Bicycle Therapeutics Announces Presentation of Additional Human Radiopharmaceutical Imaging Data for MT1-MMP at the American Association for Cancer Research Annual Meeting 2025

April 29, 2025

Data continue to validate the potential of MT1-MMP as a novel cancer target and further underscore the applicability of Bicycle® Radioconjugates (BRC®) for radiopharmaceutical imaging

Data are representative of 12 patients with various solid tumors imaged with an early BRC molecule targeting MT1-MMP

Initial human imaging data for second BRC molecule targeting EphA2 expected in 2H 2025

Company-sponsored radiopharmaceutical clinical trials planned for 2026

CAMBRIDGE, England & BOSTON--(BUSINESS WIRE)--Apr. 29, 2025-- Bicycle Therapeutics plc (NASDAQ: BCYC), a biopharmaceutical company pioneering a new and differentiated class of therapeutics based on its proprietary bicyclic peptide (Bicycle®) technology, announced the presentation of additional human imaging data that validate the potential of MT1-MMP, a tumor antigen overexpressed in many cancers, as a novel target for cancer treatment and demonstrate the positive properties of Bicycle® Radioconjugates (BRC®) for radiopharmaceutical imaging. The data will be presented today during a poster session at the American Association for Cancer Research (AACR) Annual Meeting 2025 in Chicago.

"The additional imaging data using an early BRC molecule continue to validate the potential of MT1-MMP as a novel cancer target, demonstrate the translatability of our preclinical data and position our technology for use as potential radiopharmaceutical therapies," said Michael Skynner, Ph.D., chief technology officer of Bicycle Therapeutics. "The new imaging data from the second patient with breast and bladder cancer presented today build on what was previously demonstrated in the first patient with advanced lung cancer, and we are encouraged that these data represent what we have seen so far in 12 patients with various solid tumors. We continue to advance our radiopharmaceuticals pipeline and look forward to sharing additional updates in the future, including initial human imaging data for our second target EphA2 later this year and the start of our first company-sponsored clinical radiopharmaceutical trials next year."

AACR 2025 Data Highlights

The German Cancer Consortium (DKTK), part of a cooperative network with the German Cancer Research Center (DKFZ), will present human imaging data conducted with an early BRC molecule targeting MT1-MMP. Imaging was performed in a 65-year-old male diagnosed with advanced pulmonary adenocarcinoma, the most common type of non-small cell lung cancer, and an 84-year-old female diagnosed with invasive ductal breast cancer and high-grade urothelial (bladder) cancer.

The 65-year-old male patient with advanced pulmonary adenocarcinoma underwent fluorine-18-labelled FDG-PET/CT imaging and two weeks later underwent MT1-MMP-PET/CT imaging up to one hour post injection of the gallium-68-labelled BRC tracer. As presented at a previous medical meeting, the MT1-MMP-PET scan demonstrated BRC tracer uptake in the primary tumor in the lung and in the lymph nodes and bones where the cancer had spread, corroborating the findings of the FDG-PET scan. While MT1-MMP-PET imaging demonstrated lower BRC tracer uptake in the primary tumor compared to FDG-PET imaging [maximum standardized uptake value (SUVmax) 6.0 g/mL vs. 10.3 g/mL], MT1-MMP-PET BRC tracer uptake was comparable in lymph node metastases (SUVmax 4.7 g/mL vs. 4.4 g/mL) and higher in bone metastases (SUVmax 7.9 g/mL vs. 6.0 g/mL).

The 84-year-old female patient with invasive ductal breast cancer and high-grade urothelial cancer underwent contrast-enhanced CT imaging and later underwent MT1-MMP-PET/CT imaging up to one hour post injection of the gallium-68-labelled BRC tracer. The MT1-MMP-PET scan revealed higher BRC tracer uptake in the primary tumors in the breast (SUVmax 4.5 g/mL) and the bladder (SUVmax 6.6 g/mL) compared to contrast-enhanced CT imaging. The MT1-MMP-PET scan also showed the cancer spread to the lymph nodes, lower spine (sacral bone) and skull, and detected a mass in the adrenal gland above the left kidney. Surgery confirmed the patient had bladder cancer that spread to the lymph nodes, and immunohistochemistry (IHC) testing confirmed MT1-MMP expression in the tumor cells.

These data are representative of the results seen in 12 out of 14 patients with various cancers, including those affecting the lung, head and neck, and bladder, who have undergone MT1-MMP-PET imaging to date. Imaging was unsuccessful or inconclusive in two patients. Overall, the results demonstrate the rapid distribution of the BRC tracer throughout the body, high uptake of the BRC tracer in the primary tumor(s) and/or in metastases where the cancer spread in the body, and elimination through the kidneys. Scans showing retention in the kidneys were in line with expectations given the imaging was conducted using a pathfinder non-optimized BRC imaging agent. Additional and more detailed analyses of the data and confirmation of MT1-MMP expression in the tumors via IHC are ongoing.

The poster presentation, "Development and clinical translation of phage display derived MT1-MMP-specific bicyclic peptide for radiotheranostic applications," is available in the Publications section of the Bicycle Therapeutics website.

About Bicycle Therapeutics

Bicycle Therapeutics is a clinical-stage pharmaceutical company developing a novel class of medicines, referred to as Bicycle® molecules, for diseases that are underserved by existing therapeutics. Bicycle molecules are fully synthetic short peptides constrained with small molecule scaffolds to form two loops that stabilize their structural geometry. This constraint facilitates target binding with high affinity and selectivity, making Bicycle molecules attractive candidates for drug development. The company is evaluating zelenectide pevedotin (formerly BT8009), a Bicycle® Drug Conjugate (BDC™) targeting Nectin-4, a well-validated tumor antigen; BT5528, a BDC molecule targeting EphA2, a historically undruggable target;

and BT7480, a Bicycle Tumor-Targeted Immune Cell Agonist® (Bicycle TICA®) targeting Nectin-4 and agonizing CD137, in company-sponsored clinical trials. Additionally, the company is developing Bicycle® Radioconjugates (BRC®) for radiopharmaceutical use and, through various partnerships, is exploring the use of Bicycle® technology to develop therapies for diseases beyond oncology.

Bicycle Therapeutics is headquartered in Cambridge, UK, with many key functions and members of its leadership team located in Cambridge, Mass. For more information, visit bicycletherapeutics.com.

Forward Looking Statements

This press release may contain forward-looking statements made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. These statements may be identified by words such as “aims,” “anticipates,” “believes,” “could,” “estimates,” “expects,” “forecasts,” “goal,” “intends,” “may,” “plans,” “possible,” “potential,” “seeks,” “will” and variations of these words or similar expressions that are intended to identify forward-looking statements, although not all forward-looking statements contain these words. Forward-looking statements in this press release include, but are not limited to, statements regarding the potential of MT1-MMP as a target in the treatment of cancer and suitability of BRCs for use in potential radiopharmaceutical therapies; Bicycle's progress across its radiopharmaceutical pipeline and the timing of announcement of new data and initiation of clinical trials; and the use of Bicycle Therapeutics’ technology through various partnerships to develop potential therapies in diseases beyond oncology. Bicycle Therapeutics 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 research and development and in the initiation, progress and completion of clinical trials and clinical development of Bicycle Therapeutics’ product candidates; the risk that the results of preclinical studies and early clinical trials may not be predictive of results of future clinical trials; the risk that Bicycle Therapeutics may not realize the intended benefits of its partnerships; the risk that Bicycle Therapeutics may not achieve its radiopharmaceutical clinical development strategy; and other important factors, any of which could cause Bicycle Therapeutics’ actual results to differ from those contained in the forward-looking statements, are described in greater detail in the section entitled “Risk Factors” in Bicycle Therapeutics’ Annual Report on Form 10-K filed with the Securities and Exchange Commission (SEC) on February 25, 2025, as well as in other filings Bicycle Therapeutics may make with the SEC in the future. Any forward-looking statements contained in this press release speak only as of the date hereof, and Bicycle Therapeutics expressly disclaims any obligation to update any forward-looking statements contained herein, whether because of any new information, future events, changed circumstances or otherwise, except as otherwise required by law.

View source version on businesswire.com: https://www.businesswire.com/news/home/20250429277576/en/

Investors:
Stephanie Yao
SVP, Investor Relations and Corporate Communications
stephanie.yao@bicycletx.com
857-523-8544

Matthew DeYoung
Argot Partners
ir@bicycletx.com
212-600-1902

Media:
Jim O’Connell
Weber Shandwick
media@bicycletx.com
312-988-2343

Source: Bicycle Therapeutics plc