HOOKIPA Interim Phase 1 Monotherapy Data of HB-201 for the Treatment of Advanced HPV16+ Cancers Shows Promising Anti-Tumor Activity and Favorable Tolerability

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- Results support first proof of concept for HOOKIPA's replicating investigational single-vector immunotherapy in oncology
- Data demonstrate responses and stable disease in some head and neck cancer patients who all received at least two prior therapies and progressed on a PD1 inhibitor
- By targeting an antigen common to Human Papillomavirus 16-positive (HPV16$^+$), HB-201 has the potential to be a tumor-agnostic therapy for all HPV16$^+$ cancers

NEW YORK and VIENNA, Austria, Dec. 07, 2020 (GLOBE NEWSWIRE) -- HOOKIPA Pharma Inc. (NASDAQ: HOOK, 'HOOKIPA'), a company developing a new class of immunotherapeutics based on its proprietary arenavirus platform, today announced positive interim Phase 1 data on HB-201, its replicating monotherapy for the treatment of HPV16$^+$ cancers. The results are from the initial dose escalation cohorts of an ongoing Phase 1/2 clinical trial (NCT04180215) evaluating HB- 201 as therapy for patients with advanced HPV16$^+$ metastatic cancers. HOOKIPA will host a conference call and live audio webcast today at 8:30am EST.

These interim data support proof of concept for HB-201 monotherapy as a new immunotherapy for a difficult-to-treat patient population with multiple prior treatment failures. As of December 4, 2020, 22 patients have been enrolled in the first two cohorts, of which 15 were eligible for evaluation. Among the 15 evaluable patients, 11 patients had relapsed/refractory metastatic squamous cell head and neck cancer (HNSCC), all of whom had progressed on prior therapy with a PD1 inhibitor. As per RECIST1.1, in patients with third-line or later HNSCC, HB-201 demonstrated an unconfirmed response rate of 18% (one unconfirmed complete responder and one unconfirmed partial responder) and a 73% disease control rate (six stable disease patients, in addition to the two unconfirmed responses referenced above).

Median progression-free survival (mPFS) is currently measured at 72 days and is ongoing. Although not demonstrated in a head-to-head trial, these HB-201 results, in more heavily treated patients who progressed on a PD1 inhibitor, compare favorably to the benchmark data of a 13% overall response rate and a 60-day mPFS[1] for nivolumab in second-line PD1 inhibitor naïve HNSCC patients, based on data published from the third-party registrational study.

Encouraging efficacy signals were also seen in the more heterogeneous group of all 15 evaluable patients with HPV16$^+$ cancers treated in this trial, comprised of the 11 HNSCC patients summarized above and four other patients with HPV16$^+$ cervical, anal, or vaginal tumors. In these 15 patients, HB-201 demonstrated an unconfirmed response rate of 13%, a disease control rate of 67%, and a median PFS that is also ongoing and currently measured at 72 days.

"We are thrilled by these preliminary HB-201 data, as they show the potential of our arenavirus platform in oncology and represent future possible therapeutic options for patients with HPV16$^+$ cancers," said Joern Aldag, Chief Executive Officer of HOOKIPA. "The early response with our single-vector HB-201 therapy highlights the potential of our replicating technology, especially as we explore alternating two-vector therapy with HB-201/HB-202, and a future combination with a PD-1 inhibitor, both of which we hope will deliver even greater responses."

Of the 22 patients enrolled on the trial as of December 4th, preliminary safety data show that HB-201 has been well tolerated. Treatment-related adverse events were reported by 41% of participants. Almost all reported events were Grade 1 and 2 and included fatigue, fever, decreased appetite, constipation, nausea, and itching. Only one serious adverse event deemed related to HB-201, Grade 3 fatigue leading to hospitalization, has been reported to date. The rate of adverse events was consistent regardless of administration route.

"There remains a considerable unmet need in the treatment of HPV16$^+$ cancers, particularly those in head and neck, and these preliminary data on HB-201 as a monotherapy are encouraging," said Alan L. Ho, MD, PhD, a medical oncologist at Memorial Sloan Kettering Cancer Center and an investigator on the trial.

About the trial

This Phase 1/2 clinical trial is an open-label dose-escalation and dose-expansion trial in individuals with treatment-refractory HPV16$^+$ cancers. The primary endpoint of the Phase 1 trial is a recommended Phase 2 dose based on safety and tolerability. Secondary endpoints include anti-tumor activity as defined by RECIST 1.1, immunogenicity, safety, and tolerability.

The trial is designed to evaluate different dose levels of HB-201 as a single-vector therapy, as an alternating two-vector therapy together with HB-202, and in combination with a PD-1 inhibitor. Dosing frequencies of every three weeks and every two weeks are being explored during dose escalation**.**

Since the trial opened in December 2019, 22 patients with metastatic HPV16$^+$ tumors have been enrolled in the HB-201 monotherapy segment: 17 with squamous cell head and neck tumors, two with cervical, one with nasopharyngeal, one with anal, and one with vaginal. Patients had received at least two prior therapies, and most patients progressed on a PD-1 inhibitor, a platinum-containing regimen or both. Enrollment is ongoing and HOOKIPA expects to share additional interim clinical data from the HB-201/HB-202 alternating two-vector therapy segment in mid-2021.

About HB-201/HB-202
HB-201 and HB-202 are engineered using HOOKIPA's replicating arenaviral vector platform. They are designed to use different arenavirus backbones (LCMV for HB- 201 and PICV for HB-202), while expressing the same antigen, an E7/E6 fusion protein derived from HPV16. In pre-clinical studies, alternating administration of HB-202 and HB-201 resulted in a ten-fold increase in immune response and better disease control than either compound alone.

Conference call
HOOKIPA will host a conference call and live audio webcast today at 8:30am EST to discuss the HB-201 monotherapy data from the interim analysis of the Phase 1 trial. To access the conference call, please dial +1 877 870 9135 (from the US) or +44 2071 928338 (international) and refer to conference ID 9747865. The webcast and the presentation will be available within the Investors & Media section of HOOKIPA's website at https://ir.hookipapharma.com/events. An archived replay will be accessible for 30 days following the event.

About Human Papillomavirus
Human Papillomavirus, or HPV, is estimated to cause about 5 percent of the worldwide burden of cancers. This includes approximately 99 percent of cases in cervical, up to 60 percent of head and neck, 70 percent of vaginal and 88 percent of anal cancers.

The majority of these cancers are caused by the HPV serotype 16. Most infections with HPV are cleared from the body with no lasting consequences. However, in some cases, HPV DNA becomes integrated into chromosomal DNA. When host cells take up this DNA, they express the HPV E6 and E7 proteins. This uptake can potentially lead to cancer since expression of these proteins leads to alterations in cell cycle control, which in turn predisposes these cells to become cancerous.

About HOOKIPA
HOOKIPA Pharma Inc. (NASDAQ: HOOK) is a clinical stage biopharmaceutical company developing a new class of immunotherapeutics based on its proprietary arenavirus platform that reprograms the body's immune system. HOOKIPA's proprietary arenavirus-based technologies, non-replicating (VaxWave®) and replicating (TheraT®), are designed to induce robust antigen-specific CD8+ T cells and pathogen-neutralizing antibodies. HOOKIPA's viral vectors target antigen presenting cells in vivo to activate the immune system. Both technologies enable repeat administration to augment and refresh immune responses. As a monotherapy, HOOKIPA's replicating arenavirus technology has the potential to induce CD8+ T cell response levels previously not achieved by other immuno-therapy approaches.

HOOKIPA's non-replicating prophylactic cytomegalovirus (CMV) vaccine candidate is currently in a Phase 2 clinical trial for patients awaiting kidney transplantation. To expand its infectious disease portfolio, HOOKIPA entered into a collaboration and licensing agreement with Gilead Sciences, Inc. to research arenavirus-based functional cures for HIV and chronic Hepatitis B infections.

In addition, HOOKIPA is building a proprietary immuno-oncology pipeline by targeting virally mediated cancer antigens, self-antigens, and next-generation antigens. The lead replicating arenavirus oncology product candidates, HB-201 and HB-202, are in development for the treatment of Human Papilloma Virus 16-positive cancers in a Phase 1/2 clinical trial.

Find out more about HOOKIPA online at www.hookipapharma.com.

HOOKIPA Forward Looking Statements
Certain statements set forth in this press release constitute "forward-looking" statements within the meaning of the Private Securities Litigation Reform Act of 1995, as amended. Forward-looking statements can be identified by terms such as "believes," "expects," "plans," "potential," "would" or similar expressions and the negative of those terms. Such forward-looking statements involve substantial risks and uncertainties that could cause HOOKIPA's research and clinical development programs, future results, performance or achievements to differ significantly from those expressed or implied by the forward-looking statements. Such risks and uncertainties include, among others, the uncertainties inherent in the drug development process, including HOOKIPA's programs' early stage of development, the process of designing and conducting preclinical and clinical trials, the regulatory approval processes, the timing of regulatory filings, the challenges associated with manufacturing drug products, HOOKIPA's ability to successfully establish, protect and defend its intellectual property, risks relating to business interruptions resulting from the coronavirus (COVID-19) disease outbreak or similar public health crises, the impact of COVID-19 on the enrollment of patients and timing of clinical results for HB-101 and other programs, and other matters that could affect the sufficiency of existing cash to fund operations and HOOKIPA's ability to achieve the milestones under the agreement with Gilead. HOOKIPA undertakes no obligation to update or revise any forward-looking statements. For a further description of the risks and uncertainties that could cause actual results to differ from those expressed in these forward-looking statements, as well as risks relating to the business of the company in general, see HOOKIPA's quarterly report on Form 10-Q for the quarter ended September 30, 2020 which is available on the Security and Exchange Commission's website at www.sec.gov and HOOKIPA's website at www.hookipapharma.com.

Investors and others should note that we announce material financial information to our investors using our investor relations website (https://ir.hookipapharma.com/), SEC filings, press releases, public conference calls and webcasts. We use these channels, as well as social media, to communicate with our members and the public about our company, our services and other issues. It is possible that the information we post on social media could be deemed to be material information. Therefore, we encourage investors, the media, and others interested in our company to review the information we post on the U.S. social media channels listed on our investor relations website.

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[1] Ferris R et al. Nivolumab for recurrent squamous-cell carcinoma of the head and neck. *N Engl J Med*. 2016; 375:1856-1867.