Cue Biopharma Announces FDA Acceptance of IND for Lead Immuno-oncology Candidate, CUE-101, in Treatment of HPV-driven Cancers

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Initiation of First-in-Human Phase 1 Clinical Trial for Monotherapy Dose Escalation
Earns $2.5 Million Milestone for IND Acceptance from Partner LG Chem Life Sciences

CAMBRIDGE, Mass., May 16, 2019 (GLOBE NEWSWIRE) -- Cue Biopharma, Inc., (NASDAQ: CUE), an innovative clinical stage immunotherapy company, developing a novel, proprietary class of biologics engineered to selectively modulate the human immune system to treat cancer, autoimmune and chronic infectious diseases, announced today the U.S. Food and Drug Administration (FDA) has accepted the Company's Investigational New Drug (IND) application for its lead immuno-oncology candidate, CUE-101, an Immuno-STAT ™*(Selective Targeting and Alteration of T cells)* biologic, as a potential treatment for HPV-associated cancers.

"FDA acceptance of our IND filing for CUE-101 is an important step toward validating our approach for selective modulation of disease-relevant T cells directly in patients with an "off-the shelf" biologic. Our clinical trial of CUE-101 aims to replicate promising pre-clinical studies that have shown the ability to expand specific T cell populations exhibiting polyfunctionality, which is characteristic of potent anti-tumor activity. We believe CUE-101 will enhance anti-tumor immunity in patients with HPV16-driven malignancies," said Dan Passeri, M.Sc., J.D., President and CEO of Cue Biopharma. "Representative of the IL-2 based CUE-100 series, CUE-101 is a novel fusion protein designed to activate and expand a population of tumor specific T cells directly in the patient's body. In this clinical trial, we plan to demonstrate, for the first time, the ability to significantly expand disease modifying T cells without the deleterious off-target side effects typically associated with other approaches."

"The ability to offer a therapeutic with the potential to activate and amplify cancer-specific T cells directly in a patient's body differentiates CUE-101 from other immunotherapies in development," said Ken Pienta, M.D., Chief Medical Officer of Cue Biopharma. "We are pleased to enter the clinic with CUE-101 and provide patients suffering from HPV-driven cancers with this promising new clinical drug candidate."

The primary objectives of the open-label, multi-center Phase 1 trial, are to assess the safety and tolerability of CUE-101 in patients with recurrent/metastatic HNSCC and to determine the maximum tolerated dose or recommended Phase 2 dose based on markers of biological activity. Pharmacokinetics (PK), anti-tumor immune response, preliminary anti-tumor activity and the potential for immunogenicity will also be assessed. This Phase 1 trial will be conducted in the U.S. and involve approximately 50 patients.

"Our IND filing and subsequent clinical study are based on foundational mechanistic datasets that underscore the impact of the Immuno-STAT platform in selective engagement and activation of tumor-specific T cells while avoiding systemic activation of the broader immune compartment," added Anish Suri, Ph.D., Senior Vice President and Chief Scientific Officer of Cue Biopharma. "Insights gained from our preclinical studies will directly guide our translational approach including analysis of patient samples to probe for mechanistic signals of T cell activation, expansion and acquisition of effector function for tumor-target killing. Harnessing immune specificity while avoiding collateral damage is a significant challenge in the area of cancer immunotherapy, and we believe rational protein engineering, as applied in the Immuno-STAT biologic framework, can be deployed to circumvent these impediments."

With the IND acceptance, Cue Biopharma earns a $2.5 million milestone payment from LG Chem Life Sciences, the life sciences division of LG Chem Ltd., as part of their licensing agreement to develop multiple Immuno-STAT biologics focused in the field of oncology.

About Human Papilloma Virus (HPV)
HPV cancers account for more than 20,000 deaths each year in the U.S. and Europe. The majority of these cancers are driven by HPV 16 which carries the E7 antigen targeted by CUE-101. Despite treatment with current standards of care, approximately 50 percent of patients with advanced disease will experience recurrence and significant quality of life impact. Patients with HPV-related head and neck, cervical and genitoanal cancers represent an important clinical need and underscore the opportunity for promising new therapeutics.

About CUE-100 Framework
Product candidates developed within the CUE-100 framework are designed to selectively target tumor-specific T cells with interleukin 2 (IL-2), which is critical to the activation, expansion and survival of T cells. Cue Biopharma has exploited rational protein engineering to develop a biologic framework that incorporates peptide-MHC complexes (pMHC), to target T cell receptors (TCRs), along with selective deployment of the IL-2 signal. The binding affinity of IL-2 for its receptor has been attenuated to achieve preferential selective activation of tumor specific T cells without broad systemic activation, potentially mitigating the dose-limiting toxicities associated with current IL-2-based therapies.

The lead program from the CUE-100 framework, CUE-101, contains IL-2 and a pMHC composed of HLA-A*02:01 complexed with a dominant peptide derived from the human papilloma virus E7 protein (HPV-E7). The drug is a fusion protein biologic designed to target and activate antigen-specific T cells to attack HPV-driven cancers.

About Immuno-STATs
Immuno-STAT Biologics are designed for targeted modulation of disease-associated T cells in the areas of immuno-oncology, autoimmune and chronic infectious disease. Each of our biologic drugs is designed using our proprietary scaffold comprising: 1) a peptide-MHC complex (pMHC) to provide selectivity through the pMHC T-cell receptor (TCR) interaction, and 2) a unique co-stimulatory signaling molecule to modulate the activity of the target T cells.

The simultaneous engagement of co-stimulatory molecules and pMHC binding mimics the signals delivered by antigen presenting cells (APCs) to T cells during a natural immune response. This design enables Immuno-STAT Biologics to engage with the T cell population of interest, resulting in

highly targeted T cell modulation. Because our drugs are delivered in vivo, they are fundamentally different from other T cell therapeutic approaches such as Adoptive Cell Therapy (ACT), which require the patients' T cells to be extracted, then stimulated and expanded outside the body (ex vivo) and reinfused in an activated state.

About Cue Biopharma
Cue Biopharma is an innovative clinical stage immunotherapy company developing a novel, proprietary class of biologics engineered to selectively modulate the human immune system to treat a broad range of cancers, autoimmune and chronic infectious diseases. We design biologics to engage and modulate the activity of disease-associated T cells in the patient's body, with the goal of offering significant therapeutic benefits while potentially minimizing or eliminating unwanted side effects.

We believe our selective biologics allow us to target antigen-specific T cell populations in a variety of indications using a peptide – MHC complex for delivering T cell modulating effectors, such as IL-2. Once a biologic has been optimized, our approach offers the potential for readily exchanging peptides to target different T cell populations and indications using previously-validated drug frameworks developed from the Immuno-STAT™ *(Selective Targeting and Alteration of T cells)* platform. This flexibility could truncate the drug selection and development process, moving effective therapeutics from discovery to clinical validation more rapidly and cost-efficiently than current industry standards.

Headquartered in Cambridge, MA, we are led by an experienced management team and independent Board of Directors with deep expertise in the design and clinical development of protein biologics, immunology and immuno-oncology.

For more information, visit www.cuebio.com.

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, that are intended to be covered by the "safe harbor" created by those sections. Forward-looking statements, which are based on certain assumptions and describe our future plans, strategies and expectations, can generally be identified by the use of forward-looking terms such as "believe," "expect," "may," "will," "should," "would," "could," "seek," "intend," "plan," "goal," "project," "estimate," "anticipate," "strategy," "future," "likely" or other comparable terms. All statements other than statements of historical facts included in this press release regarding our strategies, prospects, financial condition, operations, costs, plans and objectives are forward-looking statements. Examples of forward-looking statements include, among others, statements we make regarding anticipated results of our drug development efforts, including study results, our expectations regarding regulatory developments and expected future operating results. Forward-looking statements are neither historical facts nor assurances of future performance. Instead, they are based only on our current beliefs, expectations and assumptions regarding the future of our business, future plans and strategies, projections, anticipated events and trends, the economy and other future conditions. Because forward-looking statements relate to the future, they are subject to inherent uncertainties, risks and changes in circumstances that are difficult to predict and many of which are outside of our control. Our actual results and financial condition may differ materially from those indicated in the forward-looking statements. Therefore, you should not rely on any of these forward-looking statements. Important factors that could cause our actual results and financial condition to differ materially from those indicated in the forward-looking statements include, among others, our limited operating history, limited cash and a history of losses; our ability to achieve profitability; our ability to secure required U.S. Food and Drug Administration ("FDA") or other governmental approvals for our product candidates and the breadth of any approved indication; negative or inconclusive results from our clinical studies or serious and unexpected drug-related side effects or other safety issues experienced by participants in our clinical trials; delays and changes in regulatory requirements, policy and guidelines including potential delays in submitting required regulatory applications to the FDA; our reliance on licensors, collaborations and strategic alliances; our ability to obtain adequate financing to fund our business operations in the future; and the other risks and uncertainties described in the Risk Factors and in Management's Discussion and Analysis of Financial Condition and Results of Operations sections of our most recently filed Annual Report on Form 10-K and any subsequently filed Quarterly Report(s) on Form 10-Q. Any forward-looking statement made by us in this press release is based only on information currently available to us and speaks only as of the date on which it is made. We undertake no obligation to publicly update any forward-looking statement, whether written or oral, that may be made from time to time, whether as a result of new information, future developments or otherwise.

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