

**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): April 11, 2021

LYRA THERAPEUTICS, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction
of incorporation)

001-39273
(Commission File Number)

84-1700838
(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 April 11, 2021, Lyra Therapeutics, Inc. (the “Company”) posted a slide presentation in the “Investors” portion of its website at investors.lyratherapeutics.com, which includes final top-line results from its Phase 2 LANTERN clinical trial of LYR-210, the Company’s product candidate for chronic rhinosinusitis. The data was presented at the Combined Otolaryngology Spring Meetings virtual conference on April 11, 2021. The Company previously reported positive top-line results from its Phase 2 LANTERN clinical trial on December 7, 2020. A copy of this slide presentation is attached to this Current Report on Form 8-K as Exhibit 99.1. The Company undertakes no obligation to update, supplement or amend the materials attached hereto as Exhibit 99.1.

Item 9.01. Financial Statements and Exhibits.

(d) Exhibits

| <u>Exhibit No.</u> | <u>Description</u> |
|--------------------|---|
| 99.1 | Presentation Slide Deck |

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: April 13, 2021

By: /s/ R. Don Elsey

R. Don Elsey
Chief Financial Officer



Long-acting implantable corticosteroid matrix for chronic rhinosinusitis: Results of LANTERN Phase 2 randomized controlled study

Anders Cervin¹, Joanne Rimmer², Agnieszka Wrobel³, Yogen Abelak⁴, Lindsay Brayton⁵, Yina Kuang⁵

¹University of Queensland Centre for Clinical Research, Royal Brisbane & Women's Hospital Campus, Herston, QLD, Australia; ²Monash Health and Department of Surgery, Monash University, Melbourne, Australia; ³Centrum Medyczne ALL-MED, Krakow, Poland; ⁴Vistamed Sp. z o.o., Wroclaw, Poland; ⁵Lyra Therapeutics, Inc., Watertown, MA, USA.

Presented by Robert C. Kern, MD

Professor and Chairman, Department of Otolaryngology – Head & Neck Surgery
Feinberg School of Medicine, Northwestern University

Includes data presented at the Combined Otolaryngology Spring Meetings (COSM) on April 11, 2021



This presentation contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. All statements contained in this presentation 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 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 Annual Report on Form 10-K filed with the SEC on March 9, 2021 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 presentation. Any such forward-looking statements represent management's estimates as of the date of this presentation. 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.

This presentation also includes statistical and market data that we obtained from industry [publications and research, surveys and studies conducted by third parties or us. Industry publications and third-party research, surveys and studies generally indicate that their information has been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information. All of the market data used in this presentation involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates. While we believe these industry publications and third-party research, surveys and studies are reliable, we have not independently verified such data. The industry in which we operate is subject to a high degree of uncertainty, change and risk due to a variety of factors, which could cause results to differ materially from those expressed in the estimates made by the independent partners and by us.

Topical steroids used to treat CRS are suboptimal^{1,2}

- Limited ability to reach inflammation deep within the sinonasal passages
- Rapid clearance rates
- Poor patient compliance

40-60% of CRS patients fail medical management and become candidates for functional endoscopic sinus surgery³

- ~4 million CRS patients fail medical management annually in the U.S.⁴
- ~400,000 CRS patients undergo FESS annually in the U.S.³

Novel therapeutic modalities are needed for CRS patients that fail medical management

¹Moeller W et al. *Rhinology*. Dec 2009;47(4):405-12. ²Nabi S et al. *J Otolaryngol Head Neck Surg*. Apr 2012;41 Suppl 1:S49-55. ³Young LC et al. *Allergy Rhinol (Providence)*. 2012;3(1):e8-e12. ⁴Baguley et al. *Int Forum Allergy Rhinol*. 2014;4(7):525-32

LYR-210

FOR CHRONIC RHINOSINUSITIS

LYR-210 is designed to provide 24 weeks of continuous anti-inflammatory therapy directly to the inflamed mucosa

| Being developed to provide sustained release of mometasone furoate deep in the middle meatus

| Adaptable mesh design conforms and adapts to patient's anatomy

| Designed to be administered in an otolaryngologist's office

| Designed to eliminate patient compliance issues

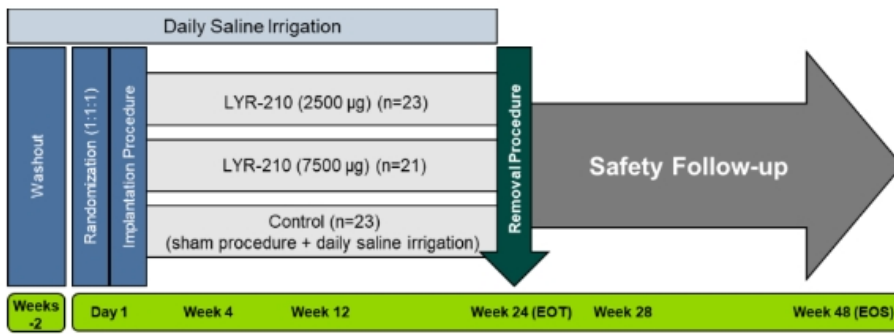


In-office Placement of LYR-210

LANTERN PHASE 2 STUDY DESIGN

Multicenter, randomized, blinded, controlled, dose-ranging trial

LYR-210 was evaluated in adult subjects with CRS that failed previous medical management and have not undergone FESS



Due to COVID-19, study enrollment was curtailed to 67 total patients

EOT = End of Treatment; EOS = End of Study

Moderate-to-severe CRS

- Baseline SNOT-22: ~68

Approximately half had nasal polyps

Primary Endpoint: Change in 4 cardinal symptoms composite score

Secondary Endpoints include:

- SNOT-22
- Symptom improvement over 24 weeks
- Reduction in inflammation (MRI)
- Time to first rescue treatment
- Adverse events

LYR-210

LANTERN PHASE 2 STUDY

Well-tolerated throughout the
24-week treatment period at both
2500µg and 7500µg doses

WELL-TOLERATED SAFETY PROFILE AT BOTH DOSES



No treatment-related SAEs



Treatment-related AEs in more than 1 subject:

- Epistaxis: 3 subjects in LYR-210 (2500µg) group
- Rhinitis: 3 subjects in LYR-210 (7500µg) group
- Rhinorrhea: 2 subjects in LYR-210 (2500µg) group
- Headache: 2 subjects in Control group



**All treatment-related AEs were mild or moderate apart from
1 event in LYR-210 (2500µg) group:**

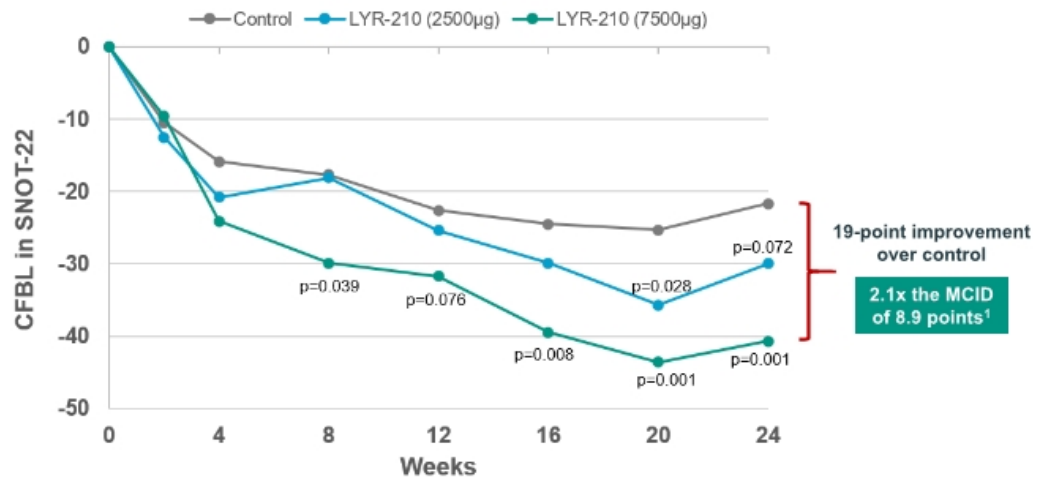
- Increased viscosity of upper respiratory secretion



**Treatment-related AEs in Control and LYR-210 (7500µg)
groups occurred at comparable rates**

22-ITEM SINO-NASAL OUTCOME TEST (SNOT-22)

LYR-210 achieved rapid, durable and clinically meaningful improvement in SNOT-22 score over 24 weeks



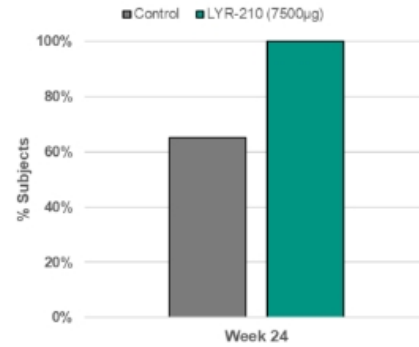
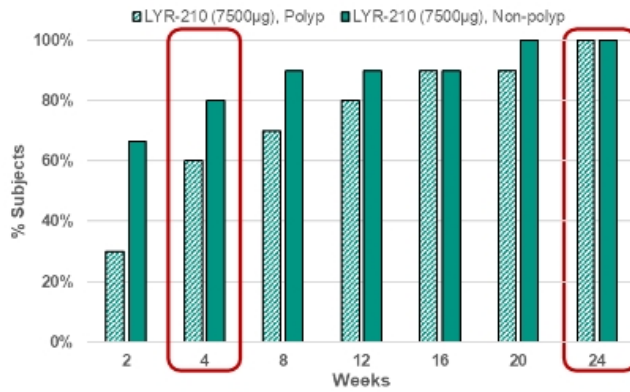
Mean change from baseline (CFBL) in SNOT-22 total score. Data represents LSM. P<0.05 is considered statistically significant to control. MCID = Minimal Clinically Important Difference. ¹Hopkins et al., Clinical Otolaryngology 2009, 34, 447-454.

SNOT-22 RESPONDER ANALYSIS

% Subjects Achieved MCID in SNOT-22¹

100% of polyp and non-polyp CRS subjects administered LYR-210 (7500µg) achieved MCID by Week 24

Rapid onset and durable therapeutic response



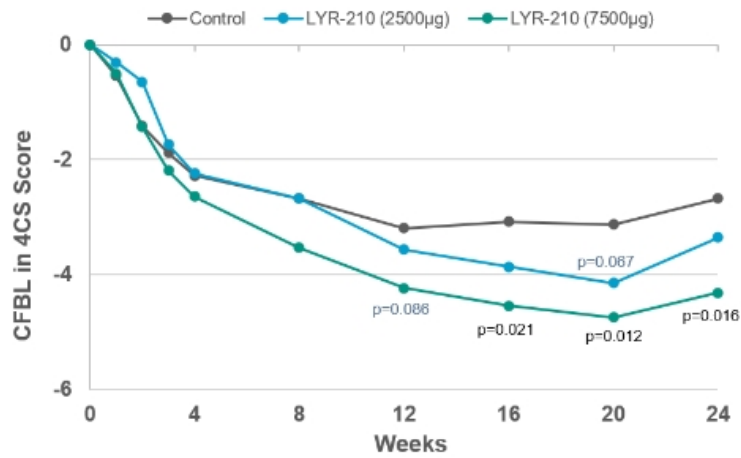
¹Data represents % of subjects that reported at least an 8.9-point decrease in the SNOT-22 total score as defined in Hopkins et al., *Clinical Otolaryngology* 2009, 34, 447-454.

MCID = Minimal Clinically Important Difference. Left: Polyp vs. Non-polyp subjects administered LYR-210 (7500µg). Right: Total patients administered LYR-210 (7500µg) or nasal saline irrigation control at week 24.

COMPOSITE OF 4 CARDINAL SYMPTOMS (4CS)

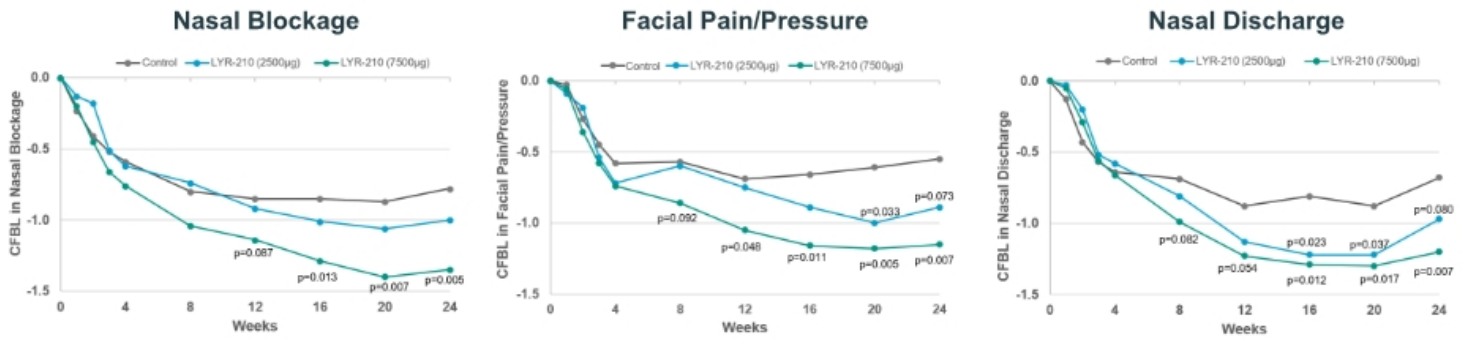
Nasal Blockage, Facial Pain/Pressure, Nasal Discharge, and Loss of Smell

LYR-210 (7500µg) achieved statistically significant improvement in the 4CS at 24 weeks and earlier compared to control



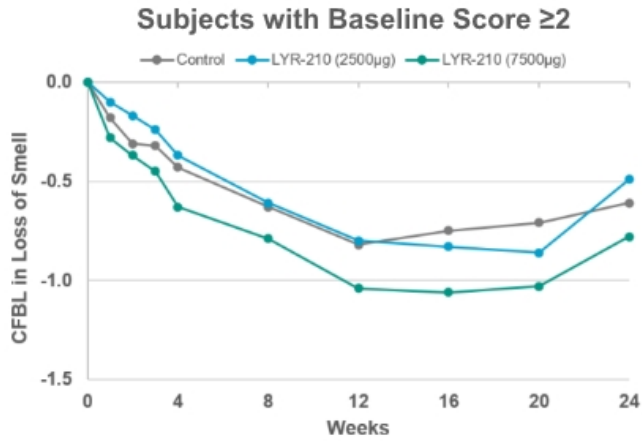
Mean change from baseline (CFBL) in the 7-day average score in the 4CS composite score (nasal blockage, facial pain/pressure, nasal discharge (anterior/posterior), and loss of smell). 4CS scale: 0-12. Data represents LSM. P<0.05 is considered statistically significant to control.

LYR-210 achieved dose-dependent improvement in the cardinal symptoms of CRS



Mean change from baseline (CFBL) in the 7-day average score in nasal blockage, facial pain/pressure, or nasal discharge (anterior/posterior) for all patients. Data represents LSM. P<0.05 is considered statistically significant to control.

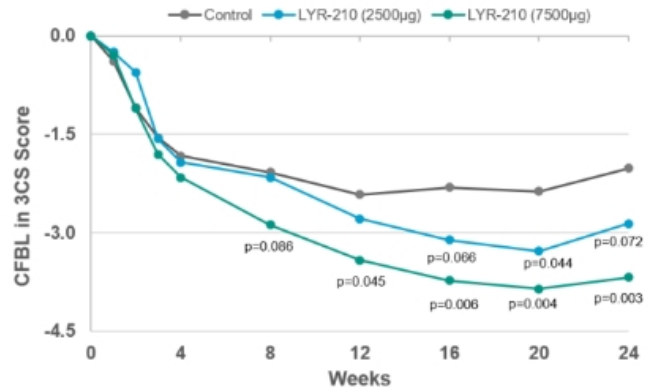
LYR-210 (7500µg) was associated with a trend towards improvement in smell in patients with moderate-to-severe anosmia



Mean change from baseline (CFBL) in the 7-day average score in loss of smell for patients with moderate-to-severe baseline anosmia (≥ 2 baseline score in loss of smell); LYR-210 (7500µg) (n=15 patients), LYR-210 (2500µg) (n=20 patients), control (n=20 patients). Data represents LSM. P<0.05 is considered statistically significant to control.

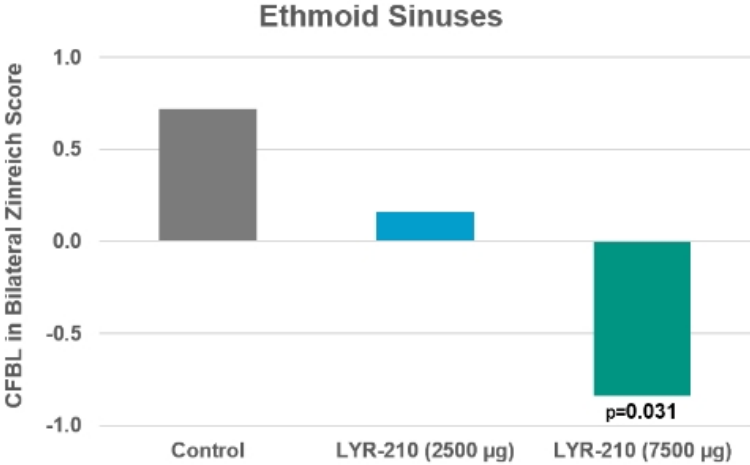
Composite of 3 Cardinal Symptoms (3CS)

Nasal Blockage, Facial Pain/Pressure, Nasal Discharge



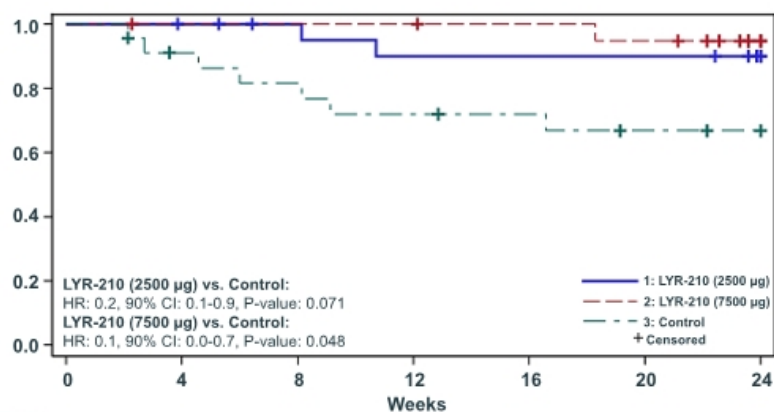
Mean change from baseline (CFBL) in the 7-day average score in the 3CS composite score (nasal blockage, facial pain/pressure, and nasal discharge (anterior/posterior)). Data represents LSM. P<0.05 is considered statistically significant to control.

LYR-210 improved bilateral ethmoid Zinreich (modified Lund-Mackay) scores at Week 24



Mean change from baseline (CFBL) in the bilateral ethmoid Zinreich score (composite score of anterior ethmoid and posterior ethmoid Zinreich scores) at 24 weeks. Data represents mean. P<0.05 is considered statistically significant to control.

LYR-210 decreased the need for rescue treatment



Number of Patients at Risk:

| | 0 | 4 | 8 | 12 | 16 | 20 | 24 |
|----------------------|----|----|----|----|----|----|----|
| 1: LYR-210 (2500 µg) | 23 | 22 | 20 | 18 | 18 | 18 | 15 |
| 2: LYR-210 (7500 µg) | 21 | 20 | 20 | 20 | 19 | 18 | 12 |
| 3: Control | 23 | 19 | 17 | 15 | 14 | 12 | 11 |

Time to first rescue treatment use over 24 weeks. Event is rescue treatment used. Patients who did not achieve the event were censored at the end of treatment date or at the early termination date. LYR-210 (7500µg) (n=1 patient), LYR-210 (2500µg) (n=2 patients), saline irrigation control (n=7 patients) used rescue treatment over the 24-week treatment period.

- | LYR-210 achieved a rapid and durable dose-dependent improvement in the cardinal symptoms of CRS and SNOT-22 throughout 24 weeks in subjects independent of polyp status from a single administration
- | LYR-210 decreased ethmoid opacification and need for rescue treatment
- | LYR-210 provided up to 24 weeks of continuous local steroid treatment, eliminating issues of patient compliance in the clinical trial
- | LYR-210 has the potential to represent a major step forward in the care for CRS patients who are facing surgery as their next treatment option
- | Lyra Therapeutics, Inc. is advancing LYR-210 into a pivotal Phase 3 study



