the signature page of this report.

The information set forth under Item 2.02 and in Exhibit 99.1 is not being filed for purposes of Section 18 of the Securities Exchange Act of 1934 and is not to be incorporated by reference into any filing of the registrant, whether made before or after the date hereof, regardless of any general incorporation language in any such filing.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Mast Therapeutics, Inc.

March 24, 2015

By: /s/ Brandi L. Roberts
Name: Brandi L. Roberts
Title: Chief Financial Officer and Senior Vice President

Exhibit Index

Exhibit No.	Description
99.1	Press Release dated March 24, 2015

Exhibit 99.1

MAST THERAPEUTICS REPORTS FOURTH QUARTER AND FULL YEAR 2014 FINANCIAL RESULTS

SAN DIEGO – March 24, 2015 – Mast Therapeutics, Inc. (NYSE MKT: MSTX), a clinical-stage biopharmaceutical company leveraging its molecular adhesion and sealant technology (MAST) platform to develop novel therapies for sickle cell disease, arterial disease and heart failure, today reported financial results for the fourth quarter and year ended December 31, 2014.

“2014 was a year of significant progress for Mast Therapeutics. We continued to make good progress with our lead compound, vepoloxamer, and we added another product candidate, AIR001, to our pipeline with our acquisition of Aires Pharmaceuticals, Inc. in February 2014,” stated Brian M. Culley, Chief Executive Officer. “Vepoloxamer remains the most clinically-advanced new drug in development for sickle cell disease and we continue to anticipate top-line results of the Phase 3 EPIC study in the first quarter of 2016.”

Mr. Culley continued: “While enrollment in EPIC is a top priority, data generated from our MAST platform has enabled us to enter other indications as well. We have been particularly pleased with results of recent studies of vepoloxamer in models of thrombotic stroke and advanced heart failure, both large markets with significant unmet medical needs, and, as announced yesterday, we look forward to initiating a Phase 2 study of vepoloxamer in chronic heart failure in the third quarter of this year.”

“We also are pleased with the progress of our AIR001 program in heart failure with preserved ejection fraction. With Phase 2a studies of AIR001 underway at Mayo Clinic and the University of Pittsburgh, we expect to announce preliminary data in the second half of this year. We believe the hemodynamic benefits of AIR001 are particularly suited to a HFpEF population with elevated pulmonary artery and pulmonary capillary wedge pressures, for which no FDA-approved therapies are currently available.”

Fourth Quarter 2014 Operating Results

The Company’s net loss for the fourth quarter of 2014 was $7.3 million, or $0.05 per share (basic and diluted), compared to a net loss of $5.7 million, or $0.06 per share (basic and diluted), for the same period in 2013.

Research and development (R&D) expenses for the fourth quarter of 2014 were $4.9 million, an increase of $1.4 million, or 40%, compared to $3.5 million for the same period in 2013. The increase was due mainly to increases of $0.9 million in external clinical study fees and expenses related primarily to increased enrollment in EPIC, the Company’s Phase 3 study of vepoloxamer in sickle cell disease, and $0.5 million in nonclinical study fees and expenses related primarily to research-related manufacturing costs for vepoloxamer.

Selling, general and administrative (SG&A) expenses for the fourth quarter of 2014 were $2.4 million, an increase of $0.3 million, or 12%, compared to $2.1 million for the same period in 2013. The increase resulted primarily from an increase in fees for accounting, tax and legal services and personnel costs.

Year-to-Date Operating Results

The Company's net loss for the year ended December 31, 2014 was $28.7 million, or $0.23 per share (basic and diluted), compared to a net loss of $21.5 million, or $0.28 per share (basic and diluted), for the same period in 2013.

R&D expenses for the year ended December 31, 2014 were $19.4 million, an increase of $6.5 million, or 51%, compared to $12.9 million for the same period in 2013. The increase was due to increases of $3.6 million in external clinical study fees and expenses, $1.6 million in nonclinical study fees and expenses, $1.0 million in personnel costs and $0.3 million in share-based compensation expense. The increase in external clinical study fees and expenses was related primarily to EPIC study costs ($3.3 million), our Phase 2 study of vepoloxamer in acute limb ischemia ($1.1 million), and the wind-down of the AIR001 studies in pulmonary arterial hypertension ($1.0 million), offset by a decrease due largely to lack of costs related to the thorough QT/QTc clinical study of vepoloxamer completed in 2013 ($1.8 million). The increase in nonclinical study fees and expenses resulted primarily from research-related manufacturing costs for vepoloxamer ($1.2 million) and AIR001 ($0.2 million). The increase in personnel costs resulted primarily from additional clinical and research-related manufacturing staff hired after the first half of 2013 and severance expenses related to the departure of our former chief medical officer.

SG&A expenses for the year ended December 31, 2014 were $9.5 million, an increase of $1.0 million, or 11%, compared to $8.5 million for the same period in 2013. The increase resulted primarily from an increase in personnel costs and consulting expenses.

Balance Sheet Highlights

As of December 31, 2014, the Company had cash, cash equivalents and investment securities totaling $57.3 million. Stockholders' equity amounted to $58.7 million as of December 31, 2014.

About Mast Therapeutics

Mast Therapeutics, Inc. is a publicly traded biopharmaceutical company headquartered in San Diego, California. The Company is leveraging its MAST platform, derived from over two decades of clinical, nonclinical and manufacturing experience with purified and non-purified poloxamers, to develop vepoloxamer (MST-188), its lead product candidate, for serious or life-threatening diseases and conditions typically characterized by impaired microvascular blood flow and damaged cell membranes. The Company is also developing AIR001, a sodium nitrite solution for inhalation via nebulizer, for the treatment of heart failure with preserved ejection fraction (HFpEF).

Vepoloxamer is being tested in a pivotal Phase 3 study called EPIC for the treatment of vaso-occlusive crisis in patients with sickle cell disease and in a Phase 2 study to evaluate whether vepoloxamer improves the effectiveness of recombinant tissue plasminogen activator therapy in patients with acute limb ischemia. The Company plans to initiate a Phase 2 study of vepoloxamer in chronic heart failure in the third quarter of this year. AIR001 is being tested in multiple institution-sponsored Phase 2a studies in patients with HFpEF. More information can be found on the Company's web site at www.masttherapeutics.com. (Twitter: @MastThera)

Forward Looking Statements

Mast Therapeutics cautions you that statements included in this press release that are not a description of historical facts are forward-looking statements that are based on the Company's current expectations and assumptions. Such forward-looking statements include, but are not limited to, statements relating to prospects for successful development of the Company's product candidates, including vepoloxamer in sickle cell disease, and anticipated timing of achievement of development milestones, including commencement and completion of clinical and nonclinical studies, and of announcement of study data. Among the factors that could cause or contribute to material differences between the Company's actual results and the expectations indicated by the forward-looking statements are risks and uncertainties that include, but are not limited to: the uncertainty of outcomes in ongoing and future studies of the Company's product candidates and the risk that its product candidates, including vepoloxamer, may not demonstrate adequate safety, efficacy or tolerability in one or more such studies, including EPIC; delays in the commencement or completion of clinical studies, including as a result of difficulties in obtaining regulatory agency agreement on clinical development plans or clinical study design, opening trial sites, enrolling study subjects, manufacturing sufficient quantities of clinical trial material, being subject to a "clinical hold," and/or suspension or termination of a clinical study, including due to patient safety concerns or lack of funding; the potential for additional nonclinical or clinical studies to be required prior to initiation of a planned clinical study; the risk that, even if clinical studies are successful, the FDA or other regulatory agencies may determine they are not sufficient to support a new drug application; the potential that, even if clinical studies of a product candidate in one indication are successful, clinical studies in another indication may not be successful; the Company's reliance on contract research organizations (CROs), contract manufacturing organizations (CMOs), and other third parties to assist in the conduct of important aspects of development of its product candidates, including clinical studies, manufacturing, and regulatory activities for its product candidates, and that such third parties may fail to perform as expected; the Company's ability to obtain additional funding on a timely basis or on acceptable terms, or at all; the potential for the Company to delay, reduce or discontinue current and/or planned development activities, including clinical studies, partner its product candidates at inopportune times or pursue less expensive but higher-risk and/or lower return development paths if it is unable to raise sufficient additional capital as needed; the risk that, even if the Company successfully develops a product candidate in one or more indications, it may not realize commercial success and may never achieve profitability; the risk that the Company is not able to adequately protect its intellectual property rights and prevent competitors from duplicating or developing equivalent versions of its product candidates; and other risks and uncertainties more fully described in the Company's press releases and periodic filings with the Securities and Exchange Commission. The Company's public filings with the Securities and Exchange Commission are available at www.sec.gov.

You are cautioned not to place undue reliance on forward-looking statements, which speak only as of the date when made. Mast Therapeutics does not intend to revise or update any forward-looking statement set forth in this press release to reflect events or circumstances arising after the date hereof, except as may be required by law.

Contact:
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[Tables to Follow]

Mast Therapeutics, Inc.
Condensed Consolidated Statements of Operations
(In thousands, except per share data)

	Three months ended December 31, (Unaudited)		Year ended December 31, (1)	
	2014	2013	2014	2013
Total net revenue	$ —	$ —	$ —	$ —
Operating expenses:				
Research and development	4,933	3,520	19,435	12,902
Selling, general and administrative	2,396	2,147	9,488	8,518
Transaction-related expenses	—	44	271	79
Depreciation and amortization	25	11	85	40
Total operating expenses	7,354	5,722	29,279	21,539
Loss from operations	(7,354)	(5,722)	(29,279)	(21,539)
Interest and other income, net	41	17	577	59
Net loss	$ (7,313)	$ (5,705)	$ (28,702)	$ (21,480)
Net loss per share – basic and diluted	$ (0.05)	$ (0.06)	$ (0.23)	$ (0.28)
Weighted average shares – basic and diluted	145,257	102,710	122,409	76,586

(1) The condensed consolidated statements of operations for the years ended December 31, 2014 and 2013 have been derived from the audited financial statements but do not include all of the information and footnotes required by accounting principles generally accepted in the United States for the complete financial statements.

Mast Therapeutics, Inc.
Balance Sheet Data
(In thousands)

	December 31, 2014	December 31, 2013
Cash, cash equivalents and investment securities	$ 57,289	$ 44,393
Working capital	49,965	40,695
Total assets	70,500	55,250
Total liabilities	11,842	7,442
Stockholders' equity	58,658	47,808