Ziopharm Oncology Presents Pre-Clinical Data Validating “Rapid Personalized Manufacture” (RPM) with TCR at the 2019 American Society for Hematology Annual Meeting

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– Membrane bound IL-15 (mbIL15) improves anti-tumor effect of TCR-modified T cells –

– T cells expressing T-cell receptor (TCR) and mbIL15 can be infused day after gene transfer –

BOSTON, Dec. 08, 2019 (GLOBE NEWSWIRE) -- Ziopharm Oncology, Inc. (“Ziopharm” or the “Company”) (Nasdaq:ZIOP), today announced the presentation of pre-clinical data of Rapid Personalized Manufacture (RPM), in the “Adoptive Immunotherapy: Mechanisms and New Approaches” session at the 2019 American Society of Hematology (ASH) Annual Meeting in Orlando.

“These pre-clinical data demonstrate that T cells genetically modified using DNA plasmids from the *Sleeping Beauty* system to express TCR with membrane bound IL-15 (mbIL15) exhibit anti-tumor effects,” said Drew Deniger, Ph.D., leader of Ziopharm’s TCR program. “These data build on our approach to reduce the cost and complexity of T-cell therapies. We have previously demonstrated that mbIL15 can be combined with a CD19-specific chimeric antigen receptor (CAR) to shorten the time to generate clinical-grade T cells and an IND is cleared to evaluate this RPM technology.”

Data were presented today in the poster presentation *“Rapid Personalized Manufacture (RPM) of Sleeping Beauty System-generated NY-ESO-1-specific TCR-T Cells Co-Expressing Membrane-bound IL-15 Yields Antitumor Responses”* and demonstrated:

- T cells can be genetically modified with the *Sleeping Beauty* system to express TCR and mbIL15;
- T cells expressing TCR and mbIL15 exhibited superior anti-tumor effects compared with TCR-modified T cells without mbIL15;
- T cells expressing TCR and mbIL15 are infused the day after gene transfer per RPM;
- Low-dose of T cells genetically modified per RPM to express TCR and mbIL15 exhibit anti-tumor effects;
- T cells expressing TCR and mbIL15 persist in mouse model.

This proof-of-concept study, reported today at ASH, targets a well-understood antigen (NY-ESO-1) which supports using DNA plasmids from the *Sleeping Beauty* platform to express TCRs with mbIL15 to improve the manufacture of T cells with specificity for neoantigens. The Company announced in October 2019 a new research and development agreement with MD Anderson Cancer Center relating to Ziopharm’s *Sleeping Beauty* immunotherapy program to use non-viral gene transfer to stably express and clinically evaluate neoantigen-specific TCRs in T cells. This agreement, along with the license of TCRs targeting neoantigens in three hotspots from the National Cancer Institute in May 2019, provide the Company with a platform to launch clinical trials utilizing TCRs from the library specific for hotspot mutations and personalized TCRs targeting patient-specific neoantigens.

Learn more about the *Sleeping Beauty* system online at https://ziopharm.com/t-cell-therapy/tcrs-for-solid-tumors/. The poster presented at the ASH 2019 Annual Meeting will be available on the Company’s website in the “Scientific and Medical Publications” section.

About Ziopharm Oncology, Inc.
Ziopharm Oncology is an immuno-oncology company focused on developing end-to-end cost-effective solutions using its non-viral *Sleeping Beauty* platform for TCR and CAR T-cell therapies and immune-stimulating gene therapy with Controlled interleukin 12 (IL-12). The *Sleeping Beauty* platform genetically modifies T cells with DNA plasmids to express TCRs to target neoantigens inside and outside hotspots for solid tumors and CAR to target CD19 for blood cancers using the Company’s RPM to produce and release CAR-T as soon as the day after gene transfer. The *Sleeping Beauty* platform is being advanced in collaboration with the National Cancer Institute, The University of Texas MD Anderson Cancer Center and Eden BioCell. The Company is also developing its Controlled IL-12 platform, or Ad-RTS-hIL-12 plus veledimex, as monotherapy and in combination with immune checkpoint inhibitors to treat brain cancer, including in collaboration with Regeneron Pharmaceuticals.

Forward-Looking Statements
This news release contains forward-looking statements as defined in the Private Securities Litigation Reform Act of 1995, as amended. Forward-looking statements are statements that are not historical facts, and in some cases can be identified by terms such as "may," "will," "could," "expects," "plans," "anticipates," and "believes." These statements include, but are not limited to, statements regarding the activities and benefits of the collaboration between the Company and MD Anderson, including the Company’s expectations regarding future clinical trials, the potential benefits of T cells expressing TCR with mbIL15 and the progress and timing of the Company's research and development programs. Although Ziopharm’s management team believes that the expectations reflected in such forward-looking statements are reasonable, investors are cautioned that forward-looking information and statements are subject to various risks and uncertainties, many of which are difficult to predict and generally beyond the control of Ziopharm, that could cause actual results and developments to differ materially from those expressed in, or implied or projected by, the forward-looking information and statements. These risks and uncertainties include among other things, changes in our operating plans that may

impact our cash expenditures, the uncertainties inherent in research and development, future clinical data and analysis, including whether any of Ziopharm's product candidates will advance further in the preclinical research or clinical trial process, including receiving clearance from the U.S. Food and Drug Administration or equivalent foreign regulatory agencies to conduct clinical trials and whether and when, if at all, they will receive final approval from the U.S. FDA or equivalent foreign regulatory agencies and for which indication; the strength and enforceability of Ziopharm's intellectual property rights; competition from other pharmaceutical and biotechnology companies as well as risk factors discussed or identified in the public filings with the Securities and Exchange Commission made by Ziopharm, including those risks and uncertainties listed in Ziopharm's most recent Quarterly Report on Form 10-Q filed by Ziopharm with the Securities and Exchange Commission. We are providing this information as of the date of this press release, and Ziopharm does not undertake any obligation to update or revise the information contained in this press release whether as a result of new information, future events or any other reason.

Contact for Ziopharm Oncology:
Chris Taylor
VP, Investor Relations and Corporate Communications
617-502-1881
ctaylor@ziopharm.com

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