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): September 26, 2023

PLIANT THERAPEUTICS, INC.
(Exact name of Registrant as Specified in Its Charter)

Delaware	**001-39303**	**47-4272481**
(State or Other Jurisdiction of Incorporation)	**(Commission File Number)**	**(IRS Employer Identification No.)**

260 Littlefield Avenue, South San Francisco, CA	**94080**
(Address of Principal Executive Offices)	**(Zip Code)**

Registrant's Telephone Number, Including Area Code: (650) 481-6770

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:

☐ 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, par value $0.0001 per share	PLRX	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 ☐

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 September 26, 2023, Pliant Therapeutics, Inc. (the "Company") announced positive data from INTEGRIS-PSC, a Phase 2a clinical trial of bexotegrast in patients with primary sclerosing cholangitis and suspected moderate to severe liver fibrosis. The trial met its primary and secondary endpoints demonstrating that bexotegrast was well tolerated over a 12-week treatment period and its plasma concentrations increased with dose. The trial's exploratory efficacy endpoints assessed changes in the liver fibrosis markers, Enhanced Liver Fibrosis ("ELF") score and PRO-C3 levels, as well as liver biochemistry and magnetic resonance imaging of the liver. Results at the initial three doses tested showed bexotegrast reduced both ELF scores and PRO-C3 levels at Week 12 at all doses relative to placebo with statistically significant differences at the 160 mg dose relative to placebo at Week 12. Patients also showed stabilization of liver chemistry, including a dose-dependent trend in reduction of alkaline phosphatase levels, relative to placebo at Week 12. In addition, preliminary MRI imaging results suggest improved hepatocyte function and bile flow with bexotegrast 160 mg. A copy of the Company's press release, titled "Pliant Therapeutics Announces Positive Safety and Exploratory Efficacy Data from Phase 2a INTEGRIS-PSC Clinical Trial of Bexotegrast in Patients with Primary Sclerosing Cholangitis and Suspected Liver Fibrosis," is attached as Exhibit 99.1 to this Current Report and is incorporated by reference herein.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits.

Exhibit No.	Description
99.1	Press Release, dated September 26, 2023, titled "Pliant Therapeutics Announces Positive Safety and Exploratory Efficacy Data from Phase 2a INTEGRIS-PSC Clinical Trial of Bexotegrast in Patients with Primary Sclerosing Cholangitis and Suspected Liver Fibrosis."
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.

PLIANT THERAPEUTICS, INC.

Date: September 26, 2023

By: /s/ Keith Cummings
Keith Cummings, M.D., MBA
Chief Financial Officer

Pliant Therapeutics Announces Positive Safety and Exploratory Efficacy Data from Phase 2a INTEGRIS-PSC Clinical Trial of Bexotegrast in Patients with Primary Sclerosing Cholangitis and Suspected Liver Fibrosis

Bexotegrast (PLN-74809) was well tolerated over 12 weeks of treatment with few discontinuations and no drug-related severe or serious adverse events

Bexotegrast reduced both the Enhanced Liver Fibrosis (ELF) score and collagen synthesis biomarker PRO-C3 levels relative to placebo at all doses with statistical significance at the 160 mg dose

Bexotegrast-treated patients showed improved liver biochemistry and imaging parameters relative to placebo at Week 12

Company to host webcast and conference call today, Tuesday, September 26 at 8:00 a.m. ET

SOUTH SAN FRANCISCO, CA., September 26, 2023 — Pliant Therapeutics, Inc. (Nasdaq: PLRX), today announced positive data from INTEGRIS-PSC, a Phase 2a clinical trial of bexotegrast in patients with primary sclerosing cholangitis (PSC) and suspected moderate to severe liver fibrosis. The trial met its primary and secondary endpoints demonstrating that bexotegrast was well tolerated over a 12-week treatment period and its plasma concentrations increased with dose. The trial's exploratory efficacy endpoints assessed changes in the liver fibrosis markers, Enhanced Liver Fibrosis (ELF) score and PRO-C3 levels, as well as liver biochemistry and magnetic resonance imaging (MRI) of the liver. Results at the initial three doses tested showed bexotegrast reduced both ELF scores and PRO-C3 levels at Week 12 at all doses relative to placebo with statistically significant differences at the 160 mg dose relative to placebo at Week 12. Patients also showed stabilization of liver chemistry, including a dose-dependent trend in reduction of alkaline phosphatase (ALP) levels, relative to placebo at Week 12. In addition, preliminary MRI imaging results suggest improved hepatocyte function and bile flow with bexotegrast 160 mg. Twelve-week interim data from the high-dose 320 mg cohort is expected in the first quarter of 2024.

INTEGRIS-PSC is a multinational, randomized, dose-ranging, double-blind, placebo-controlled Phase 2a trial evaluating bexotegrast at once-daily doses of 40 mg, 80 mg, 160 mg or placebo for 12 weeks in 85 patients with PSC. 64 patients were enrolled in the active arms and 21 patients were enrolled in the placebo arm. We believe INTEGRIS-PSC to be the first randomized clinical trial to use an enrichment strategy to enroll patients with suspected moderate to severe liver fibrosis based on liver stiffness measure, ELF score or historical liver biopsy. Baseline characteristics of the trial population reflected this enrichment.

"The INTEGRIS-PSC interim data has surpassed our expectations, providing hope to patients with PSC who currently have no approved therapeutic options available to them," said Éric Lefebvre, M.D., Chief Medical Officer of Pliant. "Today marks a new chapter for the bexotegrast platform, having now shown meaningful antifibrotic effects across multiple tissues and indications. The INTEGRIS-PSC and INTEGRIS-

IPF trials provide further evidence that localized inhibition of TGF-ß by bexotegrast blocks a profibrotic pathway that is common in multiple fibrotic diseases without affecting TGF-ß signaling systemically. This, coupled with the favorable safety and tolerability profile seen to date, gives us great confidence in bexotegrast as we look to broaden future development into additional pulmonary and liver indications."

Bexotegrast Was Well Tolerated Across All Doses

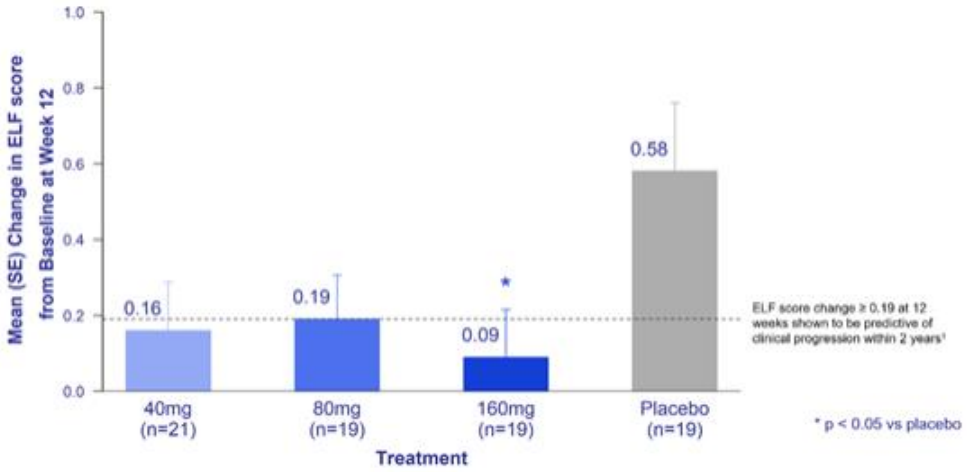
The primary endpoint of the INTEGRIS-PSC trial is the evaluation of the safety and tolerability of bexotegrast. The secondary endpoint is an assessment of its pharmacokinetics.

Bexotegrast was well tolerated at all three doses tested. Of the 64 patients treated with bexotegrast, 60 (94%) completed 12 weeks of treatment with no deaths or drug-related severe or serious adverse events (SAE). Most treatment emergent adverse events (TEAEs) were mild or moderate in severity and consistent with PSC disease symptoms. Patients in the trial who had concomitant inflammatory bowel disease (IBD) saw no change in their IBD symptoms as measured by partial Mayo Score while on treatment.

Bexotegrast total and unbound plasma concentrations increased with dose.

Bexotegrast Demonstrated Antifibrotic Activity in a PSC Population with Suspected Moderate to Severe Liver Fibrosis at Week 12

The exploratory endpoints of the INTEGRIS-PSC trial include changes in liver fibrosis markers, ELF and PRO-C3, liver biochemistry and MRI imaging.



ELF: enhanced liver fibrosis score; All participants had baseline ELF ≥ 7.7 (moderate to severe liver fibrosis)[2]
1 Hepatology 2015 62(1):188-197 2 Hepatology 2015 62(1):188-197

Figure 1. Change in ELF Score at 12 Weeks in INTEGRIS-PSC

A treatment effect was observed on ELF score in all bexotegrast dose groups. The ELF score is a well-established prognostic marker of liver disease severity and liver-related events in patients with advanced fibrosis.[1] ELF is strongly associated with transplant-free survival in PSC and may be useful as a surrogate marker in clinical trials.[2] Bexotegrast reduced ELF scores relative to placebo at all doses, with a statistical significance achieved at the 160 mg dose. The bexotegrast 160 mg dose group demonstrated an 84% reduction of the change in ELF score relative to placebo at Week 12. Importantly, at the 160 mg dose group, statistically significant reductions were observed across all three components of the ELF score (tissue inhibitor of metalloproteinase 1 (TIMP-1), procollagen III N-terminal propeptide (PIIINP) and hyaluronic acid (HA)). Similarly, the bexotegrast 160 mg dose showed a statistically significant reduction in PRO-C3 level relative to placebo at Week 12. PRO-C3 is a biomarker of active fibrogenesis with higher levels associated with greater disease activity.[3]

Patients with PSC tend to have elevated or fluctuating liver biochemistry levels.[4] Patients treated with bexotegrast showed stabilization of liver chemistry levels, including alanine aminotransferase (ALT) and aspartate aminotransferase (AST), as well as total and direct bilirubin, at all doses versus increases in placebo at Week 12. Additionally, bexotegrast-treated patients with elevated baseline ALP levels (ie, > upper limit of normal) showed a dose-dependent trend in reduction in ALP relative to placebo at Week 12.

Preliminary MRI imaging of the liver using gadoxedate contrast showed small increases in MRI relative enhancement from baseline across all dose groups, compared to a decrease observed in the placebo group to Week 12. MRI relative enhancement using gadoxedate contrast is a measure of hepatocyte function, with increased enhancement suggesting improved hepatocyte function.[5,6] Similarly, the change in time of arrival of gadoxedate in the common bile duct from baseline to Week 12 was shorter in the bexotegrast arms compared to the placebo group. Time to arrival is a measure of bile flow with shorter times suggestive of improved bile flow.[7]

Patients with PSC often experience pruritus, or itch, as part of their disease.[8] Treatment with bexotegrast demonstrated dose dependent reductions in the Itch Numerical Rating Scale relative to placebo with statistical significance achieved at the 160 mg dose at Week 12.

“The INTEGRIS-PSC data is compelling, with bexotegrast demonstrating a favorable tolerability profile, and showing antifibrotic activity across all doses,” said Cynthia Levy, M.D., Professor of Medicine at the University of Miami School of Medicine, and INTEGRIS-PSC trial investigator. “I am encouraged by the clear reduction in serum ELF score, a well-established prognostic biomarker in PSC, at all doses compared to placebo. Given the lack of pharmaceutical treatment options, our imperative is to identify novel therapies that slow or prevent disease progression. I look forward to seeing additional data from INTEGRIS-PSC.”

1 Vesterhus M, et al. Hepatology. 2015 Jul;62(1):188-97.
2 Bowlus CL, et al. Hepatology. 2023 Feb 1;77(2):659-702.
3 Nielsen MJ, et al. Aliment Pharmacol Ther. 2018 Jul;48(2):179-189.
4 Karlsen TH, et al. J Hepatol. 2017 Dec;67(6):1298-1323.
5 Schulze J, et al. Clin Gastroenterol Hepatol. 2019 Jan;17(1):192-199.
6 Nilsson H, et al. J Magn Reson Imaging. 2014 Apr;39(4):879-86.
7 Elkilany A, et al. Abdom Radiol (NY). 2021 Mar;46(3):979-991.
8 Karlsen TH, et al. J Hepatol. 2017 Dec;67(6):1298-1323.

INTEGRIS-PSC Next Steps

Pliant has recently completed enrollment of the high-dose 320 mg dose cohort of the INTEGRIS-PSC Phase 2a trial. Interim 12-week data from the 320 mg dose is expected in the first quarter of 2024, with 24-week data from this dose expected in mid-2024.

We would like to thank our INTEGRIS-PSC investigators and their study teams for their dedication in support of the successful execution of this trial. Special thanks to the INTEGRIS-PSC clinical trial participants, their families and support networks for helping us advance this promising program.

INTEGRIS-PSC Multinational Phase 2 Trial of Bexotegrast (NCT04480840)

INTEGRIS-PSC is a Phase 2a, randomized, dose-ranging, double-blind, placebo-controlled trial evaluating the safety, tolerability, and pharmacokinetics of bexotegrast administered over 12 weeks in patients with IPF. Patients were enrolled in doses of 40 mg, 80 mg, 160 mg or 320 mg, with a 3:1 randomization ratio (active:placebo) and stratification based on use of ursodeoxycholic acid (UDCA). The primary endpoint is the evaluation of bexotegrast safety and tolerability and the secondary endpoint is the assessment of pharmacokinetics across a dose range. Exploratory endpoints will measure changes in liver fibrosis markers, ELF and PRO-C3, liver biochemistry and liver imaging.

Background on Primary Sclerosing Cholangitis

PSC is a rare, progressive liver disease of unknown origin, which frequently occurs in the setting of inflammatory bowel disease. PSC affects more than 30,000 patients in the United States and over 100,000 patients worldwide. The disease can occur in all ages, gender, and race. PSC is characterized by inflammation and fibrosis, with progressive liver and biliary damage leading to cirrhosis and liver failure. Currently there are no FDA or EMA-approved therapies for patients with PSC. Therefore, there is a high unmet need for new therapeutic options to address the symptoms and modify the disease progression of this grievous illness.

Conference Call and Webcast

The Company will host a conference call and webcast with a slide presentation today, Tuesday September 26 at 8:00 a.m. ET to discuss this update. Interested parties may access the live webcast on Pliant's website at Pliant Therapeutics INTEGRIS-PSC Webcast or may participate via telephone by registering in advance at the following link: Pliant Therapeutics INTEGRIS-PSC Conference Call. Upon registration, all telephone participants will receive the dial-in number along and a unique passcode to access the call. An archived replay of the webcast will be available on Pliant's website for 60 days following completion of the event.

About Pliant Therapeutics, Inc.

Pliant Therapeutics is a clinical stage biopharmaceutical company focused on discovering and developing novel therapies for the treatment of fibrosis. Pliant's lead product candidate, bexotegrast (PLN-74809), is an oral, small molecule, dual selective inhibitor of αvß6 and αvß1 integrins that is in development in the lead indications for the treatment of idiopathic pulmonary fibrosis, or IPF, and primary sclerosing

cholangitis, or PSC. Bexotegrast has received Fast Track Designation and Orphan Drug Designation from the U.S. Food and Drug Administration (FDA) in IPF and PSC and Orphan Drug Designation from the European Medicines Agency in IPF and PSC. Pliant has initiated BEACON-IPF, a Phase 2b trial of bexotegrast in IPF. Pliant has also developed PLN-1474, a small molecule, selective inhibitor of αvß1 integrin for the treatment of nonalcoholic steatohepatitis, or NASH with liver fibrosis. Pliant has initiated a Phase 1 study for its third clinical program, PLN-101095, a small molecule, dual-selective inhibitor of αvß8 and αvß1 integrins, that is being developed for the treatment of solid tumors. In addition to clinical stage programs, Pliant currently has a preclinical program targeting muscular dystrophies. For additional information, please visit: www.PliantRx.com. Follow us on social media Twitter, LinkedIn, Facebook and YouTube.

Forward-Looking Statements

Statements contained in this press release regarding matters that are not historical facts are “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995. Words such as “may,” “will,” “expect,” “anticipate,” “estimate,” “intend,” and similar expressions (as well as other words or expressions referencing future events, conditions, or circumstances) are intended to identify forward-looking statements. These statements include those regarding the safety, tolerability, pharmacodynamics and therapeutic potential of bexotegrast; our plans for the future development of bexotegrast; bexotegrast’s potential to become a treatment for IPF or PSC; the anticipated timing of data and progress from our clinical studies; including the timing of 12-week and 24-week data from the 320 mg dose cohort of the INTEGRIS-PSC Phase 2a trial in the first quarter of 2024 and mid-2024, respectively. Because such statements deal with future events and are based on our current expectations, they are subject to various risks and uncertainties and actual results, performance or achievements of Pliant Therapeutics could differ materially from those described in or implied by the statements in this press release. These forward-looking statements are subject to risks and uncertainties, including those related to the development and commercialization of our product candidates, including any delays in our ongoing or planned preclinical or clinical trials, the impact of current macroeconomic and marketplace conditions, our reliance on third parties for critical aspects of our development operations, the risks inherent in the drug development process, the risks regarding the accuracy of our estimates of expenses and timing of development, our capital requirements and the need for additional financing, including the availability of additional term loans under our loan facility, and our ability to obtain and maintain intellectual property protection for our product candidates. These and additional risks are discussed in the sections titled “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in our Quarterly Report on Form 10-Q for the period ended June 30, 2023 which is available on the SEC’s website at www.sec.gov. Unless otherwise noted, Pliant is providing this information as of the date of this news release and does not undertake any obligation to update any forward-looking statements contained in this document as a result of new information, future events or otherwise.

Investor and Media Contact:

Christopher Keenan
Vice President, Investor Relations and Corporate Communications
Pliant Therapeutics, Inc.
ir@pliantrx.com