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# Merrimack Pharmaceuticals' Preclinical Research Shows MM-121 Restores Sensitivity to Anti-Estrogen Therapy and Delays Onset of Treatment Resistance in ER-Positive Breast Cancer Model

## Preclinical Results Presented at AACR 2013 Examines ErbB3-Targeted Antibody for the Treatment of ER+ Breast Cancer

CAMBRIDGE, Mass., April 8, 2013 /PRNewswire/ -- Merrimack Pharmaceuticals, Inc. (NASDAQ: MACK) today announced preclinical study results showing that the novel therapy MM-121 restores tumor sensitivity and delays the onset of resistance to the aromatase inhibitor, letrozole, in an ER+ breast cancer model. The study was presented as part of the American Association for Cancer Research's 2013 Annual Meeting in Washington, DC, April 6-10, 2013.

MM-121 is a fully human monoclonal antibody that targets ErbB3, a cell surface receptor implicated in tumor growth and survival. By inhibiting ErbB3 signaling, MM-121 was found to restore sensitivity, delay resistance and enhance the anti-tumor effect of letrozole as a combination therapy partner.

"In nearly all cases of advanced ER+ breast cancer, endocrine therapies are initially effective, but patients eventually develop resistance to these treatments," said Gavin MacBeath, Co-Founder and Head of Translational Research, Merrimack Pharmaceuticals. "We are excited to see that in preclinical models, MM-121 blocked activation of its target, ErbB3, and down-regulated several signaling pathways within these tumors. We saw delayed resistance to letrozole when co-administered with the drug, and restored sensitivity when added after the tumors developed resistance to letrozole. These data help guide our thinking regarding how best to combine MM-121 with anti-hormonal therapies in the treatment of advanced ER+ breast cancer."

Study Methodology
The activity of MM-121 alone and in combination with letrozole was measured in an MCF7 *in vivo* model of post-menopausal ER+ breast cancer engineered to express aromatase. Models of ER+ breast cancer were randomized to receive letrozole, MM-121 or both MM-121 and letrozole following development of resistance to letrozole. Tumors were harvested 24 hours after initiating treatment post-randomization and at the end of the study when all treatment arms developed resistance.

Sanofi and Merrimack entered into an exclusive, global license and collaboration agreement for MM-121 in 2009.

**About Merrimack Pharmaceuticals, Inc.**
Merrimack Pharmaceuticals is a biopharmaceutical company discovering, developing and preparing to commercialize innovative medicines paired with companion diagnostics for the treatment of cancer. Merrimack applies Network Biology, its proprietary systems biology-based approach to biomedical research, throughout the research and development process. Merrimack currently has six targeted therapeutic oncology candidates in clinical development.

**Forward-Looking Statement**
To the extent that statements contained in this press release are not descriptions of historical facts, they are forward-looking statements reflecting the current beliefs and expectations of management made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995, as amended. Forward-looking statements include any statements about Merrimack's strategy, future operations, future financial position and future expectations and plans and prospects for Merrimack, and any other statements containing the words "anticipate," "believe," "estimate," "expect," "intend," "may," "plan," "predict," "project," "target," "potential," "will," "would," "could," "should," "continue," and similar expressions. In this press release, Merrimack's forward-looking statements include statements about the potential effectiveness of its drug candidates in new indications and its ability to translate preclinical data into future clinical success. Such forward-looking statements involve substantial risks and uncertainties that could cause Merrimack's clinical development programs, future results, performance or achievements to differ significantly from those expressed or implied by the forward-looking statements. Such risks and uncertainties include, among others, the uncertainties inherent in the initiation of future clinical trials, availability of data from ongoing clinical trials, expectations for regulatory approvals and other matters that could affect the availability or commercial potential of Merrimack's drug candidates or companion diagnostics. Merrimack undertakes no obligation to update or revise any forward-looking statements. Forward-looking statements should not be relied upon as representing Merrimack's views as of any date subsequent to the date hereof. For a further description of the risks and uncertainties that could cause actual results to differ from those expressed in these forward-looking statements, as well as risks relating to Merrimack's business in general, see the "Risk Factors" section of Merrimack's Annual Report on Form 10-K filed with the Securities and Exchange Commission (SEC) on March 20, 2013 and other reports Merrimack files with the SEC.

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