

Mersana Therapeutics Presents New Data on XMT-1536, a NaPi2b Targeting Antibody Drug Conjugate, at the AACR-NCI-EORTC International Conference

Presentation highlights expanded pre-clinical data supporting the development of XMT-1536 in a broad population of patients with ovarian cancer

CAMBRIDGE, Mass., October 30, 2017 -- Mersana Therapeutics, Inc., (NASDAQ:MRSN) a clinical-stage biopharmaceutical company focused on discovering and developing a pipeline of antibody drug conjugates (ADCs) based on its proprietary Dolaflexin® platform, today announced that it presented data from pre-clinical studies involving one of its oncology drug candidates, XMT-1536, an ADC targeting NaPi2b. The poster presentation at the AACR-NCI-EORTC International Conference on Molecular Targets and Cancer Therapeutics: Discovery, Biology, and Clinical Applications in Philadelphia, PA. was given by Rebecca Mosher, M.D., Executive Director, Translational Medicine, Mersana Therapeutics.

“The data presented at AACR-NCI-EORTC further support that NaPi2b is an outstanding target for ADC development and that the Dolaflexin ADC platform allows us to fully exploit the advantages of this interesting target,” said Donald Bergstrom, M.D., Ph.D., Chief Medical Officer, Mersana Therapeutics. “These results in ovarian cancer models are consistent with data we’ve previously presented on the broad activity of XMT-1536 in preclinical models of non-squamous non-small cell lung cancer (NSCLC). We look forward to initiating Phase 1 testing of XMT-1536 in patients with ovarian cancer, non-squamous NSCLC and other NaPi2b-expressing tumors by early 2018.”

The study revealed that XMT-1536 induced at least a 50% median reduction in tumor volume relative to baseline in 10/19 (53%) primary patient-derived ovarian cancer xenograft models, that were selected for testing without prior knowledge of NaPi2b expression status. The activity of XMT-1536 was comparable in models derived from tumors from treatment-naïve patients as well as models that came from patients with heavily pre-treated tumors. When NaPi2b target expression was evaluated using a proprietary immunohistochemistry (IHC) assay discovered at Mersana in conjunction with XMT-1536, there was an association between NaPi2b IHC H-score and tumor volume change after XMT-1536 treatment. Among tumors with an H-score ≥ 70 , 10/12 (83%) of models achieved 50% or greater reduction in tumor volume after XMT-1536 treatment, vs. 0/7 (0%) models with an H-score < 70 . Applying the same IHC assay to primary human ovarian tumors, 12/20 (60%) tested tumors had an H-score ≥ 70 , indicating the majority

of human ovarian tumors express levels of NaPi2b associated with deep regressions in response to XMT-1536 in pre-clinical models.

“We are extremely pleased with the results of this research and the progress the program has made to date,” said Rebecca Mosher, M.D., Executive Director, Translational Medicine, Mersana Therapeutics. “The data described in the presentation suggest that XMT-1536 could be broadly active in ovarian cancer, and that we may have a diagnostic tool that could further enrich the patient population to enhance clinical benefit.”

About XMT-1536

XMT-1536 is a highly potent anti-sodium-dependent phosphate transport protein (NaPi2b) immunoconjugate comprised of an average of 10-15 DolaLock payload molecules conjugated to XMT-1535, a proprietary humanized anti-NaPi2b antibody, via the Dolaflexin ADC platform. NaPi2b is an antigen highly expressed in the majority of non-squamous NSCLC and epithelial ovarian cancer. XMT-1536 is scheduled to begin Phase 1 clinical trials in early 2018.

About Mersana Therapeutics

Mersana Therapeutics is a clinical-stage biopharmaceutical company using its differentiated and proprietary ADC platforms to develop highly targeted drugs with increased tolerability and expanded opportunities to deliver meaningful clinical benefit to patients. Mersana’s lead product candidate, XMT-1522, is in Phase I clinical trials in patients with advanced tumors expressing HER2, including breast cancer, non-small-cell-lung-cancer (NSCLC) and gastric cancer patients. The Company expects that its second product candidate, XMT-1536, will enter clinical trials in early 2018. In addition, multiple partners are using Mersana’s leading platform to advance their ADC pipelines.

Forward-Looking Statements

This press release contains forward-looking statements and information within the meaning of the Private Securities Litigation Reform Act of 1995. The words “anticipate,” “believe,” “continue,” “could,” “estimate,” “expect,” “intend,” “may,” “plan,” “potential,” “predict,” “project,” “target,” “should,” “would” and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. The Company may not actually achieve the plans, intentions or expectations disclosed in these forward-looking statements, and you should not place undue reliance on these forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in these forward-looking statements as a result of various factors, including: uncertainties inherent in the initiation and completion of preclinical studies and clinical trials and clinical development of the Company’s product candidates; availability and timing of results from preclinical studies and clinical trials; whether interim

results from a clinical trial will be predictive of the final results of the trial or the results of future trials; expectations for regulatory approvals to conduct trials or to market products; and availability of funding sufficient for the Company's foreseeable and unforeseeable operating expenses and capital expenditure requirements. These and other risks are described in greater detail under the caption "Risk Factors" included in the Company's most recent Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on August 11, 2017, and in other filings that the Company may make with the Securities and Exchange Commission in the future. Any forward-looking statements contained in this press release speak only as of the date hereof, and the Company expressly disclaims any obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise.

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