Precision BioSciences Provides Update on Allogeneic CAR T Programs and Path Forward with Its Lead PBCAR0191 Candidate for CAR T Relapsed Patient Population

June 8, 2022

PBCAR0191 Achieved 100% Response Rate (ORR), 73% Complete Response (CR) Rate and 50% Durable Response Greater than Six Months Among Evaluable CAR T Relapsed Subjects

PBCAR0191 Achieved Peak CAR T Cell Expansion Matching Data from Autologous CAR T Peak Expansion in Long Term Durable Responders

PBCAR19B CAR T Cell Manufacturing Optimization Process Completed; Dose Level 2 Expected to Commence in Third Quarter 2022

Ongoing PBCAR269A Program Combined with Gamma Secretase Inhibitor Initiating Dose Level 3

Company to Host Webcast and Conference Call Today at 8:00 AM ET

DURHAM, N.C.--(BUSINESS WIRE)--Jun. 8, 2022-- Precision BioSciences, Inc. (Nasdaq: DTIL) a clinical stage gene editing company developing ARCUS®-based *ex vivo* allogeneic CAR T and *in vivo* gene editing therapies, today announced its latest program updates across its allogeneic CAR T pipeline. The Company provided new clinical data and outlined the opportunity for its lead candidate, PBCAR0191, as a potential first-in-class allogeneic CD19 CAR T for the growing autologous CAR T relapsed patient population with aggressive lymphomas. Precision also shared updates on its PBCAR19B and PBCAR269A candidates in development as potential best-in-class allogeneic CAR T therapies for relapsed/refractory (R/R) patients with non-Hodgkin lymphoma and multiple myeloma, respectively.

“The new interim clinical data we are sharing today from the Phase 1/2a study demonstrated that PBCAR0191 produced high clinical response rates in CAR T relapsed patients who received a median of five prior lines of therapy. Evaluable subjects in the study had 100% ORR, 73% CR rate and 50% durable response rate greater than six months. We believe the data validate the signal we reported at the 2021 American Society of Hematology (ASH) meeting among CAR T relapsed subjects and further supports our potential path forward in this patient population with what we believe is the highest unmet medical need,” said Michael Amoroso, Chief Executive Officer at Precision BioSciences.

“We are encouraged that our in-house manufacturing and clinical teams continue to optimize the PBCAR0191 treatment regimen resulting in a product candidate that could potentially be the first allogeneic CAR T therapy to reach the market. Most importantly, we are optimistic that, if approved, this could potentially help patients with aggressive lymphomas that relapse after CAR T treatment. We believe this data is timely and highly relevant. By 2025 the number of autologous CAR T relapsed patients is expected to grow four- to five-fold based on data from late 2021 that advanced autologous CAR T into the second line diffuse large B-cell lymphoma (DLBCL) setting. Today, patients who relapse after CAR T treatment remain highly underserved with no approved standard of care and a progression free survival of only one to two months,” added Mr. Amoroso.

As of the May 31, 2022 data cutoff, continued positive efficacy results, including high overall and CR rates and duration of response, and an improved adverse event profile have been observed among evaluable CAR T relapsed subjects. This included six subjects who received PBCAR0191 Dose Level (DL) 3[1] with enhanced lymphodepletion - the “ASH Cohort” - and six subjects who received PBCAR0191 DL4b [2] with decreasing lymphodepletion since January 2022 - the “New Cohort.”

Results are as follows:

- **Efficacy across both the ASH and New Cohorts:** Achieved 100% (11/11) ORR and 73% (8/11) CR rate among 11 evaluable subjects. Six subjects remain in ongoing response (up to 18+ months).
- **Duration of response in the ASH Cohort:** 50% (3/6) of evaluable subjects had a response duration greater than six months.
- **Efficacy in the New Cohort:** Among subjects treated with DL4b and reduced intensity lymphodepletion, 100% CR was achieved among evaluable subjects (5/5[3]).
- **Adverse events of special interest comparison between the ASH and New Cohorts:** No Grade 3 or greater cytokine release syndrome (CRS) was observed in either dosing cohort. One Grade 3 immune effector cell-associated neurotoxicity syndrome (ICANS) was recorded in each cohort that rapidly resolved to Grade 1 within 24 to 48 hours. Two Grade 5 events associated with late occurring encephalopathy suspected to be related to fludarabine-associated neurotoxicity occurred in the New Cohort. There was no evidence of graft versus host disease in either cohort.
- **Hematologic recovery comparison between the ASH and New Cohorts:** Grade 3 or greater infections occurred less frequently in the New Cohort with one out of six (17%) subjects compared to four out of six (67%) subjects in the ASH Cohort.

“We are encouraged by the 100% overall and 73% complete response rates as well as durability of response that exceeds the current standard-of-care for this CAR T relapsed patient population who continue to experience poor clinical outcomes. We are also pleased that our manufacturing

process is yielding improved product attributes, which enable us to deploy a lower dose of lymphodepletion in this fragile and heavily pre-treated CAR T relapsed patient population. We believe these improvements contributed to a faster and improved hematologic recovery without compromising efficacy," said Alan List, M.D., Chief Medical Officer at Precision BioSciences. "Importantly, we have achieved a key milestone for allogeneic CAR T therapy. The cell expansion observed with PBCAR0191 cells at DL4b with lower dose lymphodepletion – the New Cohort - matched the median autologous CAR T peak expansion in subjects who achieved a long durable response in the ZUMA-1 trial. We believe this to be a first for allogeneic CAR T therapy studied in any population (earlier lines or more heavily pre-treated)."

"In the second half of this year, we plan to continue dosing subjects with optimized PBCAR0191 in this CAR T relapsed patient population while further reducing the lymphodepletion dose to standard levels with the goal of improving upon overall therapeutic index for these patients in need. We also expect to request a meeting with the FDA to review our data for guidance on a path forward and to provide our next update on PBCAR0191 toward year end," added Dr. List.

PBCAR19B and PBCAR269A with Goal of Potential Best-in Class Allogeneic CAR T Products

PBCAR19B and PBCAR269A allogeneic CAR T clinical programs also continue to progress.

For PBCAR19B, the Company's second generation, anti-CD19 targeting allogeneic CAR T candidate, a flat dose of 270 million cells following standard lymphodepletion (sLD)[4] has been administered to three subjects with R/R DLBCL. Prior to commencing DL2, and as a result of the promising data with PBCAR0191 leading to the expanded cohort (New Cohort), Precision opted to expedite the next round of manufacturing process optimization for PBCAR19B. This manufacturing optimization was implemented in the first quarter of 2022. New clinical trial material is expected to be released and dosing at the next cohort, DL2 (flat dose of 540 million cells), in the third quarter of 2022.

"As we previously announced, we strategically paused dosing in our PBCAR19B program to implement a manufacturing process enhancement suitable for pursuing a best-in-class therapy with the goal of displacing autologous CAR T," continued Dr. List. "We look forward to resuming dosing with our optimized cells in the third quarter of 2022 and expect to provide an update on this program around year end."

For PBCAR269A, Precision has continued to enroll subjects in its PBCAR269A Phase 1/2a study in combination with nirogacestat, a gamma secretase inhibitor (GSI) developed by SpringWorks Therapeutics, in pursuit of an allogeneic alternative to autologous CAR T therapies targeting B-cell maturation antigen (BCMA) for R/R multiple myeloma.

Precision has completed DL2 (2.0×10^6 cells/kg) of PBCAR269A plus GSI and is initiating the next cohort at DL3 to further evaluate efficacy. To date, peak expansion rates observed at DL2 plus the GSI have been equivalent to DL4 (960×10^6 cells flat dose) monotherapy with no dose limiting toxicities observed. The company expects to also provide an update on this program around year end.

The Company's balance of cash and cash equivalents was approximately $121 million as of May 31, 2022. The Company continues to expect that existing cash and cash equivalents, expected operational receipts, and available credit will be sufficient to fund its operating expenses and capital expenditure requirements into mid-2023.

Company-Hosted Webcast and Conference Call Information

Precision will host a conference call and webcast today at 8:00 AM ET to review its ongoing allogeneic CAR T programs. 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 5754683. Participants may access the live webcast, and accompanying presentation materials, as well as the archived webcast on Precision's website in the Investors section under Events & Presentations: https://investor.precisionbiosciences.com/events-and-presentations.

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 precise 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 *ex vivo* "off-the-shelf" CAR T immunotherapy clinical candidates and several *in vivo* gene editing candidates designed to cure genetic and infectious diseases where no adequate treatments exist. For more information about Precision BioSciences, please visit www.precisionbiosciences.com.

Forward-Looking Statements

This presentation contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. All statements contained in this presentation that do not relate to matters of historical fact should be considered forward-looking statements, including, without limitation, statements regarding the clinical development and expected efficacy and benefit of our product candidates, the expected timing of updates regarding our allogenic CAR T and in vivo programs, the expected timing of regulatory processes, expectations about our operational initiatives and business strategy, and expectations about achievement of key milestones. In some cases, you can identify forward-looking statements by terms such as "aim," "anticipate," "approach," "believe," "contemplate," "could," "estimate," "expect," "goal," "intend," "look," "may," "mission," "plan," "potential," "predict," "project," "should," "target," "will," "would," 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 studies and clinical trials; public perception about genome editing technology and its applications; competition in the genome editing, biopharmaceutical, and 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 COVID-19 pandemic and variants thereof, 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 March 31, 2022, 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 page of our website under SEC Filings at investor.precisionbiosciences.com.

All forward-looking statements speak only as of the date of this presentation 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.

[1] ASH Cohort- Dose Level 3 with enhanced lymphodepletion = 3 × 10 cells/kg with fludarabine 30 mg/m^2/day × 4 days + cyclophosphamide 1000 mg/m^2/day × 3 days

[2] New cohort- Dose Level 4b with lower dose/modified lymphodepletion = 500 × 10 cells (flat dose) with fludarabine 30 mg/m^2/day × 4 days + cyclophosphamide 750 mg/m^2/day × 3 days

[3] One subject non-evaluable at Day 28 assessment due to death from suspected fludarabine-associated neurotoxicity on Day 23. The subject had complete resolution of disease according to a CT scan on Day 21.

[4] Standard Lymphodepletion = fludarabine 30 mg/m^2/day × 3 days + cyclophosphamide 1000 mg/m^2/day × 3 days

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