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 10, 2022

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

Delaware	**001-39273**	**84-1700838**
(State or other jurisdiction of incorporation)	**(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 September 10, 2022, Lyra Therapeutics, Inc. (the "Company") posted a slide presentation in the "Investors" portion of its website at investors.lyratherapeutics.com, which includes additional Phase 2 results from its LANTERN clinical trial of LYR-210, the Company's lead product candidate for chronic rhinosinusitis. The data was presented at the 68th Annual Meeting of the American Rhinologic Society (ARS) on September 10, 2022. The Company previously reported final top-line results from its Phase 2 LANTERN clinical trial on April 11, 2021. 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

Exhibit No.	Description
99.1	Presentation Slide Deck
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.

LYRA THERAPEUTICS, INC.

Date: September 12, 2022

By: /s/ Jason Cavalier
Jason Cavalier
Chief Financial Officer

Long-acting corticosteroid matrices improve CRS cardinal symptoms

Brent A. Senior, MD[1]*, Anders Cervin, MD, PhD[2], Joanne Rimmer, MD[3], Agnieszka Wrobel, MD, PhD[4], Lindsay Brayton, BA[5], James Shao, MS[5], Vineeta Belanger, PhD[5], Robert C. Kern, MD[6]

[1]Department of Otolaryngology - Head & Neck Surgery, University of North Carolina, Chapel Hill, NC, USA; [2]University of Queensland Centre for Clinical Research, Royal Brisbane & Women's Hospital Campus, Herston, QLD, Australia; [3]Monash Health and Department of Surgery, Monash University, Melbourne, Australia; [4]Centrum Medyczne ALL-MED, Kraków, Poland; [5]Lyra Therapeutics, Inc., Watertown, MA, USA; [6]Department of Otolaryngology, Northwestern University Feinberg School of Medicine, Chicago, IL, USA. *Presenting Author

This data was presented at the 68th Annual Meeting of the ARS in Philadelphia, Pennsylvania.
Saturday, September 10, 2022 (8:14-8:20am ET)
Session: Chronic Rhinosinusitis Histology and Treatment

DISCLAIMER

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 results relating to the Company's Phase 2 LANTERN clinical trial for LYR-210 and the success and efficacy of LYR-210. 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 additional 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; or 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, terrorism and wars (including the developing conflict between Ukraine and Russia); 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 Securities and Exchange Commission (SEC) on August 9, 2022 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 or by us.

DISCLOSURES

- Brent A. Senior was the Chair of the Data Monitoring Committee for the Phase II LANTERN study and is a consultant of Lyra Therapeutics, Inc. and a consultant for Stryker. He is also Vice President for Development and Strategy for the American Rhinologic Society.

BACKGROUND

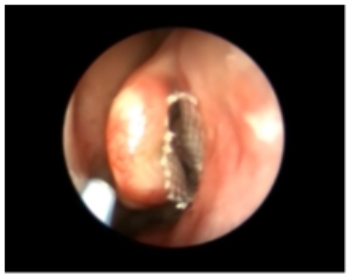
- Chronic rhinosinusitis (CRS) is a disorder that significantly impacts the quality-of-life of patients
  - Intranasal corticosteroids as first line therapy
- Estimated that up to 50% of CRS patients remain uncontrolled despite medical management[1], *indicating a need for better treatment options*
- Composite score of the 3 most prevalent CRS cardinal symptoms (3CS; nasal blockage, nasal discharge, facial pain/pressure)
  - Provides direct measure of CRS burden
  - Currently used as primary efficacy endpoint in multiple pivotal Phase 3 trials of treatments in development for CRS

1) Young LC et al. *Allergy Rhinol (Providence)*. 2012;3(1):e8-e12.

LYR-210 FOR CHRONIC RHINOSINUSITIS

LYR-210 is a product in development for patients with CRS who failed previous medical management

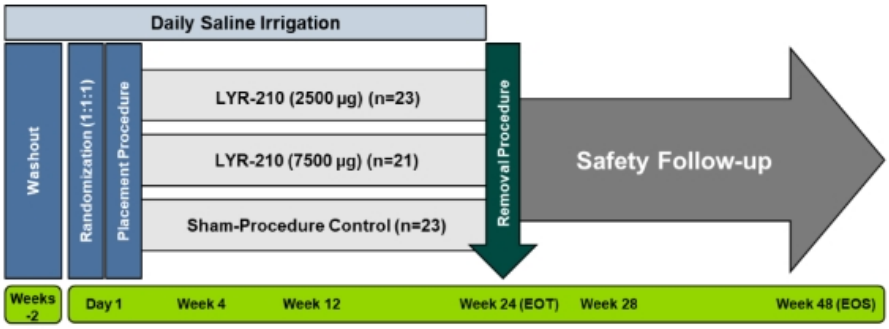
- Bioresorbable matrix formulated to provide steady daily dosing of mometasone furoate continuously over 24 weeks
- Administered bilaterally in an in-office procedure using endoscopic guidance
- Designed to conform to the middle meatus and adjust as tissues remodel
- Placement and removal procedure is well-tolerated by patients



Cervin A, et al. *Int Forum Allergy Rhinol*. 2022;12(2):147-159

LANTERN STUDY DESIGN

Multicenter, patient-blinded, randomized, controlled, dose-ranging Phase II study

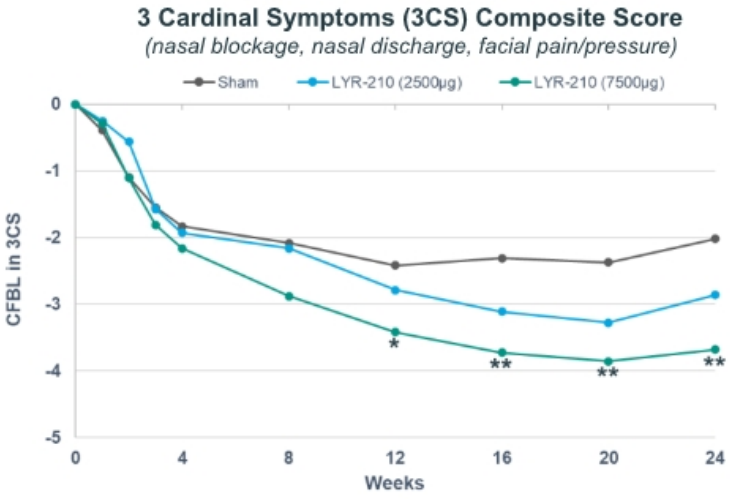


- **Study Population:** Adults with CRS who failed previous medical management and have not undergone FESS
- **Primary Endpoint:** Change from baseline in the composite score of the 4 cardinal symptoms of CRS at Week 4*

Cervin A, et al. *Int Forum Allergy Rhinol*. 2022;12(2):147-159. EOT = End of Treatment; EOS = End of Study; FESS = functional endoscopic sinus surgery. *CRS cardinal symptoms are nasal blockage, facial pain/pressure, nasal discharge, and olfactory loss

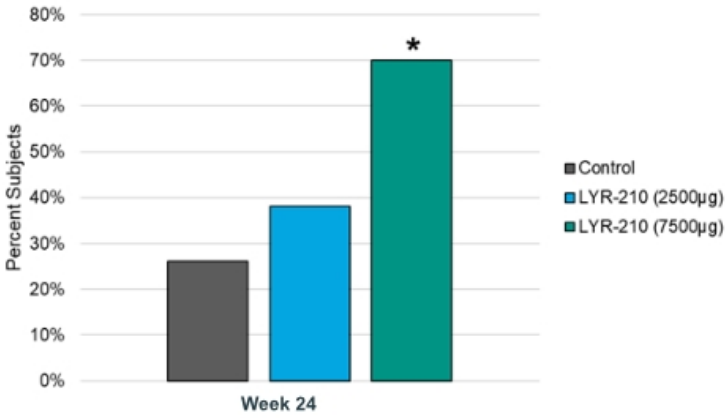
SUMMARY OF PREVIOUSLY REPORTED LANTERN STUDY RESULTS

- LYR-210 was well tolerated at both 7500µg and 2500µg doses and AEs were comparable to control
- LYR-210 (7500µg) achieved statistically significant and clinically meaningful benefit in:
  - 4CS composite score change at Week 24
  - SNOT-22 change at Week 24
  - Need for rescue treatment through Week 24
  - Ethmoid opacification (MRI) change at Week 24



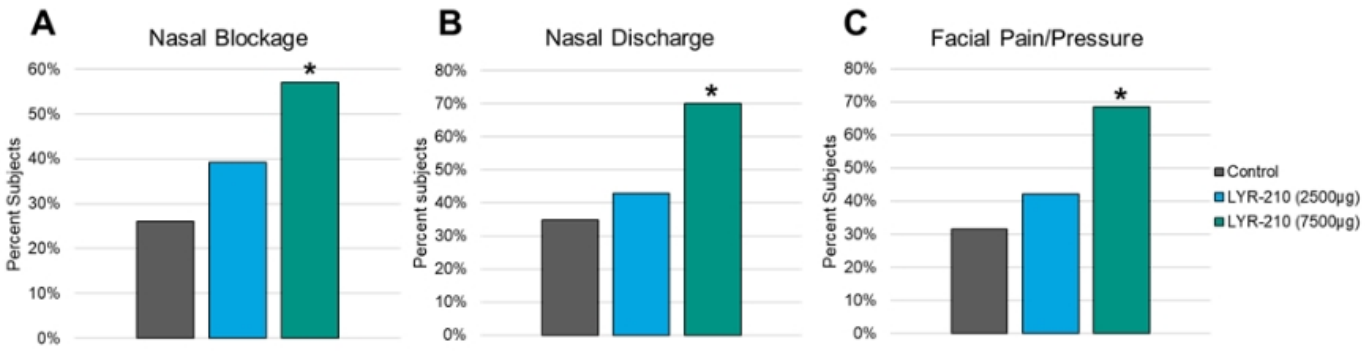
Cervin A, et al. *Int Forum Allergy Rhinol*. 2022;12(2):147-159. Change from baseline (CFBL) in 3CS composite score was evaluated in a post-hoc analysis of the LANTERN study. P values are 1-sided vs. control. *p<0.05, **p<0.01.

IMPROVEMENT IN 3CS COMPOSITE SCORES FROM MODERATE OR SEVERE AT BASELINE TO NONE OR MILD AT WEEK 24



Weekly 3CS composite scores were categorized as: none [0-1.5), mild [1.5-4.5), moderate [4.5-7.5), and severe [7.5-9]. LYR-210 (7500µg) (n=1) and LYR-210 (2500µg) (n=2) were excluded from analysis, as their 3CS composite score was Mild at baseline. P values are 1-sided vs. Control. *p=0.005.

IMPROVEMENT IN 3CS SCORES FROM MODERATE OR SEVERE AT BASELINE TO NONE OR MILD AT WEEK 24



Weekly scores of individual symptoms were categorized as: none [0-0.5), mild [0.5-1.5), moderate [1.5-2.5), and severe [2.5-3]. LYR-210 (7500µg) (n=1) and LYR-210 (2500µg) (n=2) were excluded from analysis in (B), and LYR-210 (7500µg) (n=2) and LYR-210 (2500µg) (n=4), and Control (n=4) were excluded from analysis in (C), as their nasal discharge or facial pain/pressure was Mild at baseline. P-values are 1-sided vs. control.
*p<0.05.

CONCLUSIONS

- LYR-210 (7500µg) significantly improved the severity of nasal blockage, nasal discharge, and facial pain/pressure when analyzed as individual and composite symptom scores in the LANTERN study, achieving None or Mild at week 24 in some subjects
- LYR-210 demonstrated a dose response in improving 3CS severity in the LANTERN study
- Study Limitation: Definitions of the severity categories (none, mild, moderate, and severe) for the 3CS are not yet established
- LYR-210 (7500µg) is being assessed in two ongoing Phase III ENLIGHTEN studies with the 3CS composite score at week 24 as the primary endpoint
- LYR-210 (7500µg) may be a promising treatment option for surgically naïve patients with uncontrolled CRS

Correlation between SNOT-22 and cardinal symptom composite scores in CRS

Brent A. Senior, MD[1]*, Anders Cervin, MD, PhD[2], Joanne Rimmer, MD[3], Agnieszka Wrobel, MD, PhD[4], Lindsay Brayton, BA[5], James Shao, MS[5], Vineeta Belanger, PhD[5], Robert C. Kern, MD[6]

[1]Department of Otolaryngology - Head & Neck Surgery, University of North Carolina, Chapel Hill, NC, USA; [2]University of Queensland Centre for Clinical Research, Royal Brisbane & Women's Hospital Campus, Herston, QLD, Australia; [3]Monash Health and Department of Surgery, Monash University, Melbourne, Australia; [4]Centrum Medyczne ALL-MED, Kraków, Poland; [5]Lyra Therapeutics, Inc., Watertown, MA, USA; [6]Department of Otolaryngology, Northwestern University Feinberg School of Medicine, Chicago, IL, USA. *Presenting Author

This data was presented at the 68th Annual Meeting of the ARS in Philadelphia, Pennsylvania.
Saturday, September 10, 2022 (2:14-2:20pm ET)
Session: Health Disparities, Disease Burden, and Patient Outcomes

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DISCLOSURES

- Brent A. Senior was the Chair of the Data Monitoring Committee for the Phase II LANTERN study and is a consultant of Lyra Therapeutics, Inc. and a consultant for Stryker. He is also Vice President for Development and Strategy for the American Rhinologic Society.

BACKGROUND

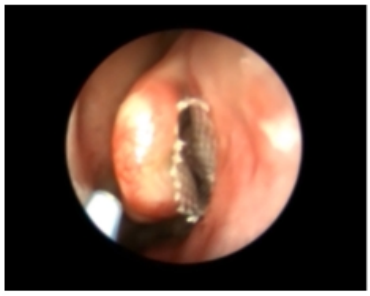
- SNOT-22 is a routinely used CRS-specific quality of life instrument; however, it has not been accepted as a primary endpoint for evaluating response to treatments in development for CRS
- Clinical studies for CRSwNP have used change in nasal polyp score and change in nasal congestion score as primary efficacy endpoints
  - Not applicable for CRSsNP (70-90% of CRS patients[1])
- Composite score of the 3 most prevalent CRS cardinal symptoms (3CS; nasal blockage, nasal discharge, facial pain/pressure) is being used as primary efficacy endpoint in multiple pivotal Phase III trials of treatments in development for CRS

1) Cho, SH et al. J Allergy Clin Immunol Pract. 2016;4(4):575–582

LYR-210 FOR CHRONIC RHINOSINUSITIS

LYR-210 is in development for patients with CRS who failed previous medical management

- Bioresorbable matrix formulated to release mometasone furoate at a steady rate continuously for up to 24 weeks
- Self-expanding properties allow LYR-210 to dynamically conform to the middle meatus
- Straightforward office-based placement and removal that is well-tolerated by patients



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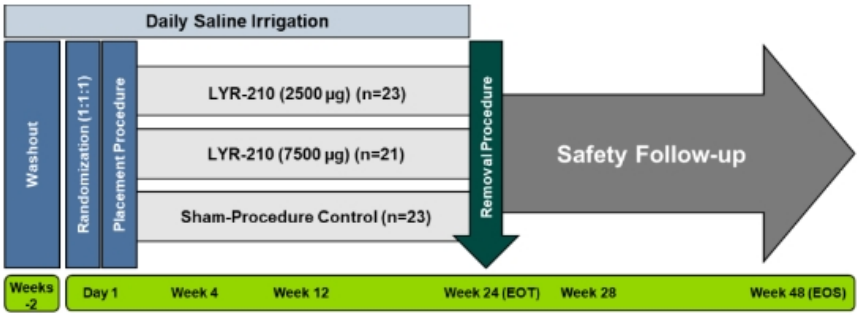
LANTERN STUDY DESIGN

Multicenter, patient-blinded, randomized, controlled, dose-ranging Phase II study

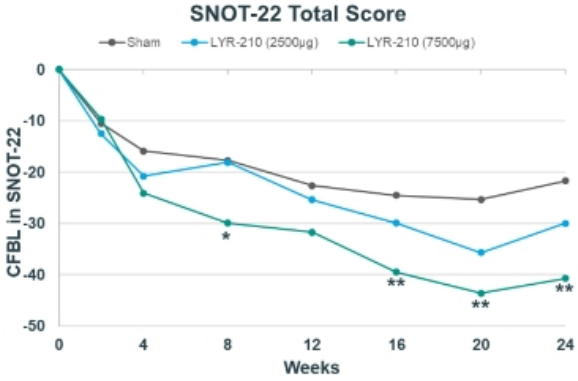


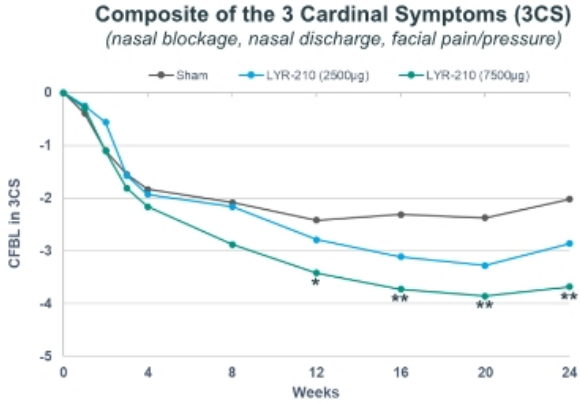
- **Study Population:** Adults with CRS who failed previous medical management and have not undergone FESS
- **Primary Endpoint:** Change from baseline in the composite score of the 4 cardinal symptoms of CRS at Week 4*
- **Secondary Endpoints:**
  - SNOT-22
  - Individual Cardinal Symptoms
  - Ethmoid Opacification (MRI)
  - Time to first rescue treatment
  - Adverse events

Cervin A, et al. *Int Forum Allergy Rhinol*. 2022;12(2):147-159. EOT = End of Treatment; EOS = End of Study; FESS = functional endoscopic sinus surgery. *CRS cardinal symptoms are nasal blockage, facial pain/pressure, nasal discharge, and olfactory loss

PREVIOUSLY REPORTED LANTERN STUDY RESULTS

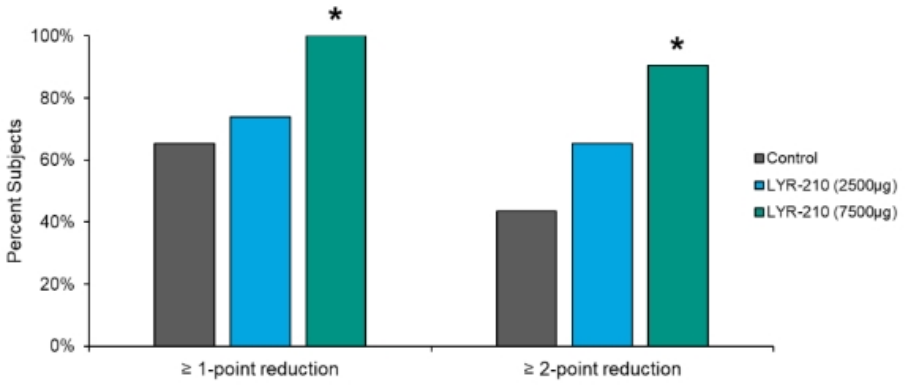
- Both doses of LYR-210 demonstrated safety and were well-tolerated
- LYR-210 (7500µg) achieved statistically significant symptom improvements at Week 24
  - 19-point improvement over Control in SNOT-22
  - 1.6-point improvement over Control in 3CS composite scores





Cervin A, et al. *Int Forum Allergy Rhinol*. 2022;12(2):147-159. 3CS Composite Score analysis was not a pre-specified endpoint. CFBL = change from baseline; P values are 1-sided vs. control. *p<0.05, **p<0.01.

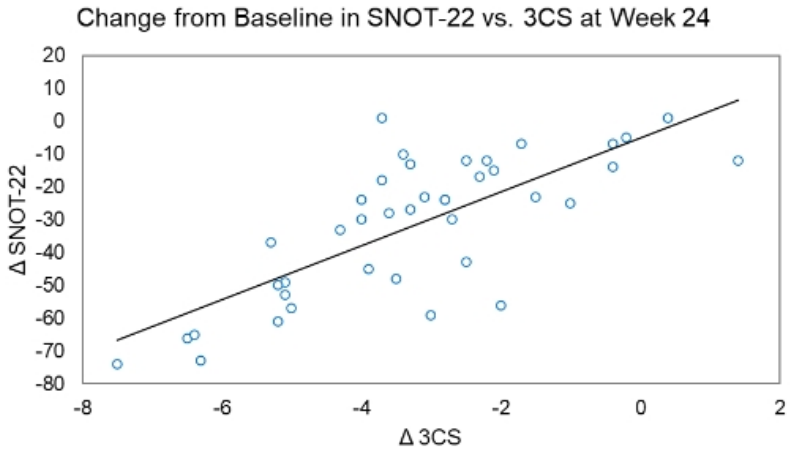
LANTERN STUDY: IMPROVEMENT IN 3CS COMPOSITE SCORES AT WEEK 24



3CS Scale: 0-9 points. Proportion of subjects with a ≥ 1-point or ≥ 2-point improvement in 3CS composite score at week 24. P values are 1-sided vs. Control; *p<0.01.

LANTERN STUDY: CORRELATION BETWEEN SNOT-22 TOTAL & 3CS COMPOSITE SCORES AT WEEK 24

The change from baseline in SNOT-22 total score and 3CS composite score at Week 24 are strongly (r=0.76) and significantly (p<0.0001) correlated

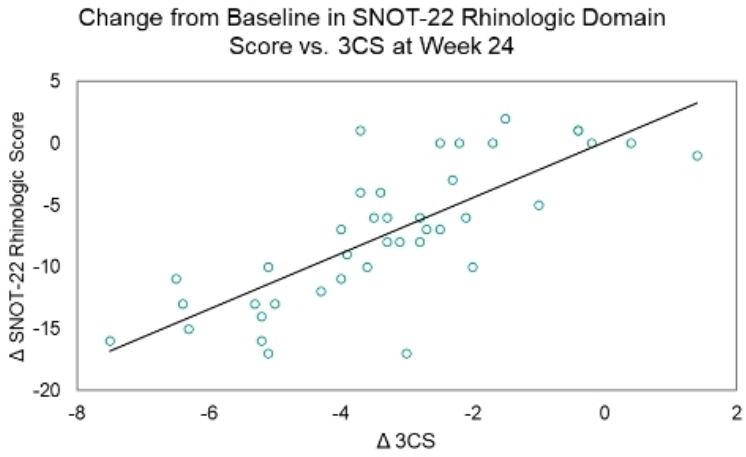


1-point improvement in 3CS composite score correlates to an 8.2-point improvement in SNOT-22 total score at Week 24

Change from baseline in SNOT-22 Total Score vs. 3CS composite score at Week 24. N=40 subjects.

LANTERN STUDY: CORRELATION BETWEEN SNOT-22 RHINOLOGIC DOMAIN & 3CS COMPOSITE SCORES AT WEEK 24

The change from baseline in SNOT-22 rhinologic domain score and 3CS composite score at Week 24 are strongly (r=0.78) and significantly (p<0.0001) correlated



1-point improvement in 3CS composite score correlates to a 2.3-point improvement in SNOT-22 rhinologic domain score at Week 24

Change from baseline in SNOT-22 Rhinologic Domain Score vs. 3CS composite score at Week 24. N=40 subjects.

CONCLUSIONS

- Improvement in 3CS composite scores at Week 24 appeared to be dose-dependent, with LYR-210 (7500µg) achieving statistical significance compared to Control in the LANTERN study
- Change from baseline in 3CS composite score strongly and significantly correlates with the change in SNOT-22 total and rhinologic domain scores at Week 24 in LANTERN study subjects
- In this study, the 3CS composite score provided a reliable and clinically relevant assessment of the impact of treatment on CRS
- 3CS composite score is being assessed as a primary endpoint in two ongoing Phase III ENLIGHTEN studies of LYR-210 (7500µg)
- LYR-210 (7500µg) may be a promising treatment option for surgically naïve patients with CRS who have failed previous medical management