UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 8-K

Current Report Pursuant to
Section 13 or 15(d) of the
Securities Exchange Act of 1934

Date of Report (Date of Earliest Event Reported): December 13, 2021

2seventy bio, Inc.

(Exact name of Registrant as Specified in Its Charter)

Delaware	**001-40791**	**86-3658454**
(State or Other Jurisdiction of Incorporation)	**(Commission File Number)**	**(IRS Employer Identification No.)**
60 Binney Street,		
Cambridge, MA		**02142**
(Address of Principal Executive Offices)		**(Zip Code)**

Registrant's Telephone Number, Including Area Code: (339) 499-9300

Not Applicable
(Former Name or Former Address, if Changed Since Last Report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instructions A.2. below):

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $0.0001 par value per share	TSVT	The NASDAQ Stock Market LLC

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company x

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. o

Item 8.01. Other Events.

On December 13, 2021, 2seventy bio, Inc. issued a press release announcing data from its ongoing Phase 1 CRB-402 study of bb21217 in relapsed and refractory multiple myeloma, data from its preclinical studies of SC-DARIC33, and new analyses from the pivotal KarMMa study of Abecma (idecabtagene vicleucel, or ide-cel), in each case presented at the 63rd Annual Meeting of the American Society of Hematology. A copy of such press release is filed as Exhibit 99.1 to this Current Report on Form 8-K and is incorporated into this Item 8.01 by reference.

Item 9.01 Financial Statements and Exhibits

(d) Exhibits

Exhibit No.	Description
99.1	Press Release of 2seventy bio, Inc., dated December 13, 2021.
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

2seventy bio, Inc.

Dated: December 14, 2021

By: /s/ Nick Leschly
Name: Nick Leschly
Title: Chief Executive Officer

2seventy bio Presents Data Across Multiple Cell Therapy Programs at ASH 2021 Annual Meeting

New analyses from pivotal KarMMa study continue to show clinically meaningful health-related quality of life benefits and positive treatment experience with ABECMA, building upon growing body of evidence supporting the first and only approved CAR T cell therapy for multiple myeloma

New clinical data feature updated safety and efficacy results from the ongoing Phase 1 CRB-402 study of bb21217 in relapsed and refractory multiple myeloma

Pre-clinical data support initiation of the Phase 1 study of SC-DARIC33, an investigational, potentially first-in-class CD33-targeting autologous T cell product for the treatment of pediatric and young adult relapsed or refractory acute myeloid leukemia

CAMBRIDGE, Mass.— (BUSINESS WIRE)—December 13, 2021—2seventy bio, Inc. (NASDAQ: TSVT) today announced data from its broad oncology cell therapy portfolio, including updated results from the CRB-402 study of bb21217 and new analyses from the pivotal KarMMa study of ABECMA® (idecabtagene vicleucel; ide-cel) for adult patients with relapsed or refractory multiple myeloma, both in partnership with Bristol Myers Squibb (BMS). The company also presented preclinical data on the investigational CD33-targeted autologous T cell product, SC-DARIC33, in collaboration with Seattle Children's Therapeutics, for the potential treatment of pediatric and young adult relapsed or refractory acute myeloid leukemia (AML). These results were presented at the 63rd American Society of Hematology (ASH) Annual Meeting and Exposition, hosted at the Georgia World Congress Center in Atlanta and virtually.

"We are excited to be at ASH for the first time as 2seventy bio and to showcase the innovative science that is driving our pipeline, as well as the clinical and real-world findings from ABECMA, the first and only approved CAR T cell therapy for relapsed or refractory multiple myeloma," said Philip Gregory, chief scientific officer, 2seventy bio. "Our presence at ASH also includes new clinical data from bb21217 in multiple myeloma and IND-enabling preclinical data from SC-DARIC33 supporting a potentially new regulatable T cell therapy approach to the treatment of relapsed/refractory pediatric and young adult AML."

Key Insights and New Data in Multiple Myeloma Continue to Build on Clinical and Real-World Evidence
2seventy bio, in partnership with BMS, presented new clinical data in an oral presentation (#548), featuring updated safety and efficacy data from the ongoing Phase 1 CRB-402 study of the B-cell maturation antigen (BCMA)-targeted CAR T cell therapy bb21217 in patients with relapsed and refractory multiple myeloma. Additionally, the companies also presented new analyses from the pivotal KarMMa trial evaluating characteristics among patients who achieved favorable outcomes with ABECMA treatment, as well as sustained improvement in health-related quality of life. These findings build upon the growing body of evidence for ABECMA, the first and only approved CAR T cell therapy for multiple myeloma.

<u>Updated data from CRB-402 support the hypothesis that driving a memory-like phenotype results in more persistent CAR T cells that may be associated with prolonged duration of response</u>

- New follow-up data from the Phase 1 study demonstrate the enrichment of bb21217 drug product for memory-like markers at or around peak CAR+ T cell expansion may be associated with sustained response.
- For all patients treated (n=72), the overall response rate was 69%, with 36% having a complete response. The median duration of response was 23.8 (16.8-34.2) months for all patients and 34.8 (17.0-NE) months for patients with a complete response. CAR+ T cells persisted long-term, with 16/21 evaluable patients at Month 12 and 6/8 evaluable patients at Month 24 having CAR+ T cells detectable by molecular technique across doses.
- The safety profile of bb21217 is consistent with known toxicities of BCMA CAR T cell therapies, with low rates of Grade ≥3 Cytokine Release Syndrome (CRS) and neurotoxicity.

New analyses from the KarMMa study identified characteristics of patients who were more likely to achieve complete or stringent complete response with ABECMA, and showed that the subset of patients who were able to receive subsequent therapies, including other non-CAR T cell treatments that target BCMA, responded to the new treatments.

- As of December 2020, of 128 patients treated with ABECMA, 42 patients (33%) achieved complete response (CR) or stringent CR (sCR). These patients were more likely to have low tumor burden, as assessed by soluble BCMA levels and disease without IgG heavy chain involvement. Lower tumor burden and controlling tumor burden during drug manufacturing through use of optimal bridging therapies are factors that may be associated with maximizing the impact of the treatment and helping patients achieve a deep response after ABECMA. (Presentation #1739)
- In addition, another analysis of the KarMMa study indicated that the majority of patients who received antimyeloma therapy after relapsing from ABECMA were successfully treated with a median time from start of their initial ABECMA infusion to second disease progression (PFS2) of 13.6 months. The subset of patients who received non-CAR T BCMA-targeted therapy experienced a median PFS2 of 15.5 months, consistent with what has been reported previously from non-CAR T anti-BCMA therapy. (Presentation #2743)

Patients reported overall positive treatment experience with improved quality of life with ABECMA

- An analysis of health-related quality of life (HRQoL) in the pivotal KarMMa study extended previous findings of clinically meaningful improvements across multiple domains with ABECMA treatment during a 24-month follow-up period. For the predefined primary HRQoL domains, mean scores improved following ABECMA treatment and were comparable to the general population. Mean changes from baseline (n=126) exceeded the minimal important difference threshold for clinically meaningful improvement in fatigue, pain, physical functioning, cognitive functioning and global health status/quality of life scores of QLQ-C30 and disease symptom scores of QLQ-MY20 through Month 24 (data cut off, December 21, 2020). (Presentation #2835)
- In another analysis, patients treated with ABECMA in the KarMMa study completed qualitative interviews from Months 6, 9, 12, 18 and 24 post-treatment. Across time points, most patients (61-79%) reported benefits of ABECMA treatment outweighed negatives, with most frequent advantages cited as minimal or no side effects (n=29, 64%), the durability of treatment response (n=23, 51%), improvements in HRQoL (n=23, 51%), living a “normal life” (n=19, 42%) and living for longer (n=13, 29%). Patients also considered ABECMA being a “one-time” treatment (n=21, 47%) an important advantage. (Presentation #3041)

Potentially First-in-Class Autologous T Cell Therapy Exploring an Innovative Approach to Acute Myeloid Leukemia (AML)

An oral presentation (#905), in collaboration with Seattle Children’s Therapeutics, showcased data that demonstrate the regulatability and anti-AML activity of SC-DARIC33 in a preclinical setting. SC-DARIC33 is an investigational CD33-specific cell therapy that utilizes 2seventy bio’s proprietary Dimerizing Agent Regulated Immunoreceptor Complex (DARIC) T cell platform. SC-DARIC33 is designed as a regulatable, potentially first-in-class autologous T cell therapy and is now being studied at Seattle Children’s in a Phase 1 trial, PLAT-08 (NCT05105152), as a first-in-human investigation of the DARIC T cell platform in relapsed/refractory pediatric and young adult AML.

DARIC separates the antigen binding and signaling functions of a CAR, with the intent that these two components are brought together by the small molecule rapamycin (RAPA), resulting in a functional CAR construct. In preclinical studies, SC-DARIC33 has shown robust drug-dependent anti-tumor activity (similar to CD19 CAR T controls). Importantly, SC-DARIC33 has been shown to be activated by low non-immunosuppressive concentrations of RAPA in the blood and, when RAPA is removed, DARIC returns to an inactive state. SC-DARIC33 tests the hypothesis that a pharmacologically regulated CAR can enable potent AML targeting while limiting toxicities associated with normal myeloid and myeloid progenitor cell targeting.

The investigation of SC-DARIC33 in the Phase 1 PLAT-08 study of pediatric and young adult AML patients and the scientific translation of these data are intended to establish the safety profile of SC-DARIC33 and evaluate feasibility of the reversable modulation (OFF-ON-OFF) of SC-DARIC33.

About ABECMA (idecabtagene vicleucel; ide-cel)
ABECMA is a first-in-class B-cell maturation antigen (BCMA)-directed chimeric antigen receptor (CAR) T cell immunotherapy approved in the U.S. for the treatment of adult patients with relapsed or refractory multiple myeloma after four or more prior lines of therapy, including an immunomodulatory agent, a proteasome inhibitor, and an anti-CD38 monoclonal antibody. ABECMA has also received approvals in the European Union, Canada, and Switzerland. ABECMA recognizes and binds to BCMA on the surface of multiple myeloma cells leading to CAR T cell proliferation, cytokine secretion, and subsequent cytolytic killing of BCMA-expressing cells. ABECMA is being jointly developed and commercialized in the U.S. as part of a Co-Development, Co-Promotion, and Profit Share Agreement between 2seventy bio and Bristol Myers Squibb. Bristol Myers Squibb continues to assume sole responsibility for ABECMA drug product manufacturing and commercialization outside of the U.S.

2seventy bio and Bristol Myers Squibb's broad clinical development program for ABECMA includes clinical studies (KarMMa-2, KarMMa-3, KarMMa-4, KarMMa-7) in earlier lines of treatment for patients with multiple myeloma, including newly diagnosed multiple myeloma. For more information visit clinicaltrials.gov.

Indication

ABECMA (idecabtagene vicleucel) is a B-cell maturation antigen (BCMA)-directed genetically modified autologous T cell immunotherapy indicated for the treatment of adult patients with relapsed or refractory multiple myeloma after four or more prior lines of therapy, including an immunomodulatory agent, a proteasome inhibitor, and an anti-CD38 monoclonal antibody.

Important Safety Information

BOXED WARNING: CYTOKINE RELEASE SYNDROME, NEUROLOGIC TOXICITIES, HLH/MAS, AND PROLONGED CYTOPENIA
- Cytokine Release Syndrome (CRS), including fatal or life-threatening reactions, occurred in patients following treatment with ABECMA. Do not administer ABECMA to patients with active infection or inflammatory disorders. Treat severe or life-threatening CRS with tocilizumab or tocilizumab and corticosteroids.
- Neurologic Toxicities, which may be severe or life-threatening, occurred following treatment with ABECMA, including concurrently with CRS, after CRS resolution, or in the absence of CRS. Monitor for neurologic events after treatment with ABECMA. Provide supportive care and/or corticosteroids as needed.
- Hemophagocytic Lymphohistiocytosis/Macrophage Activation Syndrome (HLH/MAS) including fatal and life-threatening reactions, occurred in patients following treatment with ABECMA. HLH/MAS can occur with CRS or neurologic toxicities.
- Prolonged Cytopenia with bleeding and infection, including fatal outcomes following stem cell transplantation for hematopoietic recovery, occurred following treatment with ABECMA.
- ABECMA is available only through a restricted program under a Risk Evaluation and Mitigation Strategy (REMS) called the ABECMA REMS.

Cytokine Release Syndrome (CRS): CRS, including fatal or life-threatening reactions, occurred following treatment with ABECMA. CRS occurred in 85% (108/127) of patients receiving ABECMA. Grade 3 or higher CRS (Lee grading system) occurred in 9% (12/127) of patients, with Grade 5 CRS reported in one (0.8%) patient. The median time to onset of CRS, any grade, was 1 day (range: 1 - 23 days) and the median duration of CRS was 7 days (range: 1 - 63 days) in all patients including the patient who died. The most common manifestations of CRS included pyrexia (98%), hypotension (41%), tachycardia (35%), chills (31%), hypoxia (20%), fatigue (12%), and headache (10%). Grade 3 or higher events that may be associated with CRS include hypotension, hypoxia, hyperbilirubinemia, hypofibrinogenemia, acute

respiratory distress syndrome (ARDS), atrial fibrillation, hepatocellular injury, metabolic acidosis, pulmonary edema, multiple organ dysfunction syndrome and HLH/MAS.

Identify CRS based on clinical presentation. Evaluate for and treat other causes of fever, hypoxia, and hypotension. CRS has been reported to be associated with findings of HLH/MAS, and the physiology of the syndromes may overlap. HLH/MAS is a potentially life-threatening condition. In patients with progressive symptoms of CRS or refractory CRS despite treatment, evaluate for evidence of HLH/MAS.
Fifty-four percent (68/127) of patients received tocilizumab; 35% (45/127) received a single dose while 18% (23/127) received more than 1 dose of tocilizumab. Overall, across the dose levels, 15% (19/127) of patients received at least 1 dose of corticosteroids for treatment of CRS. All patients that received corticosteroids for CRS received tocilizumab.

Overall rate of CRS was 79% and rate of Grade 2 CRS was 23% in patients treated in the 300 x 106 CAR+ T cell dose cohort. For patients treated in the 450 x 106 CAR+ T cell dose cohort, the overall rate of CRS was 96% and rate of Grade 2 CRS was 40%. Rate of Grade 3 or higher CRS was similar across the dose range. The median duration of CRS for the 450 x 106 CAR+ T cell dose cohort was 7 days (range: 1-63 days) and for the 300 x 106 CAR+ T cell dose cohort was 6 days (range: 2-28 days). In the 450 x 106 CAR+ T cell dose cohort, 68% (36/53) of patients received tocilizumab and 23% (12/53) received at least 1 dose of corticosteroids for treatment of CRS. In the 300 x 106 CAR+ T cell dose cohort, 44% (31/70) of patients received tocilizumab and 10% (7/70) received corticosteroids. All patients that received corticosteroids for CRS also received tocilizumab. Ensure that a minimum of 2 doses of tocilizumab are available prior to infusion of ABECMA.

Monitor patients at least daily for 7 days following ABECMA infusion at the REMS-certified healthcare facility for signs and symptoms of CRS. Monitor patients for signs or symptoms of CRS for at least 4 weeks after infusion. At the first sign of CRS, institute treatment with supportive care, tocilizumab and/or corticosteroids as indicated.

Counsel patients to seek immediate medical attention should signs or symptoms of CRS occur at any time.

Neurologic Toxicities: Neurologic toxicities, which may be severe or life-threatening, occurred following treatment with ABECMA, including concurrently with CRS, after CRS resolution, or in the absence of CRS. CAR T cell-associated neurotoxicity occurred in 28% (36/127) of patients receiving ABECMA, including Grade 3 in 4% (5/127) of patients. One patient had ongoing Grade 2 neurotoxicity at the time of death. Two patients had ongoing Grade 1 tremor at the time of data cutoff. The median time to onset of neurotoxicity was 2 days (range: 1 - 42 days). CAR T cell-associated neurotoxicity resolved in 92% (33/36) of patients with a median duration of neurotoxicity was 5 days (range: 1 - 61 days). The median duration of neurotoxicity was 6 days (range: 1 - 578) in all patients including those with ongoing neurotoxicity at the time of death or data cut off. Thirty-four patients with neurotoxicity had CRS. Neurotoxicity had onset in 3 patients before, 29 patients during, and 2 patients after CRS. The rate of Grade 3 neurotoxicity was 8% in the 450 x 10^6 CAR+ T cell dose cohort and 1.4% in the 300 x 10^6 CAR+ T cell dose cohort. The most frequently reported (greater than or equal to 5%) manifestations of CAR T cell-associated neurotoxicity include encephalopathy (20%), tremor (9%), aphasia (7%), and delirium (6%). Grade 4 neurotoxicity and cerebral edema in 1 patient has been reported with ABECMA in another study in multiple myeloma. Grade 3 myelitis and Grade 3 parkinsonism have been reported after treatment with ABECMA in another study in multiple myeloma.

Monitor patients at least daily for 7 days following ABECMA infusion at the REMS-certified healthcare facility for signs and symptoms of neurologic toxicities. Rule out other causes of neurologic symptoms. Monitor patients for signs or symptoms of neurologic toxicities for at least 4 weeks after infusion and treat promptly. Neurologic toxicity should be managed with supportive care and/or corticosteroids as needed.

Counsel patients to seek immediate medical attention should signs or symptoms of neurologic toxicity occur at any time.

Hemophagocytic Lymphohistiocytosis (HLH)/Macrophage Activation Syndrome (MAS): HLH/MAS occurred in 4% (5/127) of patients receiving ABECMA. One patient treated in the 300 x 10^6 CAR+ T cell dose cohort developed fatal multi-organ HLH/MAS with CRS. In another patient with fatal bronchopulmonary aspergillosis, HLH/MAS was contributory to the fatal outcome. Three cases of Grade 2 HLH/MAS resolved. The rate of HLH/MAS was 8% in the 450 x 10^6 CAR+ T cell dose cohort and 1% in the 300 x 10^6 CAR+ T cell dose cohort. All events of HLH/MAS had onset within 10 days of receiving ABECMA with a median onset of 7 days (range: 4-9 days) and occurred in the setting of ongoing or worsening CRS. Two patients with HLH/MAS had overlapping neurotoxicity. The manifestations of HLH/MAS include hypotension, hypoxia, multiple organ dysfunction, renal dysfunction, and cytopenia. HLH/MAS is a potentially life-threatening condition with a high mortality rate if not recognized early and treated. Treatment of HLH/MAS should be administered per institutional standards.

ABECMA REMS: Due to the risk of CRS and neurologic toxicities, ABECMA is available only through a restricted program under a Risk Evaluation and Mitigation Strategy (REMS) called the ABECMA REMS. Further information is available at **www.AbecmaREMS.com** or 18884235436.

Hypersensitivity Reactions: Allergic reactions may occur with the infusion of ABECMA. Serious hypersensitivity reactions, including anaphylaxis, may be due to dimethyl sulfoxide (DMSO) in ABECMA.

Infections: ABECMA should not be administered to patients with active infections or inflammatory disorders. Severe, life-threatening, or fatal infections occurred in patients after ABECMA infusion. Infections (all grades) occurred in 70% of patients. Grade 3 or 4 infections occurred in 23% of patients. Overall, 4 patients had Grade 5 infections (3%); 2 patients (1.6%) had Grade 5 events of pneumonia, 1 patient (0.8%) had Grade 5 bronchopulmonary aspergillosis, and 1 patient (0.8%) had cytomegalovirus (CMV) pneumonia associated with Pneumocystis jirovecii. Monitor patients for signs and symptoms of infection before and after ABECMA infusion and treat appropriately. Administer prophylactic, preemptive, and/or therapeutic antimicrobials according to standard institutional guidelines. Febrile neutropenia was observed in 16% (20/127) of patients after ABECMA infusion and may be concurrent with CRS. In the event of febrile neutropenia, evaluate for infection and manage with broad spectrum antibiotics, fluids, and other supportive care as medically indicated.

Viral Reactivation: Cytomegalovirus (CMV) infection resulting in pneumonia and death has occurred following ABECMA administration. Monitor and treat for CMV reactivation in accordance with clinical guidelines. Hepatitis B virus (HBV) reactivation, in some cases resulting in fulminant hepatitis, hepatic failure, and death, can occur in patients treated with drugs directed against plasma cells. Perform screening for CMV, HBV, hepatitis C virus (HCV), and human immunodeficiency virus (HIV) in accordance with clinical guidelines before collection of cells for manufacturing.

Prolonged Cytopenias: Patients may exhibit prolonged cytopenias following lymphodepleting chemotherapy and ABECMA infusion. In the KarMMa study, 41% of patients (52/127) experienced prolonged Grade 3 or 4 neutropenia and 49% (62/127) experienced prolonged Grade 3 or 4 thrombocytopenia that had not resolved by Month 1 following ABECMA infusion. Rate of prolonged neutropenia was 49% in the 450 x 10^6 CAR+ T cell dose cohort and 34% in the 300 x 10^6 CAR+ T cell dose cohort. In 83% (43/52) of patients who recovered from Grade 3 or 4 neutropenia after Month 1, the median time to recovery from ABECMA infusion was 1.9 months. In 65% (40/62) of patients who recovered from Grade 3 or 4 thrombocytopenia, the median time to recovery was 2.1 months. Median time to cytopenia recovery was similar across the 300 and 450 x 10^6 dose cohort.

Three patients underwent stem cell therapy for hematopoietic reconstitution due to prolonged cytopenia. Two of the three patients died from complications of prolonged cytopenia. Monitor blood counts prior to and after ABECMA infusion. Manage cytopenia with myeloid growth factor and blood product transfusion support according to institutional guidelines.

Hypogammaglobulinemia: Plasma cell aplasia and hypogammaglobulinemia can occur in patients receiving treatment with ABECMA. Hypogammaglobulinemia was reported as an adverse event in 21%

(27/127) of patients; laboratory IgG levels fell below 500 mg/dl after infusion in 25% (32/127) of patients treated with ABECMA.

Monitor immunoglobulin levels after treatment with ABECMA and administer IVIG for IgG <400 mg/dl. Manage per local institutional guidelines, including infection precautions and antibiotic or antiviral prophylaxis.

The safety of immunization with live viral vaccines during or following ABECMA treatment has not been studied. Vaccination with live virus vaccines is not recommended for at least 6 weeks prior to the start of lymphodepleting chemotherapy, during ABECMA treatment, and until immune recovery following treatment with ABECMA.

Secondary Malignancies: Patients treated with ABECMA may develop secondary malignancies. Monitor life-long for secondary malignancies. If a secondary malignancy occurs, contact Bristol Myers Squibb at 1-888-805-4555 to obtain instructions on patient samples to collect for testing of secondary malignancy of T cell origin.

Effects on Ability to Drive and Operate Machinery: Due to the potential for neurologic events, including altered mental status or seizures, patients receiving ABECMA are at risk for altered or decreased consciousness or coordination in the 8 weeks following ABECMA infusion. Advise patients to refrain from driving and engaging in hazardous occupations or activities, such as operating heavy or potentially dangerous machinery, during this initial period.

Adverse Reactions: The most common nonlaboratory adverse reactions (incidence greater than or equal to 20%) include CRS, infections – pathogen unspecified, fatigue, musculoskeletal pain, hypogammaglobulinemia, diarrhea, upper respiratory tract infection, nausea, viral infections, encephalopathy, edema, pyrexia, cough, headache, and decreased appetite.

Please see full **Prescribing Information**, including **Boxed WARNINGS** and **Medication Guide**.

About bb21217
bb21217 is an investigational BCMA-directed CAR T cell therapy that uses the ide-cel CAR molecule and is cultured with the PI3 kinase inhibitor (bb007) to enrich for T cells displaying a memory-like phenotype with the intention to increase the *in vivo* persistence of CAR T cells. bb21217 is being studied for patients with multiple myeloma in partnership with Bristol Myers Squibb.

The clinical development program for bb21217 includes the ongoing Phase 1 CRB-402 study. CRB-402 is the first-in-human study of bb21217 in patients with relapsed and refractory multiple myeloma (RRMM), designed to assess safety, pharmacokinetics, efficacy and duration of effect. CRB-402 is a two-part (dose escalation and dose expansion), open-label, multi-site Phase 1 study of bb21217 in adults with RRMM. A total of 72 patients have been treated with bb21217 and the study has completed enrollment. For more information visit: **clinicaltrials.gov** using identifier NCT03274219.

bb21217 is not approved for any indication in any geography.

About SC-DARIC33
2seventy bio is collaborating with Seattle Children's Therapeutics to rapidly accelerate development of potential new therapies for patients with acute myeloid leukemia (AML). This research collaboration is investigating potential solutions to two challenges in treating AML: disease heterogeneity and toxicity due to shared expression of targets between tumor and normal tissue.

SC-DARIC33 is an investigational, pharmacologically controlled CD33-targeted autologous T cell product that utilizes 2seventy bio's proprietary Dimerizing Agent Regulated Immunoreceptor Complex (DARIC) T cell platform, a regulatable CAR T cell technology. DARIC T cells are intended to be switched from "OFF" to "ON" in the presence of rapamycin, such that while in the "ON" state the T cell is poised to be activated upon encounter with its target antigen.

PLAT-08, the Phase 1 study of SC-DARIC33 in relapsed/refractory pediatric AML, led by Seattle Children's Therapeutics, couples 2seventy bio's DARIC T cell platform with Seattle Children's world-class bench-to-bedside expertise in oncology cell therapies. This study is a first-in-human investigation of the DARIC T cell platform and is now open for enrollment at Seattle Children's. For more information visit: **clinicaltrials.gov** using identifier NCT05105152.

SC-DARIC33 is not approved for any indication in any geography.

About 2seventy bio
Our name, 2seventy bio, reflects why we do what we do – TIME. Cancer rips time away and our goal is to work at the maximum speed of translating human thought into action – 270 miles per hour — to give the people we serve more time. We are building the leading immuno-oncology cell therapy company, focused on discovering and developing new therapies that truly disrupt the cancer treatment landscape.

With a deep understanding of the human body's immune response to tumor cells and how to translate cell therapies into practice, we're applying this knowledge to deliver next generation cellular therapies that focus on a broad range of hematologic malignancies, including the first FDA-approved CAR T cell therapy for multiple myeloma, as well as solid tumors. Our research and development is focused on delivering therapies that are designed with the goal to "think" smarter and faster than the disease. Importantly, we remain focused on accomplishing these goals by staying genuine and authentic to our "why" and keeping our people and culture top of mind every day.

For more information, visit www.2seventybio.com.

Follow 2seventy bio on social media: Twitter and LinkedIn.

2seventy bio Cautionary Statement Regarding Forward-Looking Statements

This press release contains "forward-looking statements". All statements that are not statements of historical facts are, or may be deemed to be, forward-looking statements, including statements regarding: plans for the development, regulatory approval, manufacture or sale of our product candidates and/or our approved product in additional or expanded indications; the design and results of pre-clinical studies and clinical trials; expectations regarding the tolerability and activity profile of our approved product and product candidates, based on the data collected from our pre-clinical studies and clinical trials; perceived therapeutic benefits of our approved product, our product candidates and the potential indications and market opportunities therefor; and expectations regarding the timing for the completion of the Phase 1 clinical trials of SC-DARIC33 and bb21217. Such forward-looking statements are subject to risks, assumptions and uncertainties that could cause actual results to differ materially from those express or implied by such statements, including: the risk that we may encounter substantial delays in our clinical studies, including as a result of difficulties in recruiting or enrolling subjects; the risk that interim, "topline," and preliminary data from our clinical trials that we announce or publish from time to time may change as more patient data become available and are subject to confirmation, audit, and verification procedures that could result in material changes in the final data; the risk that we may fail to demonstrate the safety and efficacy of our product candidates to the satisfaction of applicable regulatory authorities; the risk that the market opportunities for our approved product or any future approved product are smaller than we believe they are; the risk that BMS, upon whom we rely for the successful development and commercialization of ABECMA and bb21217 does not devote sufficient resources thereto, is unsuccessful in its efforts, or chooses to terminate its agreements with us; and other internal or external factors that could delay, divert or change any of them in the next several years, that are difficult to predict, may be beyond our control and could cause our future financial results, goals, plans and objectives to differ materially from those expressed in, or implied by, the statements. No forward-looking statement can be guaranteed. We caution investors not to place considerable reliance on forward-looking statements contained in this press release. For a discussion of other risks and uncertainties, and other important factors, any of which could cause our actual results to differ from

those contained in the forward-looking statements, see the section entitled "Risk Factors" in the Quarterly Report filed by 2seventy bio with the Securities and Exchange Commission on December 1, 2021, as well as discussions of potential risks and uncertainties in 2seventy bio's subsequent filings with the Securities and Exchange Commission. The forward-looking statements included in this document are made only as of the date of this document and except as otherwise required by applicable law, 2seventy bio undertakes no obligation to publicly update or revise any forward-looking statement, whether as a result of new information, future events, changed circumstances or otherwise.

Hyperlinks are provided as a convenience and for informational purposes only. Neither Bristol Myers Squibb, Seattle Children's Therapeutics nor 2seventy bio bears responsibility for the security or content of external websites or websites outside of their respective control.

Investors:

Elizabeth Pingpank, 860-463-0469
elizabeth.pingpank@2seventybio.com

Media:

Victoria Wagner (von Rinteln), 703-599-2868
victoria.wagner@2seventybio.com