Precision BioSciences Reports Positive Interim Results from PBCAR0191 Phase 1/2a Trial in Relapsed/Refractory (R/R) Non-Hodgkin Lymphoma (NHL) and R/R B-cell Acute Lymphoblastic Leukemia (B-ALL)

December 4, 2020 at 6:30 AM EST

Acceptable Tolerability and Safety Profile in 27 Patients with No Graft versus Host Disease (GvHD), No Grade ≥ 3 Cytokine Release Syndrome (CRS), and No Grade ≥ 3 Neurotoxicity (ICANS)

PBCAR0191 Demonstrated Longest Durability of Response to 11 months in B-ALL

PBCAR0191 with Enhanced Lymphodepletion Resulted in Objective Response Rate (ORR) of 83% (5/6) in NHL and B-ALL

- 75% (3/4) of NHL Patients had Complete Response (CR) at ≥ Day 28

- Peak CAR T Cell Expansion Increased Approximately 95X in NHL Patients Relative to Standard Lymphodepletion

Completed Preclinical Work for PBCAR19B, Next Generation CD19 "Stealth Cell" Candidate; Expect to Enter Clinical Trials in 2021

Company to Host Webcast today at 8:00 a.m. ET

DURHAM, N.C., Dec. 04, 2020 (GLOBE NEWSWIRE) -- Precision BioSciences, Inc. (Nasdaq: DTIL) a clinical stage biotechnology company dedicated to improving life with its novel and proprietary ARCUS® genome editing platform, today announced positive interim clinical results from its Phase 1/2a study of PBCAR0191, the Company's off-the-shelf allogeneic CAR T cell therapy investigational candidate targeting CD19. As of the November 16, 2020 cutoff, 27 patients including 16 patients with aggressive NHL and 11 patients with aggressive B-ALL were enrolled and evaluated.

"We're very proud to share the latest update to our PBCAR0191 study. PBCAR0191, when combined with enhanced lymphodepletion resulted in a high objective response rate of 83% across enrolled NHL and B-ALL patients including those that previously received autologous CAR T therapy or stem cell transplants," said Matt Kane, CEO and Co-Founder of Precision BioSciences. "We believe that this data set represents an important and meaningful step forward in the development of allogeneic CAR T therapies and establishes Precision BioSciences as a leader in the field."

"I am extremely encouraged by what we have observed in this Phase I clinical trial of PBCAR0191. The data answered multiple questions associated with allogeneic cell therapies, including having seen no cases of GvHD. In the enhanced lymphodepletion arm, we observed the highest complete response rate seen to date in R/R aggressive NHL with an allogeneic product," said Bijal Shah, M.D., Associate Professor, Malignant Hematology Department, H. Lee Moffitt Cancer Center and Research Institute. "As a result, I am encouraged that the interim data from the PBCAR0191 Phase 1 trial is a meaningful step toward the goal of an off-the-shelf CAR T product that could help patients immediately, when they need it most."

Trial Design
Interim data from the Phase 1/2a study of PBCAR0191 includes data from 27 patients: 16 patients with R/R NHL and 11 patients with R/R B-ALL from multiple dose levels. In the NHL cohort, 100% of patients had aggressive lymphomas, 81% had stage III/IV disease, 63% had four or more courses of prior treatment and 25% had prior autologous CAR T. In the B-ALL cohort, 55% of patients had >20% blasts burden at baseline, 82% had 4+ courses of prior treatment and 45% had prior allogeneic stem cell transplant.

PBCAR0191 treatment at dose level (DL) 1 ($3x10^5$ cells), DL2 ($1x10^6$ cells), DL3 ($3x10^6$ cells) and split dose DL4 (2 doses at $3x10^6$ cells) employed a single standard lymphodepletion (sLD) consisting of fludarabine (30 mg/m^2/day for 3 days) plus cyclophosphamide (500 mg/m^2/day for 3 days). PBCAR0191 was also dosed in an Enhanced Lymphodepletion Regimen consisting of PBCAR0191 cells at DL3 (n=5) or DL4 (n=1) plus fludarabine (30 mg/m^2/day for 4 days) and cyclophosphamide (1000 mg/m^2/day for 3 days).

For this study, in which patients received either sLD or eLD, response rates across R/R NHL and R/R B-ALL patient cohorts were as follows:

- 83% ORR at day 28 or later for patients across NHL (n=4) and B-ALL (n=2) who received PBCAR0191 when coupled with enhanced lymphodepletion.
- At day 28 or later, 75% (3/4) of NHL patients who received PBCAR0191 with enhanced lymphodepletion achieved a CR. Meanwhile, 33% of NHL patients (n=9) across DL2 and DL3 using standard lymphodepletion achieved a CR.
- The longest demonstrated response was > 11 months in a B-ALL patient at DL2.

Response Rates at Day ≥28	*NHL (n=16)*		*B-ALL (n=11)*	
	ORR	***CR***	***ORR***	***CR***
DL1 ($3x10^5$ cells) + sLD	*67% (2/3)*	*0% (0/3)*	-	-
DL2 ($1x10^6$ cells) + sLD	*67% (2/3)*	*33% (1/3)*	*33% (1/3)*	*33% (1/3)*

DL3 (3x10^6 cells) + sLD	*50% (3/6)*	*33% (2/6)*	*25% (1/4)*	*25% (1/4)*
DL4 (2 doses at 3x10^6 cells) + sLD	*-*	*-*	*50% (1/2)*	*50% (1/2)*
Enhanced LD Regimen	*100% (4/4)*	*75% (3/4)*	*50% (1/2)*	*50% (1/2)*

PBCAR0191, which incorporates Precision's patented N6 co-stimulatory domain, demonstrated a clear dose dependent increase in peak cell expansion. Compared to sLD, eLD with PBCAR0191 at DL3 resulted in approximately 95-fold increase in peak cell expansion, and approximately 45-fold increase in area under the curve. This was associated with a higher complete response rate in NHL (75%).

Safety and Tolerability
In this dose escalation and dose expansion study, PBCAR0191 had an acceptable safety profile with no cases of GvHD, no cases of Grade ≥ 3 CRS, and no cases of Grade ≥ 3 ICANS.

One NHL patient who was treated with PBCAR0191 and eLD had previously received nine prior lines of therapy before entering the trial. The patient presented with persistent cytopenias at baseline and a history of infections, including bacterial sepsis. The patient had an episode of sepsis at day 27 which appeared to have resolved at day 33, following which a partial response was achieved at day 34. Unfortunately, the patient died at day 42 with grade 5 sepsis.

"We are rapidly leveraging learnings from this study and enrolling more patients into our enhance lymphodepletion regimen. In parallel, we continue to evaluate higher cell doses, repeat dosing and other novel methods to further optimize our dosing strategy," said Chris Heery, Chief Medical Officer at Precision BioSciences. "We also plan to pursue clinical development of PBCAR19B, our CD19 Stealth Cell candidate, which has shown to delay both T cell and natural killer cell mediated allogeneic rejection in vitro. We believe this is likely to result in improved persistence of allogeneic CAR T cells. We expect to move PBCAR19B into the clinic in 2021."

Company-Hosted Conference Call and Web Cast Information
Precision will host a conference call and webcast today, December 4, 2020 at 8:00 a.m. ET to discuss the updated interim clinical data and the learnings for PBCAR0191 from both the NHL and B-ALL cohorts of this trial, as well as PBCAR19B. The dial-in conference call numbers for domestic and international callers are (866) 996-7202 and (270) 215-9609, respectively. The conference ID number for the call is 6368255. Participants may access the live webcast and the accompanying presentation materials on Precision's website https://investor.precisionbiosciences.com/events-and-presentations in the Investors and Media section under Events and Presentations. An archived replay of the webcast will be available on Precision's website.

About Precision BioSciences, Inc.
Precision BioSciences, Inc. is a clinical stage biotechnology company dedicated to improving life (DTIL) with its novel and proprietary ARCUS® genome editing platform. ARCUS is a highly specific and versatile genome editing platform that was designed with therapeutic safety, delivery, and control in mind. Using ARCUS, the Company's pipeline consists of multiple "off-the-shelf" CAR T immunotherapy clinical candidates and several *in vivo* gene correction therapy candidates to cure genetic and infectious diseases where no adequate treatments exist. For more information about Precision BioSciences, please visit www.precisionbiosciences.com.

About PBCAR0191
PBCAR0191 is an investigational allogeneic chimeric antigen receptor T cell therapy (CAR T) in Phase 1/2a trials for the treatment of patients with R/R NHL and R/R B-ALL. PBCAR0191 was designed using Precision BioSciences novel and proprietary ARCUS® genome editing platform. It has been granted Fast Track Designation by the FDA for B-ALL. Precision also holds Orphan Drug Designation from the FDA for this program in mantle cell lymphoma, an aggressive subtype of NHL. PBCAR0191 is being developed in collaboration with Servier.

About Precision's Collaboration with Servier
Under the terms of the agreement with Servier, Precision is solely responsible for early-stage research activities as well as PBCAR0191 Phase 1/2a clinical trial execution and clinical supply. Servier has the exclusive right to opt in for late-stage development and commercialization, and Precision has the right to participate in the development and commercialization of any licensed products resulting from the collaboration through a 50/50 co-development and co-promotion option in the United States.

Forward-Looking Statements
This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. All statements contained in this press release that do not relate to matters of historical fact should be considered forward-looking statements, including, without limitation, statements regarding the expected timing of clinical updates and interim data reports related to PBCAR0191 and the commencement of clinical studies for PBCAR19B. In some cases, you can identify forward-looking statements by terms such as "aim," "anticipate," "believe," "could," "expect," "should," "plan," "intend," "estimate," "target," "mission," "goal," "may," "will," "would," "should," "could," "target," "potential," "project," "predict," "contemplate," "potential," or the negative thereof and similar words and expressions.

Forward-looking statements are based on management's current expectations, beliefs and assumptions and on information currently available to us. Such statements are subject to a number of known and unknown risks, uncertainties and assumptions, and actual results may differ materially from those expressed or implied in the forward-looking statements due to various important factors, including, but not limited to: our ability to become profitable; our ability to procure sufficient funding and requirements under our current debt instruments and effects of restrictions thereunder; risks associated with raising additional capital; our operating expenses and our ability to predict what those expenses will be; our limited operating history; the success of our programs and product candidates in which we expend our resources; our limited ability or inability to assess the safety and efficacy of our product candidates; our dependence on our ARCUS technology; the initiation, cost, timing, progress, achievement of milestones and results of research and development activities, preclinical or greenhouse studies and clinical or field trials; public perception about genome editing technology and its applications; competition in the genome editing, biopharmaceutical, biotechnology and agricultural biotechnology fields; our or our collaborators' ability to identify, develop and commercialize product candidates; pending and potential liability lawsuits and penalties against us or our collaborators related to our technology and our product candidates; the U.S. and foreign regulatory landscape applicable to our and our collaborators' development of product candidates; our or our collaborators' ability to obtain and maintain regulatory approval of our product candidates, and any related restrictions, limitations and/or warnings in the label of an approved product candidate; our or our collaborators' ability to advance product candidates into, and successfully design, implement and complete, clinical or field trials; potential manufacturing problems associated with the development or commercialization of any of our product candidates; our ability to obtain an adequate supply of T cells from qualified donors; our ability

to achieve our anticipated operating efficiencies at our manufacturing facility; delays or difficulties in our and our collaborators' ability to enroll patients; changes in interim "top-line" and initial data that we announce or publish; if our product candidates do not work as intended or cause undesirable side effects; risks associated with applicable healthcare, data protection, privacy and security regulations and our compliance therewith; the rate and degree of market acceptance of any of our product candidates; the success of our existing collaboration agreements, and our ability to enter into new collaboration arrangements; our current and future relationships with and reliance on third parties including suppliers and manufacturers; our ability to obtain and maintain intellectual property protection for our technology and any of our product candidates; potential litigation relating to infringement or misappropriation of intellectual property rights; our ability to effectively manage the growth of our operations; our ability to attract, retain, and motivate key executives and personnel; market and economic conditions; effects of system failures and security breaches; effects of natural and manmade disasters, public health emergencies and other natural catastrophic events effects of the outbreak of COVID-19, or any pandemic, epidemic or outbreak of an infectious disease; insurance expenses and exposure to uninsured liabilities; effects of tax rules; risks related to ownership of our common stock and other important factors discussed under the caption "Risk Factors" in our Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2020, as any such factors may be updated from time to time in our other filings with the SEC, which are accessible on the SEC's website at www.sec.gov and the Investors & Media page of our website at investor.precisionbiosciences.com.

All forward-looking statements speak only as of the date of this press release and, except as required by applicable law, we have no obligation to update or revise any forward-looking statements contained herein, whether as a result of any new information, future events, changed circumstances or otherwise.

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