Rocket Pharmaceuticals Presents Positive Clinical Data from Danon Disease, Fanconi Anemia and Pyruvate Kinase Deficiency Programs at the 25th Annual Meeting of the American Society of Gene and Cell Therapy (ASGCT)

May 16, 2022

— *RP-A501 for Danon Disease well-tolerated in two pediatric patients with no complement-mediated toxicities reported; efficacy update remains on track for Q3* —

— *Sustained genetic correction observed in six of nine evaluable Fanconi Anemia patients at least 12 months after RP-L102 treatment; five reached target MMC resistance at two time points with concomitant hematologic stabilization* —

— *Robust and sustained efficacy in both Pyruvate Kinase Deficiency patients at 18 months post-RP-L301 infusion demonstrated by normalized hemoglobin and improved hemolysis parameters* —

— *Top-line readout from Phase 2 pivotal trial of RP-L201 for Leukocyte Adhesion Deficiency-I expected on Thursday, May 19* —

CRANBURY, N.J.--(BUSINESS WIRE)--May 16, 2022-- Rocket Pharmaceuticals, Inc. (NASDAQ: RCKT), a leading late-stage, clinical biotechnology company advancing an integrated and sustainable pipeline of genetic therapies for rare childhood disorders with high unmet need, today announces positive clinical updates from its Phase 2 pivotal trial for Fanconi Anemia (FA) and Phase 1 trials for Danon Disease and Pyruvate Kinase Deficiency (PKD) at the 25th Annual Meeting of the American Society of Gene and Cell Therapy (ASGCT).

“We are highly encouraged by the initial safety data from the two pediatric patients in the Phase 1 Danon Disease trial that suggest RP-A501 was well-tolerated,” said Gaurav Shah, M.D., Chief Executive Officer of Rocket Pharma. “These two patients had markedly reduced complement activation and no complement-related adverse events. They received preventative therapy with a modified immunosuppressive regimen. We believe today’s results represent an important step forward in optimizing the safety of AAV9-based gene therapy for Danon Disease and the Danon patient community. Updated data are anticipated in the third quarter, and we believe that the totality of data from seven patients treated in Phase 1 will support a rapid advance toward a Phase 2 pivotal study.”

“In our Phase 2 pivotal study in Fanconi Anemia, five of nine patients sustained increasing bone marrow cell resistance to mitomycin-C (MMC) confirmed over two consecutive timepoints,” said Dr. Shah. “In these patients, MMC-resistance increased to 51%-94% at 18 to 21 months, up from 21%-42% at 12 to 18 months. The increase in MMC resistance was accompanied by concomitant genetic markings and hematologic stabilization. Addressing the hematologic aspects of Fanconi Anemia is essential because this devastating disorder leads to bone marrow failure in the first decade of life. With these results, we have reached our primary endpoint as defined in the trial protocol and are initiating dialogue with health authorities on next steps forward.”

Dr. Shah continued, “Today’s positive updates from a subset of our world-class gene therapy pipeline highlight the momentum of our targeted and multi-platform approach toward developing potential cures for these rare, devastating bone marrow-derived and cardiovascular diseases for which viable treatment options are extremely limited.”

Extended Results From First-In-Human Clinical Trial of RP-A501 (AAV9:LAMP2B) Gene Therapy Treatment for Danon Disease

The data described in this oral presentation are from the ongoing first-in-human Phase 1 clinical trial evaluating a single intravenous infusion of RP-A501, the Company’s investigational gene therapy for the treatment of Danon Disease. The presentation includes previously disclosed safety and efficacy data from patients in the low-dose (6.7×10^{13} GC/kg; n=3) and high-dose (1.1×10^{14} GC/kg; n=2) young adult and adolescent cohort and new initial safety data from the low-dose (6.7×10^{13}GC/kg; n=2) pediatric cohort.

- In the pediatric cohort (data cut-off April 30, 2022), RP-A501 was well-tolerated in both patients. The patients were observed to have normal-range platelets, diminished complement activation and no complement-related adverse events. The two patients received preventative treatment with a modified immunosuppressive regimen. No significant immediate or delayed toxicities have been observed to date.
- As previously disclosed:

    - In the young adult and adolescent low-dose cohort, RP-A501 was generally well-tolerated.
    - All young adult and adolescent patients with observed immunosuppressive regimen compliance and appropriate long-term follow-up demonstrated disease modification across molecular, echocardiographic and patient functional parameters.
        - These patients demonstrated evidence of cardiac *LAMP2B* expression versus normal control by immunohistochemistry.
        - Echocardiograms showed decreased cardiac wall thickness with improved or stabilized ejection fraction.
        - Patients demonstrated sustained improvement or stabilization in Brain Natriuretic Peptide (BNP) and New York Heart Association (NYHA) class, 6-minute walk test and reported increases in physical activity.
        - Adverse events were manageable with transient immunosuppression.
- All adverse events in pediatric and adult cohorts were reversible with no lasting renal, hepatic, or other sequelae.

Ex-Vivo Lentiviral-Mediated Gene Therapy for Patients with Fanconi Anemia [Group A]: Updated Results From Global RP-L102 Clinical Trials

The oral presentation includes data (cut-off April 4, 2022) from the initial nine of 12 patients who received RP-L102, Rocket's *ex-vivo* lentiviral gene therapy candidate for FA.

- Five of nine evaluable patients had increased resistance to MMC in bone marrow-derived colony forming cells, ranging from 21% to 42% at 12 to 18 months, compared to 51% to 94% at 18 to 21 months. The primary endpoint has been achieved, based on a trial protocol in which statistical and clinical significance requires a minimum of five patients to attain increased MMC resistance at least 10% above baseline at two or more timepoints and concomitant evidence of genetic correction and clinical stabilization.
- A sixth patient has displayed evidence of progressively increasing genetic correction as evidenced by peripheral VCN. Two additional patients are currently only 12 months post-treatment, and one patient had progressive bone marrow failure and underwent successful allogeneic transplant as previously disclosed.
- Three of twelve total treated patients have not yet reached the 12-month time point.
- The safety profile of RP-L102 appears favorable with no signs of dysplasia, clonal dominance or oncogenic integrations; as previously reported, one patient experienced a Grade 2 transient infusion-related reaction, which resolved.

Changing the Treatment Paradigm for Pyruvate Kinase Deficiency with Lentiviral-Mediated Gene Therapy: Interim Results From an Ongoing Global Phase 1 Study

The poster presentation includes data (cut-off April 13, 2022) from two adult patients with significant anemia who were treated with RP-L301, Rocket's *ex-vivo* lentiviral gene therapy candidate for PKD.

- At 18 months post-infusion, both patients have sustained transgene expression, normalized hemoglobin, improved hemolysis, no red blood cell transfusion requirements post-engraftment and improved quality of life both reported anecdotally and as documented via formal quality of life assessments.
- The safety profile of RP-L301 appears favorable, with no IP-related serious adverse events 18 months post-infusion. Transient transaminase elevation was seen in both patients post-therapy/conditioning, with no clinical stigmata of liver injury and subsequent resolution without clinical sequelae.
- The pediatric cohort is currently enrolling.

About Danon Disease

Danon Disease is a rare X-linked inherited disorder caused by mutations in the gene encoding lysosome-associated membrane protein 2 (LAMP-2), an important mediator of autophagy. This results in accumulation of autophagosomes and glycogen, particularly in cardiac muscle and other tissues, which ultimately leads to heart failure, and for male patients, frequent death during adolescence or early adulthood. It is estimated to have a prevalence of 15,000 to 30,000 patients in the U.S. and Europe. The only available treatment option for Danon Disease is cardiac transplantation, which is associated with substantial complications and is not considered curative. There are no specific therapies available for the treatment of Danon Disease.

About Fanconi Anemia

Fanconi Anemia (FA) is a rare pediatric disease characterized by bone marrow failure, malformations and cancer predisposition. The primary cause of death among patients with FA is bone marrow failure, which typically occurs during the first decade of life. Allogeneic hematopoietic stem cell transplantation (HSCT), when available, corrects the hematologic component of FA, but requires myeloablative conditioning. Graft-versus-host disease, a known complication of allogeneic HSCT, is associated with an increased risk of solid tumors, mainly squamous cell carcinomas of the head and neck region. Approximately 60-70% of patients with FA have a Fanconi Anemia complementation group A (*FANCA*) gene mutation, which encodes for a protein essential for DNA repair. Mutations in the *FANCA* gene leads to chromosomal breakage and increased sensitivity to oxidative and environmental stress. Increased sensitivity to DNA-alkylating agents such as mitomycin-C (MMC) or diepoxybutane (DEB) is a 'gold standard' test for FA diagnosis. Somatic mosaicism occurs when there is a spontaneous correction of the mutated gene that can lead to stabilization or correction of a FA patient's blood counts in the absence of any administered therapy. Somatic mosaicism, often referred to as 'natural gene therapy' provides a strong rationale for the development of FA gene therapy because of the selective growth advantage of gene-corrected hematopoietic stem cells over FA cells.

About Pyruvate Kinase Deficiency

Pyruvate kinase deficiency (PKD) is a rare, monogenic red blood cell disorder resulting from a mutation in the *PKLR* gene encoding for the pyruvate kinase enzyme, a key component of the red blood cell glycolytic pathway. Mutations in the *PKLR* gene result in increased red cell destruction and the disorder ranges from mild to life-threatening anemia. PKD has an estimated prevalence of 3,000 to 8,000 patients in the United States and the European Union. Children are the most commonly and severely affected subgroup of patients. Currently available treatments include splenectomy and red blood cell transfusions, which are associated with immune defects and chronic iron overload.

RP-L301 was in-licensed from the Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT), Centro de Investigación Biomédica en Red de Enfermedades Raras (CIBERER) and Instituto de Investigación Sanitaria de la Fundación Jiménez Díaz (IIS-FJD).

About Rocket Pharmaceuticals, Inc.

Rocket Pharmaceuticals, Inc. (NASDAQ: RCKT) is advancing an integrated and sustainable pipeline of genetic therapies that correct the root cause of complex and rare childhood disorders. The Company's platform-agnostic approach enables it to design the best therapy for each indication, creating potentially transformative options for patients afflicted with rare genetic diseases. Rocket's clinical programs using lentiviral vector (LVV)-based gene therapy are for the treatment of Fanconi Anemia (FA), a difficult-to-treat genetic disease that leads to bone marrow failure and potentially cancer, Leukocyte Adhesion Deficiency-I (LAD-I), a severe pediatric genetic disorder that causes recurrent and life-threatening infections that are frequently fatal, and Pyruvate Kinase Deficiency (PKD), a rare, monogenic red blood cell disorder resulting in increased red cell destruction and mild to life-threatening anemia. Rocket's first clinical program using adeno-associated virus (AAV)-based gene therapy is for Danon Disease, a devastating, pediatric heart failure condition. For more information about Rocket, please visit www.rocketpharma.com.

Rocket Cautionary Statement Regarding Forward-Looking Statements

Various statements in this release concerning Rocket's future expectations, plans and prospects, including, without limitation, Rocket's expectations regarding its guidance for 2022 in light of COVID-19, the safety and effectiveness of product candidates that Rocket is developing to treat Fanconi Anemia (FA), Leukocyte Adhesion Deficiency-I (LAD-I), Pyruvate Kinase Deficiency (PKD), and Danon Disease, the expected timing and data readouts of Rocket's ongoing and planned clinical trials, Rocket's plans for the advancement of its Danon Disease program following the lifting of the FDA's clinical hold and the safety, effectiveness and timing of related pre-clinical studies and clinical trials, and Rocket's plans for the advancement of its Danon Disease, FA and PKD programs based on the data presented at ASGCT and the potential for therapeutic benefit related thereto, may constitute forward-looking statements for the purposes of the safe harbor provisions under the Private Securities Litigation Reform Act of 1995 and other federal securities laws and are subject to substantial risks, uncertainties and assumptions. You should not place reliance on these forward-looking statements, which often include words such as "believe," "expect," "anticipate," "intend," "plan," "will give," "estimate," "seek," "will," "may," "suggest" or similar terms, variations of such terms or the negative of those terms. Although Rocket believes that the expectations reflected in the forward-looking statements are reasonable, Rocket cannot guarantee such outcomes. Actual results may differ materially from those indicated by these forward-looking statements as a result of various important factors, including, without limitation, Rocket's ability to monitor the impact of COVID-19 on its business operations and take steps to ensure the safety of patients, families and employees, the interest from patients and families for participation in each of Rocket's ongoing trials, our expectations regarding the delays and impact of COVID-19 on clinical sites, patient enrollment, trial timelines and data readouts, our expectations regarding our drug supply for our ongoing and anticipated trials, actions of regulatory agencies, which may affect the initiation, timing and progress of pre-clinical studies and clinical trials of its product candidates, Rocket's dependence on third parties for development, manufacture, marketing, sales and distribution of product candidates, the outcome of litigation, and unexpected expenditures, as well as those risks more fully discussed in the section entitled "Risk Factors" in Rocket's Annual Report on Form 10-K for the year ended December 31, 2021, filed February 28, 2022 with the SEC. Accordingly, you should not place undue reliance on these forward-looking statements. All such statements speak only as of the date made, and Rocket undertakes no obligation to update or revise publicly any forward-looking statements, whether as a result of new information, future events or otherwise.

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