July 19, 2017

Study Demonstrates Paclitaxel Treatment Promotes Breast Cancer Dissemination and Metastasis in a Mena-dependent Manner

Mena Knockdown Reverses Paclitaxel-induced Dissemination and Metastasis in MMTV-PyMT-CFP Breast Cancer Transplant Model

BOSTON--(BUSINESS WIRE)-- **MetaStat, Inc. (OTCQB:MTST),** a personalized medicine company developing therapeutic and diagnostic treatment solutions for cancer patients, announced today results from a study published online on July 5, 2017 in Science Translational Medicine authored by MetaStat collaborators from the Albert Einstein College of Medicine and Montefiore Medical Center. This study demonstrated certain types of chemotherapy promote breast cancer tumor cell dissemination and metastasis, including increased circulating tumor cells (CTCs) and TMEM or MetaSite™ scores (MS), in addition to enhanced expression of pro-metastatic Mena protein isoforms. Consistent with the known requirements for Mena in breast cancer metastasis, paclitaxel-induced dissemination was found to be dependent on Mena protein expression. Previous studies had demonstrated that animals grafted with MMTV-PyMT Mena-null breast cancer tumors fail to develop CTCs or lung metastasis, and paclitaxel-treatment did not promote metastasis of Mena-deficient tumors in the current study.

“These data provide insight into why some patients with pathologic complete responses (pCR) following chemotherapy do not derive long-term benefit,” stated Douglas A. Hamilton, MetaStat President and CEO. “As we accelerate our therapeutic program aimed at preventing aggressive cancer from spreading, we are further encouraged by the potential added benefit to patients of combination therapy with taxanes and Mena-targeted drugs to block chemotherapy-induced cancer cell dissemination and metastasis,” said Mr. Hamilton.

“The ability to accurately define a pro-metastatic phenotype has the potential to provide important and useful information towards the effective management of patients newly diagnosed with breast cancer,” stated Michael J. Donovan, MD, PhD, MetaStat acting Chief Medical Officer.

The investigators used the research version of MetaStat’s clinically validated and CLIA-approved MetaSite *Breast*™ test to quantify changes in the number of MetaSites™ before and after chemotherapy treatment. In tumor samples from breast cancer patients, neoadjuvant chemotherapy (NEC) consisting of paclitaxel after doxorubicin plus cyclophosphamide increased MetaSite™ scores (MS) and expression of the pro-

metastatic Mena^{INV} isoform. Preclinical studies of patient-derived xenograft and PyMT murine models also demonstrated that chemotherapy increased the density of MetaSites™ and levels of the Mena^{INV} isoform. The publication can be found at http://stm.sciencemag.org/content/9/397/eaan0026. A previous study, also by MetaStat collaborators, reported that Mena expression confers resistance to paclitaxel *in vitro* and in xenograft tumors and taxane therapy increased expression of pro-metastatic Mena isoforms (i.e. Mena^{INV}). The publication can be found at http://mct.aacrjournals.org/content/16/1/143.long.

About the MetaSite *Breast*™ Test

The MetaSite *Breast*™ test is intended for use in patients with early stage (stage 1-3), invasive breast cancer who have node-negative or node positive, Hormone Receptor (HR)-positive, HER2-negative disease. Clinical studies have demonstrated the MetaSite score (MS) is significantly associated with increased risk of cancer metastasis. MetaSite *Breast*™ is an analytically validated, fully automated digital pathology assay that identifies Mena expressing tumor cells in direct contact with CD68+ perivascular macrophages and CD31+ endothelial cells ("MetaSites"). MetaSites have been shown to be the portal of entry for cancer cells into the blood stream contributing to the development of cancer metastasis. The MetaSite *Breast*™ assay is performed on standard formalin-fixed paraffin-embedded (FFPE) tissue, analytically validated under CLIA and clinically available through MetaStat's CLIA-certified commercial laboratory.

About MetaStat, Inc.

MetaStat is a biotechnology company focused on discovering and developing personalized therapeutic and diagnostic treatment solutions for cancer patients. Our Mena isoform "driver-based" diagnostic biomarkers also serve as novel therapeutic targets for anti-metastatic drugs. MetaStat is developing therapeutic product candidates and paired companion diagnostics based on a novel approach that makes the Mena isoform protein a drugable target. Our core expertise includes an understanding of the mechanisms and pathways that drive tumor cell invasion and metastasis, as well as drug resistance to certain targeted therapies and cytotoxic chemotherapies. MetaStat is based in Boston, MA.

Forward-Looking Statements

This press release contains "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, and such forward-looking statements are made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. You are cautioned that such statements are subject to a multitude of risks and uncertainties that could cause future circumstances, events or results to differ materially from those projected in the forward-looking statements as a result of various factors and other risks, including those set forth in the company's Form 10-K and its other filings filed with the Securities and Exchange Commission. You should consider these factors in evaluating the forward-looking statements included herein, and not place undue reliance on such statements. The forward-looking statements in this release are made as of the

date hereof and the company undertakes no obligation to update such statements.

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MetaStat, Inc.
Rick Pierce, 617-531-0874
VP Investor Relations
rpierce@metastat.com

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