CRISPR Therapeutics Provides Business Update and Reports Second Quarter 2019 Financial Results

-Provides update in ongoing Phase 1/2 clinical trials of CTX001® for patients with severe hemoglobinopathies-

-Enrolling in Phase 1/2 clinical trial of CTX110 ™, targeting CD19+ malignancies-

ZUG, Switzerland and CAMBRIDGE, Mass., July 29, 2019 (GLOBE NEWSWIRE) -- CRISPR Therapeutics (Nasdaq: CRSP), a biopharmaceutical company focused on creating transformative gene-based medicines for serious diseases, today reported financial results for the second quarter ended June 30, 2019.

"We have made significant progress across several of our development programs, including the ongoing enrollment of CTX001 studies in both beta thalassemia and sickle cell disease, initiation of a clinical trial for our allogeneic CAR-T therapy for CD19+ malignancies, and the expansion of our collaboration with Vertex into Duchenne Muscular Dystrophy and Myotonic Dystrophy Type 1," said Samarth Kulkarni, Ph.D., Chief Executive Officer of CRISPR Therapeutics. "We look forward to continued execution against our clinical and regulatory milestones and expect to have data from several of our programs in 3-4 indications over the next 18 months."

Recent Highlights and Outlook

- **Beta thalassemia and sickle cell disease**
    - CRISPR Therapeutics provided an update from the ongoing Phase 1/2 study of CTX001, an investigational, autologous, CRISPR/Cas9 gene-edited hematopoietic stem cell therapy being evaluated for patients suffering from transfusion-dependent beta thalassemia (TDT) and severe sickle cell disease (SCD).
    - Enrollment in both Phase 1/2 studies of CTX001 in patients with TDT and in patients with severe SCD is ongoing. Based on the progression of the programs, CRISPR Therapeutics expects to obtain preliminary safety and efficacy data in late 2019.
    - The first patient treated with CTX001 in a Phase 1/2 clinical study of patients with TDT remains transfusion independent, greater than four months following engraftment.
    - The first patient has been treated in a Phase 1/2 clinical study of CTX001 in severe SCD in the U.S.
- **Immuno-Oncology**
    - CRISPR Therapeutics announced today that it is currently enrolling patients in its Phase 1/2 trial to assess the safety and efficacy of CTX110, its wholly-owned allogeneic CAR-T cell therapy targeting CD19+ malignancies. The Company's proprietary CRISPR-based allogeneic CAR-Ts have the potential to create the next-generation of cell therapies that may have a superior product profile compared to current autologous therapies and allow accessibility to broader patient populations.
    - CRISPR Therapeutics continues to advance additional allogeneic CAR-T candidates toward clinical development including CTX120™, targeting B-cell maturation antigen (BCMA) for the treatment of multiple myeloma and CTX130™, targeting CD70 for the treatment of solid tumors and hematologic malignancies. The Company continues to scale its capabilities to rapidly advance these programs into and through the clinic.
- **Other Programs**
    - In June, CRISPR Therapeutics and Vertex expanded their collaboration and entered into an exclusive licensing agreement to discover and develop gene editing therapies for the treatment of Duchenne Muscular Dystrophy (DMD) and Myotonic Dystrophy Type 1 (DM1). CRISPR Therapeutics continues to make advancements with programs utilizing an *in vivo* approach, which remains a key area of focus.

- Earlier this month, CRISPR Therapeutics announced that it will present an oral presentation at the 55th Annual Meeting of the European Association for the Study of Diabetes (EASD), taking place September 16 to 20, 2019, in Barcelona, Spain (abstract #9). The presentation will demonstrate the progress made by CRISPR Therapeutics and its partner, ViaCyte, in generating an allogeneic immune-evasive clonal pluripotent stem cell line capable of differentiating into pancreatic precursor cells as a potential therapy for type 1 diabetes.

- **Other Corporate Matters**

  - As the Company previously disclosed in June 2019, CRISPR Therapeutics received notification that the United States Patent and Trademark Office (USPTO) has initiated an interference proceeding at the Patent Trial and Appeal Board between certain pending U.S. patent applications co-owned by the University of California, the University of Vienna and Dr. Emmanuelle Charpentier (collectively, the "CVC Group") and certain patents and a patent application currently owned by the Broad Institute, Harvard University and the Massachusetts Institute of Technology, all of which are related to the single guide format of CRISPR/Cas9 genome editing technology in eukaryotic cells. As of July 2019, the USPTO has granted ten patents to the CVC group. None of these issued patents are involved in the interference.

Second Quarter 2019 Financial Results

- **Cash Position:** Cash as of June 30, 2019, was $427.9 million, compared to $437.5 million as of March 31, 2019, a decrease of $9.6 million as cash operating expenses were offset by $29.7 million net proceeds from financing activities. Considering the $175 million cash received from Vertex in July under the expanded collaboration agreement for DMD and DM1, proforma cash for the company exceeds $600 million.

- **Revenues:** Total collaboration revenues were $0.3 million for the second quarter of 2019 compared to $1.1 million for second quarter of 2018.

- **R&D Expenses:** R&D expenses were $39.5 million for the second quarter of 2019 compared to $25.6 million for the second quarter of 2018. The increase was driven by headcount and services expense supporting the advancement of the hemoglobinopathies program, the broadening of the wholly-owned immuno-oncology portfolio, as well as increased investment in the Company's CRISPR/Cas9 platform research.

- **G&A Expenses:** General and administrative expenses were $15.8 million for the second quarter of 2019 compared to $12.7 million for the second quarter of 2018. The increase was driven by headcount-related expense and external professional and consulting service expense.

- **Net Loss:** Net loss was $53.7 million for the second quarter of 2019 compared to a loss of $38.4 million for the second quarter of 2018, driven predominantly by increased R&D expense in the quarter.

About CTX001
CTX001 is an investigational *ex vivo* CRISPR gene-edited therapy that is being evaluated for patients suffering from TDT or severe SCD in which a patient's hematopoietic stem cells are engineered to produce high levels of fetal hemoglobin (HbF; hemoglobin F) in red blood cells. HbF is a form of the oxygen carrying hemoglobin that is naturally present at birth and is then replaced by the adult form of hemoglobin. The elevation of HbF by CTX001 has the potential to alleviate transfusion requirements for TDT patients and painful and debilitating sickle crises for SCD patients.

CTX001 is being developed under a co-development and co-commercialization agreement between CRISPR Therapeutics and Vertex.

About the Gene-Editing Process in These Trials
Patients who enroll in these studies will have hematopoietic stem cells collected from peripheral blood. The patient's cells will be edited using the CRISPR/Cas9 technology. The edited cells, CTX001, will then be infused back into the patient as part of a stem cell transplant, a process which involves, among other things, a patient being treated with high dose chemotherapy and/or radiation therapy. Patients undergoing stem cell transplants may encounter side effects (ranging from mild to severe) that are unrelated to the administration of CTX001. Patients will initially be monitored to determine when the edited cells begin to produce mature blood cells, a process known as engraftment. After engraftment, patients will continue to be monitored to track the impact of CTX001 on multiple measures of disease.

About the Phase 1/2 Study in Beta Thalassemia
The Phase 1/2 open-label trial is designed to assess the safety and efficacy of a single dose of CTX001 in patients ages 18 to 35 with TDT, non-beta zero/beta zero subtypes. The first two patients in the trial will be treated sequentially and, pending data from

these initial two patients, the trial will open for broader concurrent enrollment. The study is currently being conducted at multiple clinical trial sites in North America and Europe.

About the Phase 1/2 Study in Sickle Cell Disease
The Phase 1/2 open-label trial is designed to assess the safety and efficacy of a single dose of CTX001 in patients ages 18 to 35 with severe SCD. Similar to the trial in beta thalassemia, the first two patients in the trial will be treated sequentially prior to broader concurrent enrollment. The study is currently being conducted at multiple clinical trial sites in North America and Europe.

About Beta Thalassemia and Sickle Cell Disease
Beta thalassemia is an inherited blood disorder caused by mutations in the beta-globin gene that results in low or no beta-globin production, which is an important building block of hemoglobin. Patients with TDT, a severe form of beta thalassemia, suffer from anemia and are dependent on blood transfusions, which can lead to iron accumulation and complications that damage organs and shorten life span.

SCD is an inherited blood disorder caused by mutations in the beta-globin gene that lead to an abnormal hemoglobin, called sickle hemoglobin (HbS). Because of this abnormal hemoglobin, red blood cells can become rigid and block small blood vessels. Patients with severe SCD can suffer from acute pain, acute chest syndrome, organ damage, as well as other potential complications, including shortened life span.

About the CRISPR-Vertex Collaboration
CRISPR Therapeutics and Vertex entered into a strategic research collaboration in 2015 focused on the use of CRISPR/Cas9 to discover and develop potential new treatments aimed at the underlying genetic causes of human disease. CTX001 represents the first treatment to emerge from the joint research program. CRISPR Therapeutics and Vertex will jointly develop and commercialize CTX001 and equally share all research and development costs and profits worldwide.

About CRISPR Therapeutics
CRISPR Therapeutics is a leading gene editing company focused on developing transformative gene-based medicines for serious diseases using its proprietary CRISPR/Cas9 platform. CRISPR/Cas9 is a revolutionary gene editing technology that allows for precise, directed changes to genomic DNA. CRISPR Therapeutics has established a portfolio of therapeutic programs across a broad range of disease areas including hemoglobinopathies, oncology, regenerative medicine and rare diseases. To accelerate and expand its efforts, CRISPR Therapeutics has established strategic collaborations with leading companies including Bayer AG, Vertex Pharmaceuticals and ViaCyte, Inc.CRISPR Therapeutics AG is headquartered in Zug, Switzerland, with its wholly-owned U.S. subsidiary, CRISPR Therapeutics, Inc., and R&D operations based in Cambridge, Massachusetts, and business offices in London, United Kingdom. For more information, please visit www.crisprtx.com.

CRISPR Forward-Looking Statement
This press release may contain a number of "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, as amended, including statements regarding CRISPR Therapeutics' expectations about any or all of the following: (i) the safety, efficacy and clinical progress of our various clinical programs including CTX001 and CTX110; (ii) the status of clinical trials (including, without limitation, the timing of filing of clinical trial applications and INDs, any approvals thereof and the timing of commencement of clinical trials), development timelines and discussions with regulatory authorities related to product candidates under development by CRISPR Therapeutics and its collaborators; (iii) the number of patients that will be evaluated, the anticipated date by which enrollment will be completed and the data that will be generated by ongoing and planned clinical trials, and the ability to use that data for the design and initiation of further clinical trials; (iv) the intellectual property coverage and positions of CRISPR Therapeutics, its licensors and third parties as well as the status and potential outcome of proceedings involving any such intellectual property; (v) the sufficiency of CRISPR Therapeutics' cash resources; and (vi) the therapeutic value, development, and commercial potential of CRISPR/Cas9 gene editing technologies and therapies. Without limiting the foregoing, the words "believes," "anticipates," "plans," "expects" and similar expressions are intended to identify forward-looking statements. You are cautioned that forward-looking statements are inherently uncertain. Although CRISPR Therapeutics believes that such statements are based on reasonable assumptions within the bounds of its knowledge of its business and operations, forward-looking statements are neither promises nor guarantees and they are necessarily subject to a high degree of uncertainty and risk. Actual performance and results may differ materially from those projected or suggested in the forward-looking statements due to various risks and uncertainties. These risks and uncertainties include, among others: the potential for initial and preliminary data from any clinical trial (including CTX001 and CTX110) not to be indicative of final trial results; the risk that the initial data from a limited number of patients (as is the case with CTX001 at this time) may not be indicative of results from the full planned study population; the outcomes for each CRISPR Therapeutics' planned clinical trials and studies may not be favorable; that one or more of CRISPR Therapeutics' internal or external product candidate programs will not proceed as planned for technical, scientific or commercial reasons; that future competitive or other market factors may adversely affect the commercial potential for CRISPR Therapeutics' product candidates; uncertainties inherent in the initiation and completion of preclinical studies for CRISPR Therapeutics' product candidates; availability and timing of results from preclinical studies; whether results from a preclinical trial will be predictive of future results of the future trials; uncertainties about regulatory

approvals to conduct trials or to market products; uncertainties regarding the intellectual property protection for CRISPR Therapeutics' technology and intellectual property belonging to third parties, and the outcome of proceedings (such as an interference, an opposition or a similar proceeding) involving all or any portion of such intellectual property; and those risks and uncertainties described under the heading "Risk Factors" in CRISPR Therapeutics' most recent annual report on Form 10-K, and in any other subsequent filings made by CRISPR Therapeutics with the U.S. Securities and Exchange Commission, which are available on the SEC's website at www.sec.gov. Existing and prospective investors are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date they are made. CRISPR Therapeutics disclaims any obligation or undertaking to update or revise any forward-looking statements contained in this press release, other than to the extent required by law.

CRISPR Therapeutics AG
Condensed Consolidated Statements of Operations
(Unaudited, In thousands except share data and per share data)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Collaboration revenue	$ 318	$ 1,088	$ 646	$ 2,446
Operating expenses:				
Research and development	39,533	25,633	73,355	45,152
General and administrative	15,768	12,741	30,697	21,577
Total operating expenses	55,301	38,374	104,052	66,729
Loss from operations	(54,983)	(37,286)	(103,406)	(64,283)
Total other (expense) income, net	1,369	(998)	1,469	(2,215)
Net loss before income taxes	(53,614)	(38,284)	(101,937)	(66,498)
Provision for income taxes	(85)	(96)	(170)	(182)
Net loss	(53,699)	(38,380)	(102,107)	(66,680)
Foreign currency translation adjustment	(10)	(21)	(2)	(9)
Comprehensive Loss	$ (53,709)	$ (38,401)	$ (102,109)	$ (66,689)
Reconciliation of net loss to net loss attributable to common shareholders:				
Net loss	$ (53,699)	$ (38,380)	$ (102,107)	$ (66,680)
Net loss per share attributable to common shareholders - basic and diluted	$ (1.01)	$ (0.82)	$ (1.94)	$ (1.44)
Weighted-average common shares outstanding used in calculating net loss per share attributable to common shareholders - basic and diluted	53,188,041	46,842,316	52,643,649	46,362,538

CRISPR Therapeutics AG
Condensed Consolidated Balance Sheets Data
(Unaudited, in thousands)

	As of	
	June 30, 2019	December 31, 2018
Cash	$ 427,885	$ 456,649
Working capital	407,061	438,649
Total assets	494,245	489,016
Total shareholders' equity	367,683	392,195

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