



August 8, 2017

Kite Submits Investigational New Drug (IND) Application for KITE-585, Anti-BCMA CAR-T Therapy Candidate for Multiple Myeloma

- | Internally Generated Cell Therapy Candidate Engineered with Fully Human Anti-BCMA Construct
- | Next-Generation Manufacturing Process Designed for Enhanced Product Potency and Activity

SANTA MONICA, Calif.--(BUSINESS WIRE)-- Kite Pharma, Inc. (Nasdaq:KITE), a leading cell therapy company, today announced the submission of an Investigational New Drug (IND) application with the U.S. Food and Drug Administration (FDA) to initiate a Phase 1, first-in-human trial of KITE-585, a CAR-T cell therapy engineered to target B-cell maturation antigen (BCMA) in patients with relapsed/refractory multiple myeloma.

"KITE-585 has the potential to become Kite's next significant advance in cell therapy for patients with cancer. It is the result of an extensive preclinical development effort that included candidate screening, engineering, and testing by Kite's internal research team and it reflects the company's deep experience in CAR design and cellular therapeutics," said David Chang, M.D., Ph.D., Executive Vice President of Research and Development and Chief Medical Officer of Kite. "As we look ahead, we are confident that the cutting-edge design and manufacturing process of KITE-585 together with our proven capability with engineered T cells will support rapid execution of the clinical program."

BCMA is expressed on the surface of malignant plasma cells in most patients with multiple myeloma. In addition, it is found on normal plasma cells and certain mature B-cell lineage cells but is absent from other tissues. Because BCMA has been shown to play a potential role in survival and growth of myeloma cells, it is viewed as an attractive CAR T-cell therapeutic target.

About KITE-585

KITE-585 is an anti-BCMA CAR construct designed for high binding affinity to BCMA expressed on the cell surface. KITE-585 contains a receptor derived from a fully human monoclonal antibody and a CD28 costimulatory domain intended for optimized T-cell expansion and function. In preclinical studies, KITE-585 demonstrated activity across a range of low and high BCMA expressing targets and its activity was not impaired by soluble BCMA. In the presence of cell-bound BCMA, KITE-585 induced polyfunctional T cell expansion, and no tonic signaling in its absence. Advanced processes and materials used in the manufacturing of KITE-585 are designed to achieve enhanced cell potency.

About Multiple Myeloma

Multiple myeloma is a cancer of plasma cells in the bone marrow, which make antibodies to fight infections. Abnormal plasma cells can grow out of control and suppress the growth of other cells in the bone marrow. This suppression may result in bone damage, anemia, excessive bleeding, and a decreased ability to fight infection. In 2017, there will be an estimated 30,280 new cases of multiple myeloma in the United States and 12,590 deaths due to the disease. Approximately half of patients survive five years after being diagnosed with multiple myeloma.¹

About Kite

Kite is a biopharmaceutical company engaged in the development of innovative cancer immunotherapies with a goal of providing rapid, long-term durable response and eliminating the burden of chronic care. The company is focused on chimeric antigen receptor (CAR) and T cell receptor (TCR) engineered cell therapies designed to empower the immune system's ability to recognize and kill tumors. Kite is based in Santa Monica, CA. For more information on Kite, please visit www.kitepharma.com. Sign up to follow @KitePharma on Twitter at www.twitter.com/kitepharma.

Cautionary Note on Forward-Looking Statements

This press release contains forward-looking statements for purposes of the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. The press release may, in some cases, use terms such as "predicts," "believes," "potential," "proposed," "continue," "estimates," "anticipates," "expects," "plans," "intends," "may," "could," "might," "will," "should" or

other words that convey uncertainty of future events or outcomes to identify these forward-looking statements. Forward-looking statements include statements regarding intentions, beliefs, projections, outlook, analyses or current expectations concerning, among other things: the ability to advance and the success of KITE-585, the ability to rapidly execute the KITE-585 clinical program, and the ability of Kite's manufacturing process and materials to enhance product potency and activity. Various factors may cause differences between Kite's expectations and actual results as discussed in greater detail in Kite's filings with the Securities and Exchange Commission, including without limitation in its Form 10-Q for the quarter ended March 31, 2017. Any forward-looking statements that are made in this press release speak only as of the date of this press release. Kite assumes no obligation to update the forward-looking statements whether as a result of new information, future events or otherwise, after the date of this press release.

¹ SEER: <https://seer.cancer.gov/statfacts/html/mulmy.html>.

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