Oncorus Reports Initial Safety, Tolerability, Immune Activation and Positive Clinical Response Data from its Ongoing Phase 1 Clinical Study of ONCR-177, its Lead Viral Immunotherapy Candidate, at SITC 2021

November 12, 2021

- ONCR-177 was well tolerated with no dose-limiting toxicities in the surface lesion dose escalation part of the first-in-human study in heavily pretreated patients with advanced, injectable solid tumors
- Recommended Phase 2 dose (RP2D) selected and expansion monotherapy cohort dosing is underway
- Three of eight evaluable patients at RP2D across multiple indications (cutaneous melanoma, head and neck cancer, and mucosal melanoma) experienced clinical benefit after two doses of single-agent ONCR-177
- Proof of principle established for propriety Herpes Simplex Virus (HSV) platform that leverages microRNA attenuation to enable interferon resistance via retention of γ34.5 and five complementary immunomodulatory payloads
- Planned upcoming data readouts: additional surface lesion monotherapy expansion in mid-2022; initial surface lesion combination ONCR-177 + KEYTRUDA® (pembrolizumab) expansion and visceral (hepatic) lesion monotherapy dose escalation in late 2022
- Company to host conference call and live webcast at 8:30 a.m. ET today

CAMBRIDGE, Mass., Nov. 12, 2021 (GLOBE NEWSWIRE) -- Oncorus, Inc. (Nasdaq: ONCR), a viral immunotherapy company focused on driving innovation to transform outcomes for cancer patients, today presented initial safety, tolerability and immune activation and clinical response data from its ongoing Phase 1 open-label, multi-center, dose escalation and expansion clinical trial of ONCR-177 at the Society for Immunotherapy of Cancer's (SITC) 36th Annual Meeting, taking place November 12-14th in Washington, D.C. and virtually. In the fully enrolled and completed surface lesion dose escalation part of the Phase 1 study, ONCR-177 was well tolerated with no dose-limiting toxicities. In addition, three of eight evaluable patients at RP2D (as of a November 8, 2021 data cut-off) with cutaneous melanoma, squamous cell carcinoma of the head and neck (SCCHN), and mucosal melanoma, experienced clinical benefit after two doses of ONCR-177. ONCR-177, Oncorus' lead oncolytic HSV product candidate, is an intratumorally (iTu) administered viral immunotherapy being developed for multiple solid tumor indications.

"I'm encouraged by the findings from the ONCR-177 Phase 1 trial we presented at SITC today," said Jong Chul Park, M.D., Instructor, Harvard Medical School and Assistant in Medicine, Massachusetts General Hospital, and first author on the SITC abstract. "We are evaluating ONCR-177 in heavily pretreated cancer patients with advanced disease and no available standard of care. I'm impressed by the overall favorable safety and tolerability profile of ONCR-177 observed to date and the clinical responses demonstrated in some patients after only four weeks of monotherapy treatment. I look forward to enrolling patients in the combination cohort with pembrolizumab with the potential for amplification of clinical benefit."

Oncorus has engineered its proprietary HSV platform to develop improved iTu-administered viral immunotherapies that have the potential to enhance potency without sacrificing safety, a challenge that has been encountered by earlier-generation programs in this class. ONCR-177 incorporates two innovative, orthogonal safety strategies -- the use of microRNA target sequences and a proprietary mutation engineered in an HSV-1 protein known as UL37 -- to allow for replication only in tumors (Kennedy, *Mol Thera Onco*, 2020). These innovations allow for ONCR-177 to keep its ability to resist interferon challenge, via the retention of γ34.5, which is deleted in other HSV-based viral immunotherapies either on the market or in development today, and to be armed with five immunomodulatory transgenes: IL-12, FLT3L, CCL4, and antagonists of clinically proven immune checkpoints PD-1 and CTLA-4.

Theodore (Ted) Ashburn, M.D., Ph.D., President and CEO of Oncorus, commented, "We are excited by these data as they provide strong proof of concept for our HSV platform. To see clinical benefit in heavily pretreated patients across multiple histologies is a testament to the promise of our platform, of ONCR-177, and of our ability to deliver a potent, multidimensional attack on cancer without sacrificing safety, thanks to our novel engineering. Furthermore, these data also support the development of ONCR-GBM, our HSV preclinical candidate being developed to specifically treat brain tumors, including glioblastoma multiforme, as well as potential future HSV programs. With several important milestones slated for 2022, we look forward to continuing to provide updates on ONCR-177 and the rest of our pipeline."

ONCR-177 Phase 1 Trial Design

The Phase 1 clinical trial is designed to evaluate the safety, tolerability and initial efficacy of ONCR-177 administered alone and in combination with Merck's anti-PD-1 therapy, KEYTRUDA, in patients with advanced and/or refractory cutaneous, subcutaneous or metastatic nodal solid tumors or with liver metastases of solid tumors. The trial is composed of four primary parts:

- Part 1: surface lesion dose escalation (to determine RP2D) and tissue-specific dose expansion monotherapy, including breast cancer, melanoma, non-melanoma skin cancer, and head and neck cancer expansion cohorts;
- Part 2: surface lesion dose expansion combination with KEYTRUDA;
- Part 3: visceral injection into liver metastases dose escalation (to determine RP2D) and dose expansion monotherapy; and
- Part 4: visceral injection dose expansion combination therapy with pembrolizumab.

Key safety and exploratory biomarkers include ONCR-177 detection in skin swabs, anti-HSV-1 antibodies, ONCR-177 payloads in blood, peripheral inflammatory cytokines, immune infiltration of the tumor and PD-L1 immunohistochemistry, or IHC, expression.

Phase 1 Initial Safety and Efficacy Results

Today, Oncorus presented preliminary findings at SITC from Part 1 of the trial, including the fully enrolled and completed dose escalation cohorts (n=14) and patients enrolled in the dose expansion monotherapy as of a November 1, 2021 data cut-off (n=5).

ONCR-177 administered to heavily pretreated patients with advanced, injectable solid tumors was well-tolerated with no dose-limiting toxicities, and the recommended RP2D was determined to be $4x10^8$ PFU in 4 mL. No treatment-related adverse events exceeded Grade 3, and the most common Grade 1 and 2 adverse events were fatigue, chills, nausea, and mild, dose-dependent cytokine release syndrome, or CRS. No infectious virions were detected in skin swabs, in line with ONCR-177 safety expectations.

Seven heavily pretreated patients have been enrolled to date in the ongoing surface lesion, histology-specific monotherapy expansion cohorts. As of November 1, four of these expansion patients were evaluable at the time of the SITC poster presentation; one patient went off study after a single dose and is not evaluable; two are too early in their treatment course to be evaluable. The four evaluable monotherapy expansion patients are in addition to four evaluable monotherapy escalation patients treated at the RP2D. After four weeks of ONCR-177 monotherapy treatment (two doses) at RP2D, three of these eight evaluable patients (all in the surface lesion monotherapy expansion cohorts) demonstrated clinical benefit as follows:

- Partial response in a patient with cutaneous melanoma as measured by calipers per Response Evaluation Criteria in Solid Tumors (RECIST) 1.1 (surface tumor not measurable by CT scan)
- Investigator-reported clinical response in a squamous cell carcinoma of the head and neck (SCCHN) patient in injected lymph node after four weeks
- Stable disease in a patient with mucosal melanoma as measured by RECIST 1.1 with improvement in cancer-related symptoms

Several findings from the study thus far suggest immune stimulation of the tumor microenvironment, including mild, dose-dependent CRS in association with increased interferon-γ (IFN-γ) and T cell proliferation in blood, as well evidence of tumor PD-L1 expression and immune cell infiltration.

Oncorus plans to initiate enrollment in the surface lesion dose combination expansion (Part 2) and the visceral lesion dose monotherapy escalation (Part 3) by the end of 2021. The company plans to report additional surface lesion monotherapy expansion data in mid-2022, and initial surface lesion combination expansion data (ONCR-177 + KEYTRUDA®) and visceral lesion monotherapy dose escalation data in late 2022.

For more information on the ongoing Phase 1 study, please visit: https://clinicaltrials.gov/ct2/show/NCT04348916.

Conference Call and Webcast Information
Oncorus will host a conference call and live webcast with slides and Q&A today at 8:30 a.m. ET. Igor Puzanov, M.D., MSCI, FACP, who serves as Director of Center for Early Phase Clinical Trials, Senior Vice President of Clinical Investigation, and Chief of the Melanoma Section, at the Roswell Park Comprehensive Cancer Center in Buffalo, New York, will join Oncorus management for the call. Dr. Puzanov is also participating as an investigator in the ONCR-177 Phase 1 clinical trial.

To participate in the conference call, please dial (833) 614-1530 (domestic) or (520) 809-9930 (international) and refer to conference ID 8556488. A live webcast of the presentation will be available at https://investors.oncorus.com/. A replay of the webcast will be available shortly after the conclusion of the call and archived on the company's website for 30 days following the call.

About Oncorus
At Oncorus, we are focused on driving innovation to deliver next-generation viral immunotherapies to transform outcomes for cancer patients. We are advancing a portfolio of intratumorally (iTu) and intravenously (IV) administered viral immunotherapies for multiple indications with significant unmet need based on our Herpes Simplex Virus (HSV) Platform and Synthetic viral RNA (vRNA) Immunotherapy Platform.

Designed to deliver next-generation viral immunotherapy impact, our HSV Platform improves upon key characteristics of this therapeutic class to enhance systemic activity. Our lead HSV program, ONCR-177, is designed to be directly administered into a tumor, resulting in high local concentrations of the therapeutic agent and its five encoded transgenes, as well as low systemic exposure to the therapy, which could limit systemic toxicities. Our pioneering Synthetic vRNA Immunotherapy Platform involves a highly innovative, novel combination of RNA- and oncolytic virus-based modalities designed to realize the potential of RNA medicines for cancer. Our lead IV-administered Synthetic vRNA Immunotherapy clinical candidates, ONCR-021 and ONCR-788, are both currently in IND-enabling studies.

Please visit www.oncorus.com to learn more.

Cautionary Note Regarding Forward-Looking Statements

This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, as amended, including, without limitation, implied and express statements regarding the clinical development of ONCR-177, including expectations regarding timing for reporting additional data from the ongoing Phase 1 clinical trial, as well as the product candidate's therapeutic potential and clinical benefits and the utility and potential of Oncorus' HSV Platform; expectations regarding data from the ONCR-177 trial providing proof of concept for the HSV Platform generally and other programs therein, including ONCR-GBM; the possibility that additional patients will experience clinical benefits when dosed with ONCR-177 and whether such treatment effects will be amplified when ONCR-177 is dosed in combination with Keytruda; and other early findings with respect to the ONCR-177 clinical trial suggesting broader immune stimulation or being predictive of trial results to come. The words "may," "might," "will," "could," "would," "should," "expect," "plan," "anticipate," "intend," "believe," "expect," "estimate," "seek," "predict," "future," "project," "potential," "continue," "target" and similar words or expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Any forward-looking statements in this press release are based on management's current expectations and beliefs and are subject to a number of risks, uncertainties and important factors that may cause actual events or results to differ materially from those expressed or implied by any forward-looking statements contained in this press release, including, without limitation, risks associated with: the risk that the results of preclinical studies and early results from clinical trials may not be predictive of future clinical trial results; the impact of COVID-19 on Oncorus' operations and the timing and anticipated results of its ongoing and planned clinical trials; Oncorus' ability to successfully demonstrate the

safety, tolerability and efficacy of ONCR-177, ONCR-021 and ONCR-788, or any future product candidates, and obtain regulatory approval thereof; Oncorus' ability to obtain the requisite components for its product candidates manufactured in accordance with regulatory requirements; the expansion of Oncorus' in-house manufacturing capabilities; the adequacy of Oncorus' cash resources and availability of financing on commercially reasonable terms; and Oncorus' ability to obtain, maintain and protect its intellectual property. These and other risks and uncertainties are described in greater detail in the section entitled "Risk Factors" in Oncorus' Annual Report on Form 10-K for the year ended December 31, 2020, filed with the Securities and Exchange Commission on March 10, 2021, as well as discussions of potential risks, uncertainties, and other important factors in the other filings that Oncorus makes with the Securities and Exchange Commission from time to time. These documents are available under the "SEC filings" page of the Investors section of Oncorus' website at http://investors.oncorus.com. Any forward-looking statements represent Oncorus' views only as of the date of this press release and should not be relied upon as representing its views as of any subsequent date. Oncorus explicitly disclaims any obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise. No representations or warranties (expressed or implied) are made about the accuracy of any such forward-looking statements.

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