NEWS RELEASE

Mast Therapeutics To Present At 2016 BIO Investor Forum On October 19th

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SAN DIEGO, Oct. 13, 2016 /PRNewswire/ -- **Mast Therapeutics, Inc.** (NYSE MKT: MSTX), today announced that the Company's Chief Executive Officer, Brian M. Culley, will provide an update related to its business strategy and clinical development of its product candidates at the 2016 BIO Investor Forum on Wednesday, October 19, 2016 at 2:30 p.m. Pacific time in the Elizabethan B Salon at the Westin St. Francis hotel in San Francisco. The Company recently announced a strategic focus on its AIR001 (sodium nitrite solution for intermittent inhalation) program with continued support for multiple investigator-sponsored Phase 2 clinical studies of AIR001 being conducted at prestigious research institutions, with interim results from one of these studies anticipated to be published this quarter.

Interested parties can access a live audio webcast on the Mast Therapeutics web site at **www.masttherapeutics.com**. An archived presentation will be available on the web site for 30 days.

About AIR001

AIR001 is a sodium nitrite solution for intermittent inhalation via nebulization. Nitrite is a direct vasodilator and can be recycled in vivo to form nitric oxide (NO) independent of the classical NO synthase (NOS) pathway. Nitrite mediated NO formation has several beneficial effects, including dilation of blood vessels and reduction of inflammation and undesirable cell growth. Generation of NO from sodium nitrite is not dependent upon endothelial function and is enhanced in the setting of tissue hypoxia and acidosis, conditions in which NOS activity typically is depressed. In early clinical studies, AIR001 demonstrated positive hemodynamic effects with reductions observed in right atrial pressure and pulmonary capillary wedge pressure, as well as improvements in mean pulmonary artery pressures, cardiac output, and exercise tolerance as measured by six-minute walk distance. In a randomized, double-blind, placebo-controlled Phase 2a study of AIR001 in patients with HFpEF (n=26), the AIR001

treatment group showed a statistically significant decrease in pulmonary capillary wedge pressure during exercise compared to the control group and AIR001 was generally well-tolerated.

About Mast Therapeutics

Mast Therapeutics, Inc. is a publicly traded biopharmaceutical company headquartered in San Diego, California. The Company has two clinical-stage investigational new drugs, AIR001 and vepoloxamer. AIR001, a sodium nitrite solution for intermittent inhalation via nebulizer, is in Phase 2 clinical development for the treatment of heart failure with preserved ejection fraction (HFpEF). More information can be found on the Company's web site at **www.masttherapeutics.com**. Mast Therapeutics™ and the corporate logo are trademarks of Mast Therapeutics, Inc.

Forward Looking Statements

Mast Therapeutics cautions you that statements in this press release that are not a description of historical fact are forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements may be identified by the use of words referencing future events or circumstances such as "expect," "intend," "plan," "anticipate," "believe," and "will," among others. Examples of forward-looking statements in this press release include statements relating to the Company's development plans for its product candidates and the Company's business plans and objectives. Forward-looking statements should not be read as guarantees of future performance or results because they involve the Company's beliefs and assumptions based on currently available information and are subject to significant known and unknown risks and uncertainties that may cause actual performance and results to differ materially from expectations indicated by the forward-looking statements. Some of the factors that could cause actual performance or results to differ include, without limitation: the Company's need for additional funding to continue to operate as a going concern; risks associated with the Company's ability to manage operating expenses and obtain additional capital as needed; uncertainty related to the Company's ability to remain in compliance with the terms and conditions under its debt facility and risk that the Company may be required to repay its remaining outstanding debt obligation on an accelerated basis and/or at a time that could be detrimental to the Company's financial condition, operations and/or business strategy; the impact of significant reductions in the Company's operations on its ability to develop its product candidates or maintain compliance with laws and regulations relating to public companies; the Company's ability to maintain compliance with NYSE MKT continued listing standards and policies and to maintain the listing and trading of its common stock on that exchange; completion of a more detailed analysis of EPIC data and reporting of additional data from the study; uncertainties inherent in the conduct of clinical studies and the risk that the Company's product candidates may not demonstrate adequate safety, efficacy or tolerability in one or more clinical studies for approval by regulatory authorities; the potential for the Company to sell or license part or all of its assets; the potential for significant delays, reductions, or discontinuation of current and/or planned development activities if the Company is unable to raise sufficient additional capital as needed; the Company's lack of control over the

investigator-sponsored clinical studies of AIR001, including whether any of the studies will commence or be completed on anticipated timelines, or at all; the Company's dependence on third parties to assist with important aspects of development of the Company's product candidates, including the conduct of its clinical studies, the manufacture and supply of clinical trial material and drug delivery devices, and the conduct of regulatory activities, and the risk that such third parties may fail to perform as expected leading to delays in product candidate development and additional costs; the risk that the Company is not able to obtain or maintain effective patent coverage or other market exclusivity protections for its products, if approved, or that the use or manufacture of the Company's products may infringe the proprietary rights of others; and other risks and uncertainties more fully described in the Company's press releases and its reports filed 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.

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