MERRIMACK
PHARMACEUTICALS

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An Analysis of Cellular Networks to Predict Drug Response in Breast Cancer Lines Published in Science Signaling

Using Network Biology, Harvard and Merrimack Scientists Identify a Group of Hybrid Biomarkers to Better Predict Tumor Response to Targeted Therapies

CAMBRIDGE, Mass., Sept. 20, 2013 (GLOBE NEWSWIRE) -- Merrimack Pharmaceuticals, Inc. (Nasdaq:MACK) today announced that *Science Signaling* will publish the research article "Profiles of Basal and Stimulated Receptor Signaling Networks Predict Drug Response in Breast Cancer Lines" in its latest issue (Volume 6, ra84). The research article analyzes biochemical characteristics in a collection of breast cell cancer lines and identifies a group of hybrid biomarkers that effectively predicted the response of cells to targeted therapies *in vitro*. These findings are the result of collaboration between researchers at Merrimack Pharmaceuticals, Inc. and the laboratory of Peter Sorger, Ph.D., in the department of systems biology at Harvard Medical School.

Biomarkers in early breast cancer often determine the treatment course for the disease. A well-known biomarker, HER2 (also known as ErbB2), is traditionally used to pinpoint cases that could benefit from antibody therapies which target ErbB2. However, HER2 and other biomarkers are only predictive in certain subsets of patients. For example, triple negative breast cancers, defined by low levels of traditional biomarkers, show more heterogeneity in both drug response and at the cellular level and carry a poorer prognosis than other breast cancer subtypes.

By combining traditional genetic classifications of breast cancer cells with an innovative proteomics and biochemical analysis, the researchers were able to construct hybrid response biomarkers that effectively predicted the response of cancer cells to targeted therapies *in vitro*.

"We are delighted that *Science Signaling* has highlighted our work in the field of network-based biology. This study serves as proof of principle that systematic biochemical analysis of cellular pathways can enable the identification of factors responsible for variation in drug response," said Peter Sorger, Professor of Systems Biology at Harvard Medical School. "In addition, these predictors and biomarkers have the potential to be translated into the clinic to improve therapy selection in cancer patients."

Follow-up studies may include analyzing patient biopsies and associated patient responses to targeted therapies, with the hope of using such data to advance the study of multiparametric response biomarkers and aid in personalizing cancer treatments.

About Merrimack

Merrimack is a biopharmaceutical company discovering, developing and preparing to commercialize innovative medicines paired with companion diagnostics for the treatment of cancer. Merrimack applies its systems biology-based approach to biomedical research throughout the research and development process. Merrimack currently has six oncology therapeutics in clinical development.

Forward-looking statements

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," "hope" and similar expressions. In this press release, Merrimack's forward-looking statements include statements about the potential for biomarkers to predict individual patient response to targeted therapies, and the likelihood of conducting follow-on studies of biomarkers. 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, availability of data from ongoing clinical trials, expectations for regulatory approvals, development progress of Merrimack's companion diagnostics 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 Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission (SEC) on August 8, 2013 and other reports Merrimack files with the SEC.

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