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 7, 2020

LYRA THERAPEUTICS, INC.
(Exact name of registrant as specified in its charter)

Delaware	**001-39273**	**84-1700838**
(State or other jurisdiction of incorporation or organization)	**(Commission File Number)**	**(I.R.S. Employer Identification No.)**

480 Arsenal Way
Watertown, MA 02472
(Address of principal executive offices) (Zip Code)

(617) 393-4600
(Registrant's telephone number, include area code)

N/A
(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:

☐ 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, $0.001 par value per share	LYRA	The Nasdaq Global Market

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 ☒

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. ☐

Item 8.01. Other Events.

On December 7, 2020, Lyra Therapeutics, Inc. (the "Company") reported positive top-line results from its Phase 2 LANTERN clinical trial, a randomized, controlled, patient blinded clinical trial designed to evaluate safety and efficacy in chronic rhinosinusitis ("CRS") patients both with and without nasal polyps who have failed previous medical management but have not undergone endoscopic sinus surgery. The trial was designed to enroll 99 evaluable patients with the potential to increase to up to 150 patients and was initiated in May 2019 at sites in Australia, Austria, Czech Republic, New Zealand and Poland. In December 2019, the U.S. Food and Drug Administration (the "FDA") authorized the Company's investigational new drug application, and, prior to the COVID-19 global pandemic, the Company planned to enroll patients in the United States. However, in light of developments relating to the COVID-19 global pandemic, the Company discontinued enrollment at 67 patients in its Phase 2 LANTERN clinical trial and did not enroll any patients in the United States.

In its readout of top-line results, the Company reported that, at the 7,500 µg dose, LYR-210 achieved statistically significant improvement in the composite four cardinal symptoms score ("4CSS") in favor of the treatment arm as measured by the change from baseline at week 16 (-1.47) (p=0.021), week 20 (-1.61) (p=0.012) and week 24 (-1.64) (p=0.016) (see Figure 1, below). However, although a strong treatment effect was observed at week 4, LYR-210 did not achieve the primary endpoint of change from baseline in 4CSS at week 4 at either the 7,500 µg dose (-0.36) (p=0.306) or 2,500 µg dose (0.04) (p=0.525). The Company believes this was due primarily to the discontinuation of enrollment related to the COVID-19 global pandemic. As a result of the decrease in the number of patients enrolled from planned (99 evaluable) to actually enrolled (67), a greater magnitude of change from baseline in 4CSS at week 4 and/or a smaller standard deviation associated with the change from baseline was required in order to achieve statistical significance for the primary endpoint at week 4.

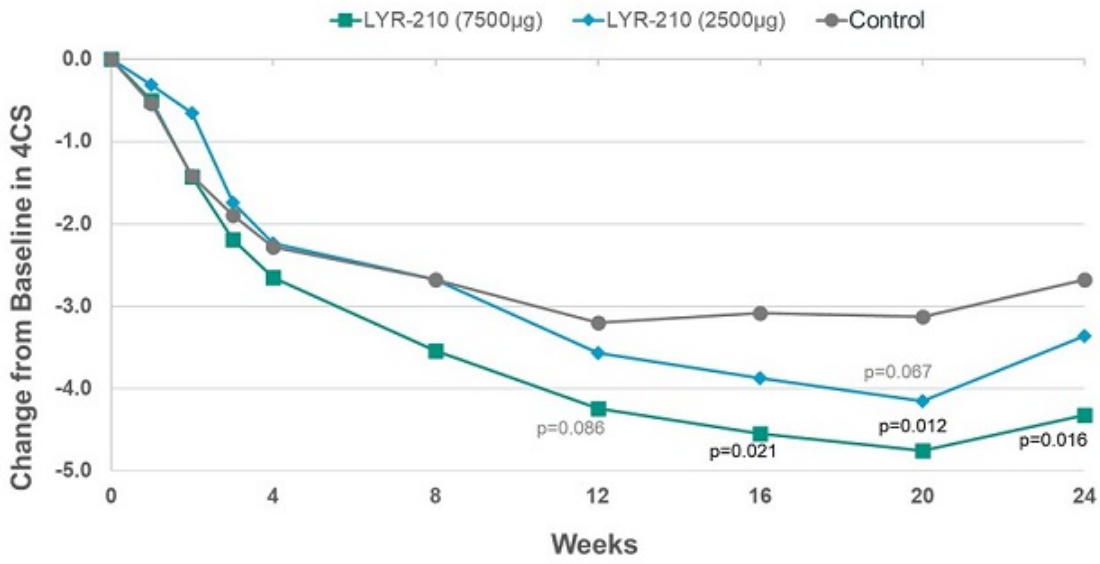

Figure 1. Total Symptom Improvement by 4CSS for Phase 2 LANTERN Clinical Trial.

Furthermore, at the 7,500 µg dose, LYR-210 achieved statistically significant improvement in SinoNasal Outcome Test ("SNOT-22") score in favor of the treatment arm as measured by the change from baseline at week 8 (-12.2) (p=0.039), week 16 (-15.0) (p=0.008), week 20 (-18.4) (p=0.001) and week 24 (-19.0) (p=0.001) (see Figure 2, below). In particular, the improvement of the 7,500 µg dose of LYR-210 at week 24 over the control group (-19.0) was over two times the minimal clinically important difference of -8.9.

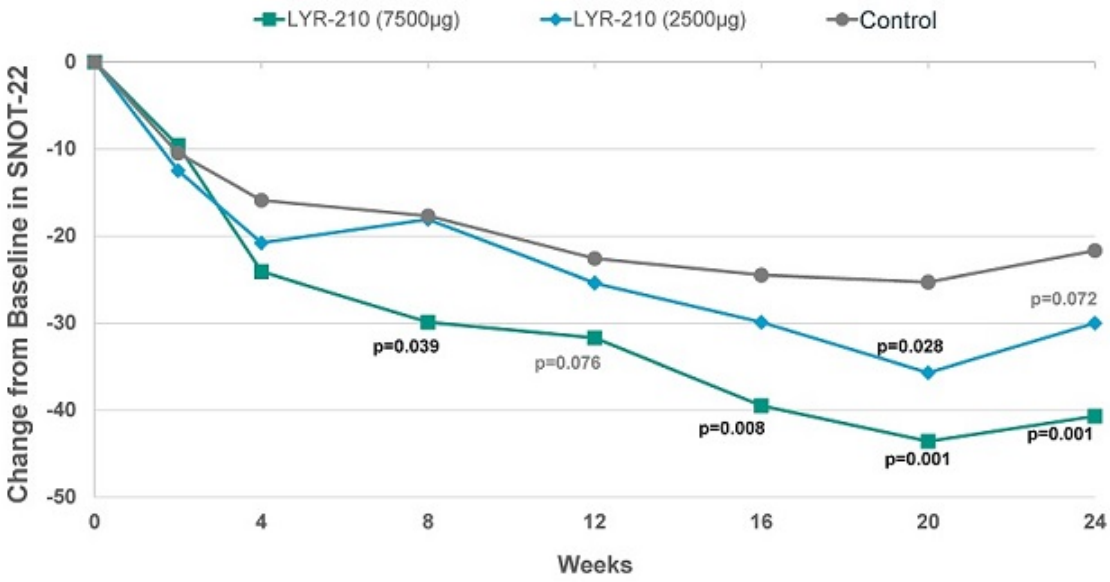

Figure 2. Total Symptom Improvement by SNOT-22 for Phase 2 LANTERN Clinical Trial.

LYR-210 was observed to be safe and well-tolerated at all doses in the trial. There was one reported serious adverse event, which was deemed to be unrelated to LYR-210. No treatment-related serious adverse events were reported. Treatment-related adverse events included epistaxis, rhinitis, rhinorrhea and headache. All treatment-related adverse events were generally mild to moderate in nature, other than one incident of increased viscosity of upper respiratory secretion in the 2,500 µg dose treatment arm, and in line with the known safety profile of mometasone furoate.

Full results from the Company's Phase 2 LANTERN study will be submitted for future presentation at a scientific meeting. Given the comparable safety profile of LYR-210 at both 2,500 µg and 7,500 µg doses, the Company anticipates progressing the LYR-210 program at the 7,500 µg dose level, and plans to initiate a pivotal Phase 3 study for LYR-210 in CRS for both non-polyp and polyp patients following the Company's expected end of Phase 2 meeting with the FDA in mid-2021.

On December 7, 2020, the Company issued a press release in connection with the foregoing, which is furnished as Exhibit 99.1 to this Current Report on Form 8-K (the "Current Report"). Exhibit 99.1 attached hereto is intended to be furnished and shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), or otherwise subject to the liabilities of that section, nor shall it be deemed incorporated by reference in any filing under the Securities Act of 1933, as amended, or the Exchange Act, except as expressly set forth by specific reference in such filing.

Forward-Looking Statements

This Current Report contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. All statements contained in this Current Report that do not relate to matters of historical fact should be considered forward-looking statements, including statements regarding the Company's lead product candidate LYR-210, the presentation of top-line results relating to the Company's Phase 2 LANTERN clinical trial for LYR-210 and the Company's plans to initiate a pivotal Phase 3 study for LYR-210 in CRS for both non-polyp and polyp patients.

These forward-looking statements are based on management's current expectations. These statements are neither promises nor guarantees, but involve known and unknown risks, uncertainties and other important factors that may cause the company's actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements, including, but not limited to, the following: the fact that the company has incurred significant losses since inception and expects to incur losses for the foreseeable future; the company's need for additional funding, which may not be available; the company's limited operating history; the fact that the company has no approved products; the fact that the company's product candidates are in various stages of development; the fact that the Company may not be successful in its efforts to identify and successfully commercialize its product candidates; the fact that clinical trials required for the company's product candidates are expensive and time-consuming, and their outcome is uncertain; the fact that the FDA may not conclude that certain of the company's product candidates satisfy the requirements for the Section 505(b)(2) regulatory approval pathway; the Company's inability to obtain required regulatory approvals; effects of recently enacted and future legislation; the possibility of system failures or security breaches; effects of significant competition; the fact that the successful commercialization of the company's product candidates will depend in part on the extent to which governmental authorities and health insurers establish coverage, adequate reimbursement levels and pricing policies; failure to achieve market acceptance; product liability lawsuits; the fact that the company relies on third parties for the manufacture of materials for its research programs, pre-clinical studies and clinical trials; the company's reliance on third parties to conduct its preclinical studies and clinical trials; the company's inability to succeed in establishing and maintaining collaborative relationships; the company's reliance on certain suppliers critical to its production; failure to obtain and maintain or adequately protect the company's intellectual property rights; failure to retain key personnel or to recruit qualified personnel; difficulties in managing the company's growth; effects of natural disasters; the fact that the global pandemic caused by COVID-19 could adversely impact the company's business and operations, including the company's clinical trials; the fact that the price of the company's common stock may be volatile and fluctuate substantially; significant costs and required management time as a result of operating as a public company and any securities class action litigation. These and other important factors discussed under the caption "Risk Factors" in the Company's Quarterly Report on Form 10-Q filed with the SEC on November 10, 2020 and its other filings with the SEC could cause actual results to differ materially from those indicated by the forward-looking statements made in this press release. Any such forward-looking statements represent management's estimates as of the date of this press release. While the company may elect to update such forward-looking statements at some point in the future, it disclaims any obligation to do so, even if subsequent events cause its views to change.

Item 9.01. Financial Statements and Exhibits.

(d) Exhibits

The following exhibits relate to Item 8.01, and shall be deemed to be furnished, and not filed:

Exhibit No.	Description
99.1	Press Release issued by Lyra Therapeutics, Inc. on December 7, 2020

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.

LYRA THERAPEUTICS, INC.

Date: December 7, 2020

By: /s/ R. Don Elsey
R. Don Elsey
Chief Financial Officer

Lyra Therapeutics Announces Positive Topline Results for LANTERN Phase 2 Randomized Controlled Study of LYR-210 for the Treatment of Chronic Rhinosinusitis With and Without Nasal Polyps

- *7500 mcg dose of LYR-210 achieved statistically significant improvement in a composite of the 4 cardinal symptoms of CRS at weeks 16 (p=0.021), 20 (p=0.012) and 24 (p=0.016) compared to control.*
- *7500 mcg dose of LYR-210 achieved statistically significant improvement in SNOT-22 score at weeks 8 (p=0.039), 16 (p=0.008), 20 (p=0.001) and 24 (p=0.001) compared to control.*
- *First nasal implant to achieve a benefit of up to six months after a single administration in clinical testing, as a potential alternative to surgery.*
- *Based on the LANTERN results, the company plans an end of Phase 2 FDA meeting in mid-2021 and to subsequently initiate a pivotal Phase 3 trial of LYR-210 in chronic rhinosinusitis.*
- *Lyra to hold a conference call to discuss the trial results today at 8:30 a.m. ET.*

Watertown, Mass. – December 7, 2020 – Lyra Therapeutics, Inc. (Nasdaq: LYRA), a clinical-stage therapeutics company focused on the development and commercialization of novel integrated drug and delivery solutions for the localized treatment of patients with ear, nose and throat (ENT) diseases, today announced positive topline results from the LANTERN Phase 2 study of LYR-210 for chronic rhinosinusitis (CRS).

The LANTERN study was a randomized, patient blinded, controlled clinical trial designed to evaluate the efficacy and safety of LYR-210 in adult patients with CRS, including patients with and without nasal polyps, who had not previously undergone sinus surgery. CRS is diagnosed when 2 or more of the 4 cardinal symptoms (4CS) of CRS (nasal obstruction, nasal discharge, facial pain/pressure, and reduction or loss of sense of smell) persist for 12 weeks or longer and when inflammation is confirmed via endoscopy or a CT scan.

The multi-center study enrolled 67 patients at sites in Europe, New Zealand and Australia. Patients in the study were randomized 1:1:1 into three groups: 7500 mcg (21 patients) or 2500 mcg (23 patients) of continuous mometasone furoate therapy, or control (23 patients).

LYR-210 is an investigational product candidate designed to be administered in-office, into the sinonasal passages, and to deliver a sustained release therapeutic up to six months at difficult-to-access nasal inflammation sites without the need for patient compliance, as a non-invasive alternative to surgery for patients who have failed medical management.

Topline Results

- Although not statistically significant at week 4, at the 7500 mcg dose, LYR-210 achieved statistically significant improvement in a composite score of the 4CS of CRS in favor of the treatment arm at weeks 16 (-1.47) (p=0.021), 20 (-1.61) (p=0.012) and 24 (-1.64) (p=0.016).
- Furthermore, the 7500 mcg dose of LYR-210 achieved statistically significant improvement in SNOT-22 score in favor of the treatment arm at weeks 8 (-12.2) (p=0.039), 16 (-15.0) (p=0.008), 20 (-18.4) (p=0.001), and 24 (-19.0) (p=0.001).
- LYR-210 was observed to be safe and well-tolerated at all doses in the study, and no treatment-related serious adverse events were reported. Adverse events were generally mild to moderate in nature and in line with the known safety profile of mometasone furoate.

“We are delighted to share this positive data from our LANTERN trial, which represents a major milestone for Lyra, and which shows the potential for LYR-210 to improve a composite of cardinal symptoms of CRS for up to 24 weeks. We believe this trial represents the first time a nasal implant has achieved six months of benefit for CRS patients via a single administration in clinical testing. These data are yet more remarkable given it was achieved during the COVID-19 pandemic, which caused us to curtail enrollment sooner than originally planned,” said Maria Palasis, PhD, CEO of Lyra Therapeutics. “Furthermore, the 4CS efficacy data is backed up by impressive SNOT-22 scores, supporting the potential pronounced treatment effect of LYR-210.”

Maria Palasis continued: “Importantly, this is the first time that a drug-releasing nasal implant has been observed to improve symptoms in both non-polyp and polyp patients, and also marks the first time such an implant has exhibited a dose response, which we believe validates our underlying XTreo™ platform. We believe these results confirm our pathway to regulatory submission, and we will move forward quickly to initiate a Phase 3 study in CRS, subject to a planned end-of-Phase 2 meeting with the FDA. In addition, we are continuing our development efforts for LYR-220, for CRS patients who have already undergone sinus surgery. I would like to thank everyone involved in the LANTERN study and look forward to updating you on our next steps as we seek to change the treatment paradigm for long-underserved CRS patients.”

Other takeaways from the LANTERN study include:

- While a strong treatment effect was observed at week 4, the LANTERN study’s primary endpoint of change from baseline in a composite of 4CS scores at week 4 was not met at either dose (7500 mcg: (-0.36) (p=0.306); 2500 mcg: (0.04) (p=0.525)), we believe primarily due to curtailed enrollment resulting from COVID-19.
- Given the comparable safety profile of LYR-210 at both 2500 mcg and 7500 mcg doses, Lyra anticipates progressing the LYR-210 program at the 7500 mcg dose level.
- Full results from the LANTERN study will be submitted for future presentation at an upcoming scientific meeting.
- Based on these results Lyra plans to initiate a pivotal Phase 3 study for LYR-210 in chronic rhinosinusitis for both non-polyp and polyp patients.

“The LANTERN study results are very exciting to those of us in the ENT community who are eager to embrace new treatment options for CRS, including alternatives to surgery. Based on my experience in Lyra’s Phase 1 and Phase 2 studies for LYR-210, I believe a drug-releasing nasal implant that may offer up to six months treatment would represent an important innovation for CRS patients,” said A/Prof Joanne Rimmer, an ENT surgeon and rhinologist at Monash Health,

Associate Professor at Monash University in Melbourne, Australia, and an investigator in the LANTERN study. “The in-office procedure of placing LYR-210 into a patient’s nose is straightforward, suggesting that LYR-210 may have the potential to improve quality of life for patients who have failed medical management while offering an alternative to invasive surgical procedures.”

“CRS is a chronic, lifelong condition, and there continues to be a need for innovation for the millions of people suffering from this inflammatory disease. As such, the LANTERN results are very encouraging, particularly as there are currently no FDA-approved therapeutic treatments for CRS patients without nasal polyps, despite that patient population representing approximately 70-90% of all CRS patients,” said Robert Kern, MD, Chair of Otolaryngology, Head and Neck Surgery, at Northwestern Medical Center and Professor of Otolaryngology at the Feinberg School of Medicine at Northwestern. “I believe this innovative long-acting investigational treatment has the potential to make a meaningfully positive impact on patients’ quality of life and offer an appealing alternative to invasive medical procedures.”

Conference Call

The company plans to host a conference call to discuss the results today at 8:30 am ET. Individuals interested in listening to the conference call may do so by dialing (833) 519 1249 for domestic callers, or (914)800 3822 for international callers and reference conference ID: 5134448; or from the webcast link in the investor relations section of the company’s website at: www.lyratherapeutics.com.

The live webcast can be accessed here and will be available in the investor relations section on the company’s website for 30 days following the completion of the call. In light of reduced call center resources during this time of required social-distancing, Lyra requests that listeners who do not plan on participating in the question and answer session listen to the live webcast rather than dialing in by phone.

LANTERN Phase 2 Trial Design

The Phase 2 LANTERN study was conducted in 67 adult patients with CRS, including patients with and without nasal polyps who had not undergone sinus surgery. Patients in the study were randomized 1:1:1 into three groups to receive in-office bilateral nasal administration of either one of two long-acting dose levels of LYR-210, 7500 mcg (21 patients) or 2500 mcg (23 patients) of continuous anti-inflammatory drug therapy, mometasone furoate, or control (23 patients). The multi-center study was conducted at sites in Europe, New Zealand and Australia.

The trial was originally designed to enroll 99 evaluable patients with the potential to increase to up to 150 patients and was initiated in May 2019. However, in light of developments relating to the COVID-19 global pandemic we discontinued enrollment at 67 patients in our Phase 2 LANTERN clinical trial. As a result of the decrease in the number of patients enrolled from planned (99) to actually enrolled (67) patients in our Phase 2 LANTERN clinical trial, a greater magnitude of change in composite score of the seven-day average of four cardinal symptoms from baseline at week 4 and/or a smaller standard deviation associated with the change from baseline at week 4 was required in order for the trial to achieve statistical significance for the primary endpoint.

About Lyra Therapeutics

Lyra Therapeutics, Inc. is a clinical-stage therapeutics company focused on the development and commercialization of novel integrated drug and delivery solutions for the localized treatment of patients with ear, nose and throat (ENT) diseases. The company’s lead product candidate,

LYR- 210, is designed to deliver up to six months of continuous anti-inflammatory drug therapy to the sinonasal passages for the treatment of chronic rhinosinusitis (CRS) in patients who have not undergone surgery for the disease. Lyra is also developing LYR-220 for CRS patients who have undergone a prior surgery and have persistent disease. Beyond CRS, the company believes its XTreo™ platform, comprised of drug administered through a bioresorbable polymeric matrix, has the potential to address other disease areas by precisely, consistently and locally delivering medicines for sustained periods with a single administration.

For more information, please visit www.lyratherapeutics.com and follow us on LinkedIn and Twitter @LyraTx.

Forward-Looking Statement

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 statements regarding the company's lead product candidate LYR-210, the presentation of top-line results relating to the Company's Phase 2 LANTERN clinical trial for LYR-210 and the Company's plans to initiate a pivotal Phase 3 study for LYR-210 in CRS for both non-polyp and polyp patients. These statements are neither promises nor guarantees, but involve known and unknown risks, uncertainties and other important factors that may cause the company's actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements, including, but not limited to, the following: the fact that the company has incurred significant losses since inception and expects to incur losses for the foreseeable future; the company's need for additional funding, which may not be available; the company's limited operating history; the fact that the company has no approved products; the fact that the company's product candidates are in various stages of development; the fact that the company may not be successful in its efforts to identify and successfully commercialize its product candidates; the fact that clinical trials required for the company's product candidates are expensive and time-consuming, and their outcome is uncertain; the fact that the FDA may not conclude that certain of the company's product candidates satisfy the requirements for the Section 505(b)(2) regulatory approval pathway; the company's inability to obtain required regulatory approvals; effects of recently enacted and future legislation; the possibility of system failures or security breaches; effects of significant competition; the fact that the successful commercialization of the company's product candidates will depend in part on the extent to which governmental authorities and health insurers establish coverage, adequate reimbursement levels and pricing policies; failure to achieve market acceptance; product liability lawsuits; the fact that the company relies on third parties for the manufacture of materials for its research programs, pre-clinical studies and clinical trials; the company's reliance on third parties to conduct its preclinical studies and clinical trials; the company's inability to succeed in establishing and maintaining collaborative relationships; the company's reliance on certain suppliers critical to its production; failure to obtain and maintain or adequately protect the company's intellectual property rights; failure to retain key personnel or to recruit qualified personnel; difficulties in managing the company's growth; effects of natural disasters; the fact that the global pandemic caused by COVID-19 could adversely impact the company's business and operations, including the company's clinical trials; the fact that the price

of the company's common stock may be volatile and fluctuate substantially; significant costs and required management time as a result of operating as a public company and any securities class action litigation. These and other important factors discussed under the caption "Risk Factors" in the company's Quarterly Report on Form 10-Q filed with the SEC on November 10, 2020 and its other filings with the SEC could cause actual results to differ materially from those indicated by the forward-looking statements made in this press release. Any such forward-looking statements represent management's estimates as of the date of this press release. While the company may elect to update such forward-looking statements at some point in the future, it disclaims any obligation to do so, even if subsequent events cause its views to change.

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