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): October 26, 2018

REGENXBIO INC.
(Exact Name of Registrant as Specified in its Charter)

Delaware	**001-37553**	**47-1851754**
(State or other jurisdiction of incorporation)	**(Commission File Number)**	**(I.R.S. Employer Identification No.)**

9600 Blackwell Road, Suite 210
Rockville, Maryland **20850**
(Address of principal executive offices) **(Zip Code)**

(240) 552-8181
(Registrant's telephone number, including 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 (see General Instruction A.2. below):

☐ 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))

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 7.01. Regulation FD Disclosure.

On October 26, 2018, Jeffrey Heier, M.D., Co-President and Director of Retina Research at Ophthalmic Consultants of Boston and primary investigator for REGENXBIO Inc.'s ("the Company") ongoing Phase I clinical trial of RGX-314 for the treatment of wet age-related macular degeneration ("wet AMD"), presented an interim analysis of data from the trial at the American Academy of Ophthalmology 2018 Annual Meeting. A copy of Dr. Heier's presentation materials is furnished as Exhibit 99.1 to this Current Report on Form 8-K and is incorporated by reference herein.

The information in Item 7.01 of this Current Report on Form 8-K and Exhibit 99.1 attached hereto 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 liability under 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 a filing.

Item 8.01. Other Events.

On October 26, 2018, the Company issued a press release announcing an interim analysis of data from its ongoing Phase I clinical trial of RGX-314 for the treatment of wet AMD. A copy of the press release is filed as Exhibit 99.2 to this Current Report on Form 8-K and is incorporated by reference herein.

Item 9.01. Financial Statements and Exhibits.

(d) Exhibits

Exhibit No.	Description
99.1	Presentation materials presented on October 26, 2018.
99.2	Press release dated October 26, 2018.

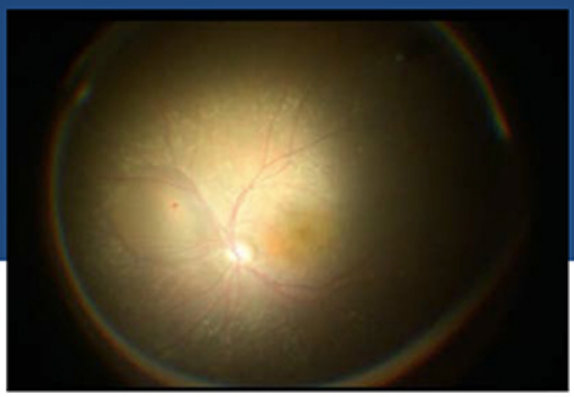
SIGNATURES

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.

REGENXBIO INC.

Date: October 26, 2018

By: /s/ Patrick J. Christmas II
Patrick J. Christmas II
Senior Vice President, General Counsel



Six Month Results of the Phase I Study to Evaluate Safety & Tolerability of RGX-314 Gene Therapy in nAMD Subjects

Jeffrey Heier, MD

Peter Campochiaro, MD, Allen Ho, MD, Albert Maguire, MD,
David M. Brown, MD, Jorge Calzada, MD, Robert Avery, MD, Szilard Kiss, MD
Stephen Yoo, MD, Sherri Van Everen, PharmD

10/26/2018

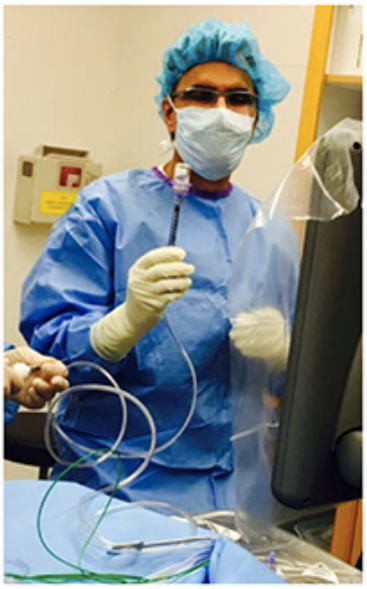
Disclosures

Research grants: Aerpio, Apellis, Clearside, Corcept, Daiichi Sankyo, Genentech, Genzyme, Hemera, Janssen R&D, Kalvista, Kanghong, Novartis, Ocudyne, Ophthotech, Optovue, Regeneron, REGENXBIO, Scifluor, Tyrogenex

Scientific Advisor: 4DMT, Adverum, Aerie, Aerpio, Akros, Allegro, Apellis, Array, Asclepix, Bayer, Beaver-Visitec, BioMarin, Clearside, Corcept, Daiichi Sankyo, Galecto, Galimedix, Genentech/Roche, Helio, Hemera, Interface, iRenix, Janssen, Kanghong, Kodiak, Notal Vision, Novartis, Ocular Therapeutix, Optos, Orbit Biomedical, Quark, Ra Pharmaceuticals, Regeneron, REGENXBIO, Santen, Scifluor, Shire, Spark Therapeutics, Stealth, Thrombogenics, Tyrogenex

Board of Directors: Ocular Therapeutix

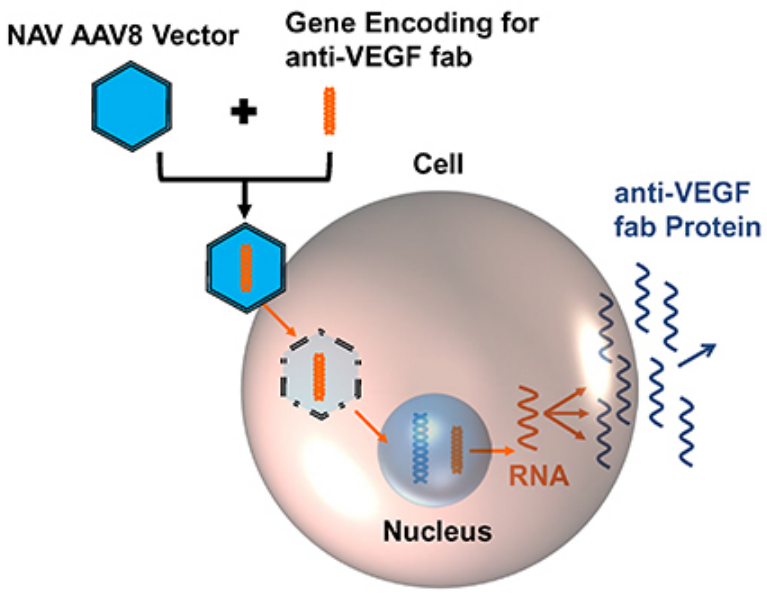
Equity: Allegro, Adverum, jCyte, Ocular Therapeutix



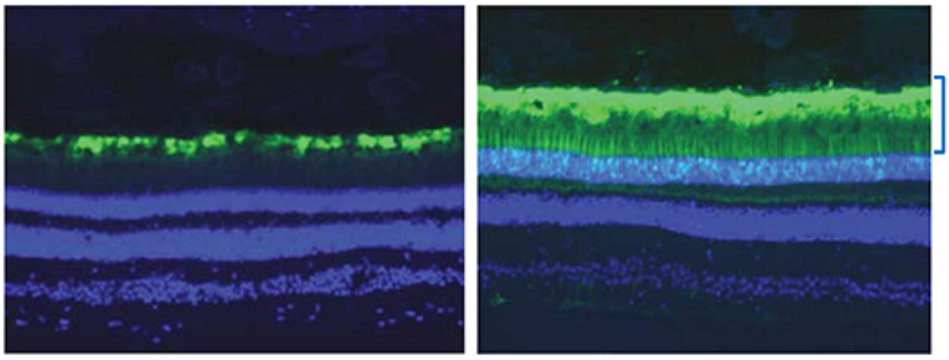
OPHTHALMIC CONSULTANTS OF BOSTON
EXCELLENCE IN EYE CARE

RGX-314: Optimized NAV® Gene Therapy for Wet AMD

RGX-314 is Designed to Deliver a Gene Encoding for an anti-VEGF fab Protein



RGX-314: Utilizing AAV8 for Higher Protein Expression in NHPs



More Efficient Gene Delivery to the RPE[1]

RESEARCH ARTICLE

GENE THERAPY

Dosage Thresholds for AAV2 and AAV8 Photoreceptor Gene Therapy in Monkey

Luk H. Vandenberghe,[1*] Peter Bell,[2] Albert M. Maguire,[2,3] Cassia N. Cearley,[4,5] Fu Xiao,[1] Roberto Calendo,[1] Lili Wang,[1] Michael J. Castle,[4,5] Alexandra C. Maguire,[2] Rebecca Grant,[1] John H. Wolfe,[4,5] James M. Wilson,[1*] Jean Bennett[2,3*]

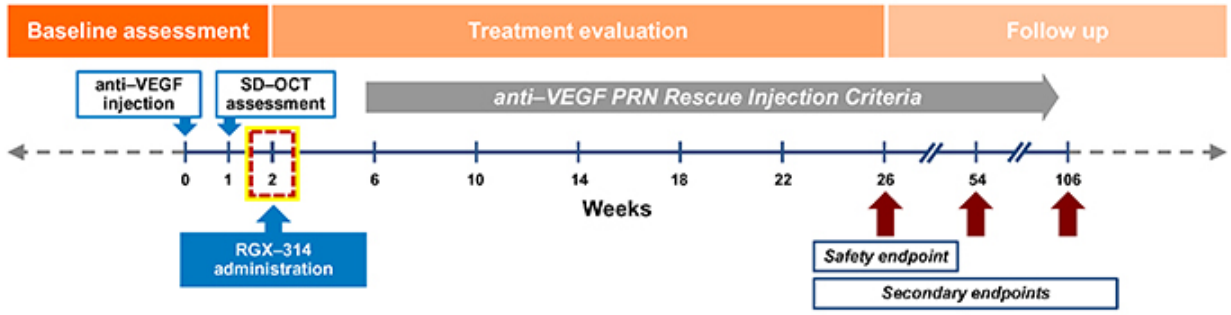
Gene therapy is emerging as a therapeutic modality for treating disorders of the retina. Photoreceptor cells are the primary cell type affected in many inherited diseases of retinal degeneration. Successfully treating these diseases with gene therapy requires the identification of efficient and safe targeting vectors that can transduce photoreceptor cells. One serotype of adeno-associated virus, AAV2, has been used successfully in clinical trials to treat a form of congenital blindness that requires transduction of the supporting cells of the retina in the retinal pigment epithelium (RPE). Here, we determined the dose required to achieve targeting of AAV2 and AAV8 vectors to photoreceptors in nonhuman primates. Transgene expression in animals injected subretinally with various doses of AAV2 or AAV8 vectors carrying a green fluorescent protein transgene was correlated with surgical, clinical, and immunological observations. Both AAV2 and AAV8 demonstrated efficient transduction of RPE, but AAV8 was markedly better at targeting photoreceptor cells. These preclinical results provide guidance for optimal vector and dose selection in future human gene therapy trials to treat retinal diseases caused by loss of photoreceptors.

INTRODUCTION

Downloaded from stm.sciencemag.org on June 29, 2011

[1]Vandenberghe et al. 2011 *Science Translational Medicine*

RGX-314 Phase I Trial: Design



Previously Treated Subjects Requiring Frequent Injections

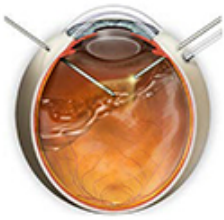
Dose 1 n = 6	Safety review[1]	Dose 2 n = 6	Safety review[1]	Dose 3 n = 6	Safety review[1]	Dose 4 n = 6
$3x10^9$ GCleye		$1x10^{10}$ GCleye		$6x10^{10}$ GCleye		$1.6x10^{11}$ GCleye

Dosing Completed in Four Cohorts

[1] Dose escalation safety review to occur four weeks after final subject in each cohort has been dosed

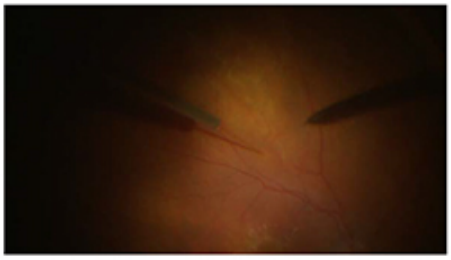
RGX-314: Standardized Automated Subretinal Delivery Procedure

Step 1 – Vitrectomy



Step 2 – Subretinal Injection

MedOne MicroDose Syringe



Performed Under Local Anaesthesia in the OR

- Standard **small gauge** vitrectomy to perform a core vitrectomy
- Automated delivery with a **MedOne subretinal cannula** attached to the vitrectomy machine
- **Inject 250µl** to create subretinal bleb in a healthy area of retina
- Target superior to the superotemporal arcade vessel or outside the arcades
- Can create another **bleb** area if needed
- Keep margin of the bleb at least 2DA **away from the fovea**

Air fluid exchange and then **Sub-conj steroids** at the end of procedure
No positioning mandated and patient is discharged home with follow-up the next day

RGX-314 Phase I Trial: Outcome Measures and Eligibility Criteria

Objectives

Primary

- To determine the safety and tolerability of RGX-314 in patients with nAMD though 6 months

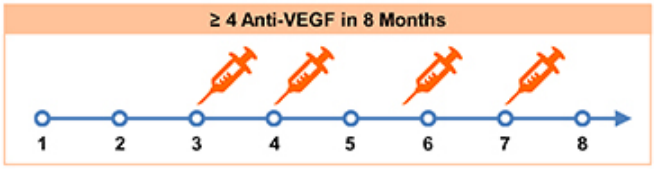
Secondary

- Expression of RGX-314 protein in the eye
- Effect of RGX-314 on best corrected visual acuity (BCVA) and central retinal thickness (CRT)
- Additional anti-VEGF injections post-RGX-314 ("Rescue")

Rescue: New or Persistent Fluid/ Loss in Vision

- Per the Investigator's discretion

Key Inclusion Criteria



- Documented **nAMD with response to anti-VEGF at trial entry**
- Vision of 20/63 to 20/400 for the initial patient, then **20/40 to 20/400** for the rest of each cohort
- Pseudophakic (status post cataract surgery)

Subjects: 24 Patients dosed

- **7 study sites** across the United States

RGX-314 Phase I Trial: Anti-VEGF Rescue Injection Criteria

Anti-VEGF may be given beginning 4 weeks post-treatment and **PRN every 4 weeks** thereafter **per investigator's discretion** if one or more of the criteria apply:

CNV-related increased, new, or persistent fluid	Vision loss of ≥5 letters associated w/ accumulation of fluid	New ocular hemorrhage

RGX-314 Phase I Trial: Baseline Demographics for Cohorts 1-3

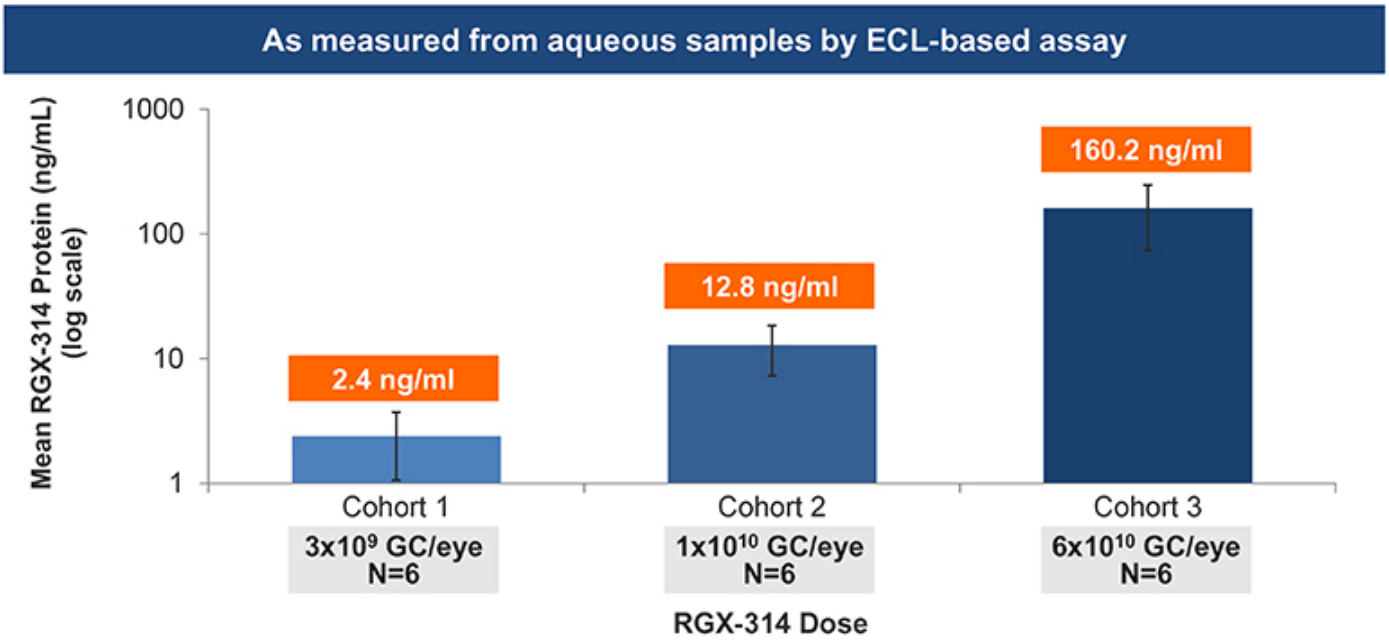
	Variable	Cohort 1 (n=6)	Cohort 2 (n=6)	Cohort 3 (n=6)	Total (n=18)
DEMOGRAPHICS	Mean Age (Years)	78.2	78.0	80.0	78.7
	Female (Number, %)	4 (66.7%)	3 (50.0%)	2 (33.3%)	9 (50.0%)
	Caucasian, no. (%)	6 (100.0%)	6 (100.0%)	6 (100.0%)	18 (100.0%)
BASELINE CHARACTERISTICS	Months Since First anti-VEGF Injection	53.5	59.3	71.6	61.5
	# Injections Since Diagnosis (Mean)	40.7	32.5	34.2	35.8

RGX-314 Phase I Trial: Safety for Cohorts 1-3*

- RGX-314 was **well-tolerated** (n=18)
- **No drug-related AEs or drug-related SAEs**
- Most AEs were assessed as mild (Grade 1 – 83%)
- **No observed clinically-determined immune responses,** drug-related ocular inflammation, or any post-surgical inflammation beyond what is expected following routine vitrectomy
- **Five SAEs that were not drug-related were reported in three subjects**
  - One subject with a peripheral retinal detachment which was repaired and resolved without sequelae
  - One subject with a hospitalization related to a pre-existing condition that resulted in death
  - One subject with an event assessed mild in severity with no relationship to RGX-314

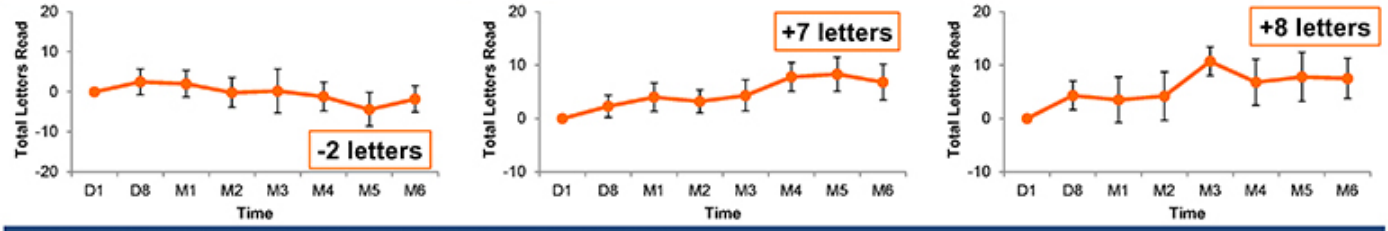
* Data cut July 27th, 2018

RGX-314 Phase I Trial: Protein Levels at One Month for Cohorts 1-3

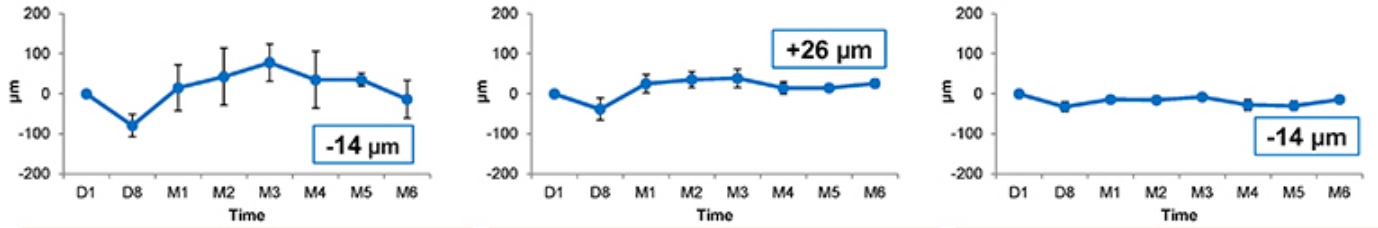


RGX-314 Phase I Trial: Mean Change in BCVA, CRT and Average Injections Over Six Months, by Cohort

Best Corrected Visual Acuity (BCVA)



Central Retinal Thickness (CRT) on SD-OCT



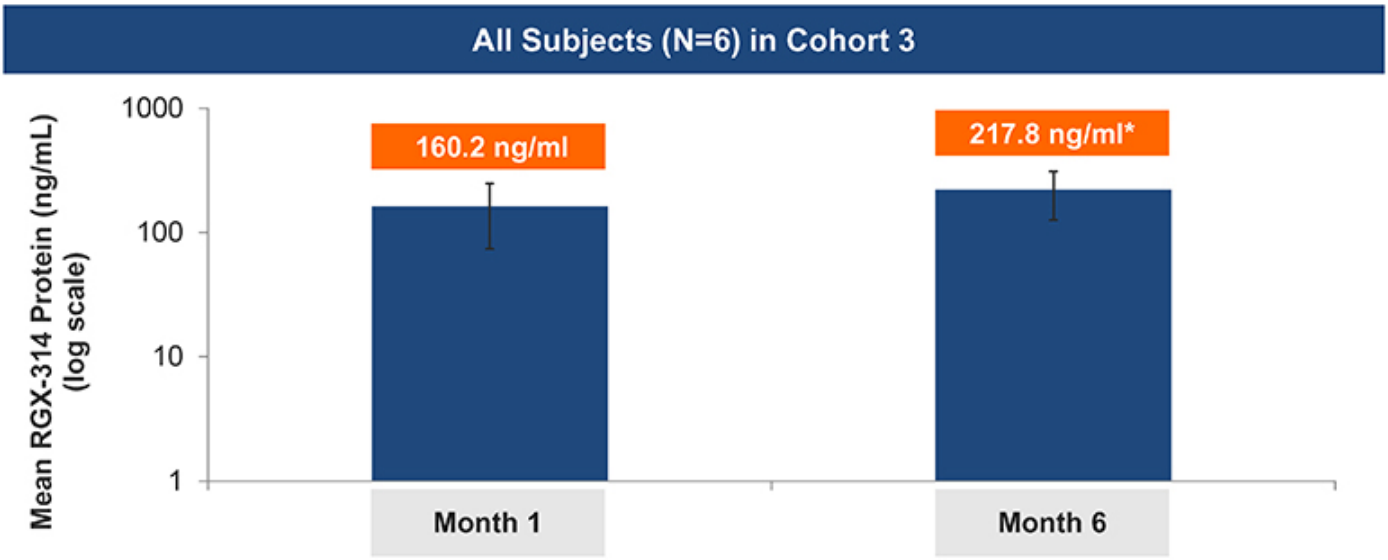
Cohort 1	Cohort 2	Cohort 3
Average Injections: 4.7	Average Injections: 3.8	Average Injections: 1.3

RGX-314 Phase I Trial: Summary of Interim Results Through Six Months

	Mean Aqueous RGX-314 Protein One Month Post-treatment	Mean # of Anti-VEGF Injections Through Six Months	Mean Change in CRT Through Six Months (range)	Mean Change in BCVA Through Six Months (range)
Cohort 1 $3x10^9$ GC/eye (N=6)	2.4 ng/ml	4.7 inj*	-14 µm** (-181 to +92 µm)	-2 letters** (-8 to +10 letters)
Cohort 2 $1x10^{10}$ GC/eye (N=6)	12.8 ng/ml	3.8 inj	+26 µm (-7 to +62 µm)	+7 letters (-4 to +15 letters)
Cohort 3 $6x10^{10}$ GC/eye (N=6)	**160.2 ng/ml**	**1.3 inj**	**-14 µm** (-27 to +7 µm)	**+8 letters** (0 to +21 letters)

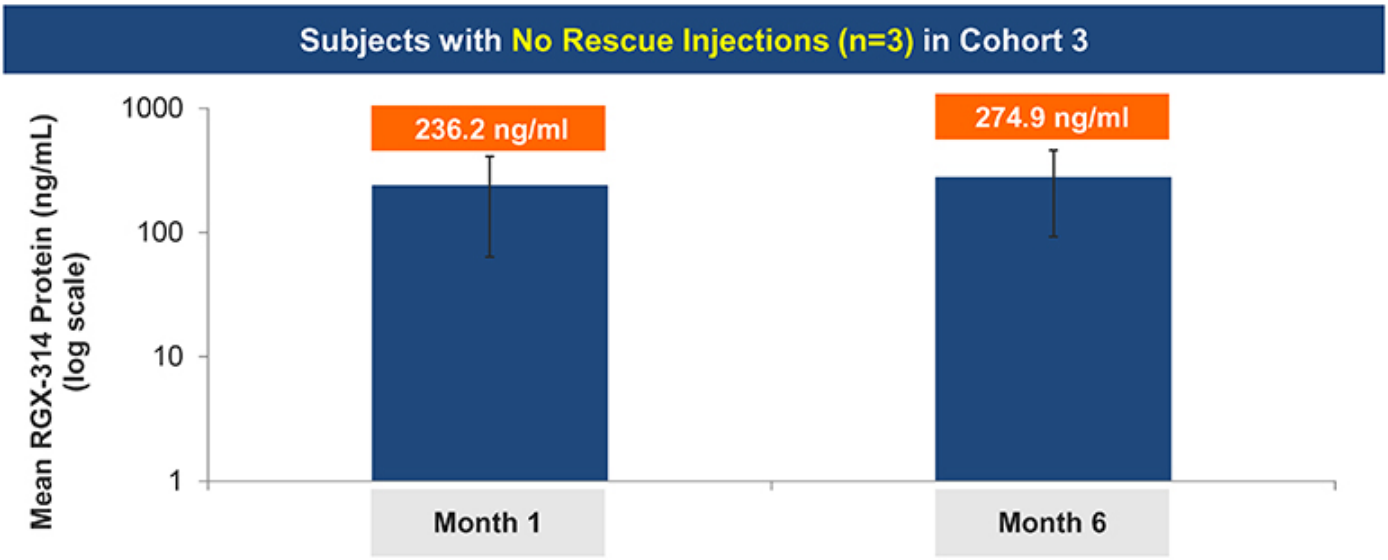
* One subject in Cohort 1 discontinued from the study at four months with four injections and was imputed as requiring six injections through six months
** N=5; one subject in Cohort 1 discontinued from the study at four months

RGX-314 Phase I Trial: Sustained Protein Levels at Six Months



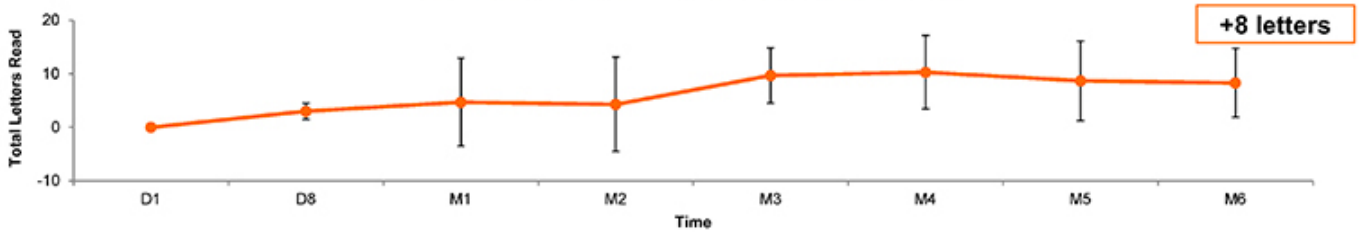
*One subject received an anti-VEGF rescue injection 1 month prior to sample.

RGX-314 Phase I Trial: Sustained Protein Levels at Six Months

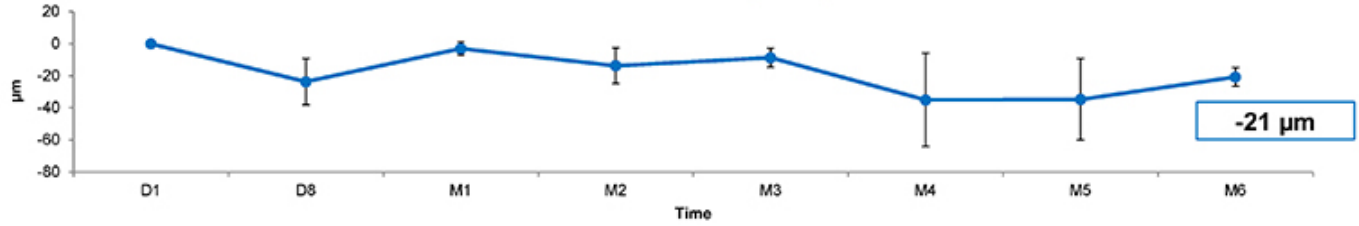


RGX-314 Phase I Trial: Mean Change in BCVA, CRT Over Six Months in Cohort 3 Subjects with No Rescue Injections

Best Corrected Visual Acuity (BCVA)



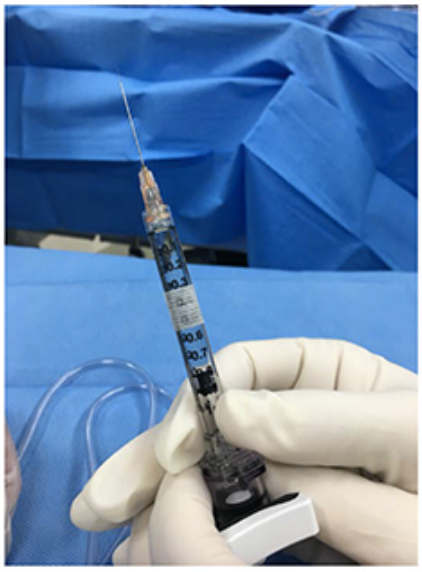
Central Retinal Thickness (CRT) on SD-OCT



Cohort 3 with No Rescue Injections (n=3)

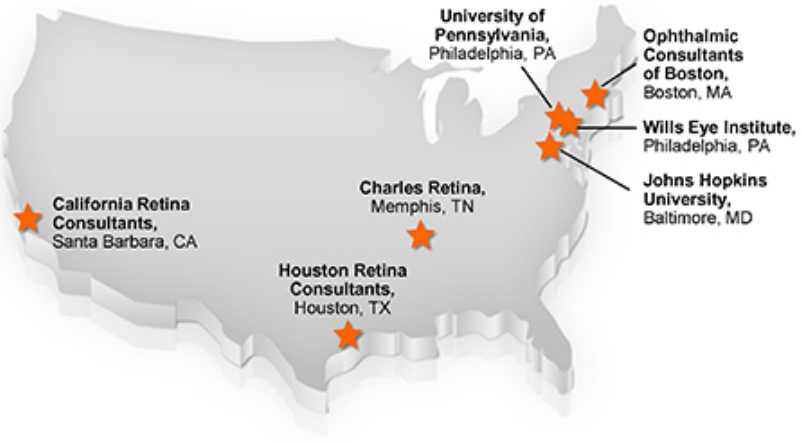
RGX-314: Phase I Trial Interim Results at Six Months Conclusions

- RGX-314 was **well-tolerated** at all doses
- Dose-dependent **RGX-314 protein expression**
- Cohort 3: **sustained RGX-314 protein at six months** with **stability in vision and anatomy** despite **few to no injections**
- Cohort 4: a higher dose recently **completed dosing**
- **Gene therapy** for nAMD offers the potential to optimize outcomes while alleviating treatment burden



RGX-314 Acknowledgments

- **Robert Avery, MD** (Santa Barbara, CA)
- **David Brown, MD** (Houston, TX)
- **Peter Campochiaro, MD** (Baltimore, MD)
- **Jorge Calzada, MD** (Memphis. TN)
- **Jeff Heier, MD** (Boston, MA)
- **Allen Ho, MD** (Philadelphia, PA)
- **Szilard Kiss, MD** (New York, NY)
- **Albert Maguire, MD** (Philadelphia, PA)
- **Sherri Van Everen, PharmD** (REGENXBIO)
- **Darin Curtis, PharmD** (REGENXBIO)
- **Stephen Yoo, MD** (REGENXBIO)



REGENXBIO Announces Additional Positive Interim Phase I Trial Update for RGX-314 for the Treatment of Wet AMD at the American Academy of Ophthalmology 2018 Annual Meeting

- *Sustained protein expression levels at six months reported in Cohort 3*
- *A higher dose Cohort 4 recently completed dosing*
- *Company continues plans to proceed to Phase II clinical trial in 2019*
- *Additional data and program updates are expected in early 2019*

ROCKVILLE, Md., Oct. 26, 2018 /PRNEWSWIRE/ — REGENXBIO Inc. (Nasdaq: RGNX), a leading clinical-stage biotechnology company seeking to improve lives through the curative potential of gene therapy based on its proprietary NAV® Technology Platform, today announced updated results from the ongoing Phase I study of RGX-314 for the treatment of wet age-related macular degeneration (wet AMD).

The results were presented by Jeffrey Heier, M.D., Co-President and Director of Retina Research at Ophthalmic Consultants of Boston, and primary investigator for the trial, at the Retina Subspecialty Day program of the American Academy of Ophthalmology (AAO) 2018 Annual Meeting.

In August 2018, REGENXBIO presented an interim trial update on the first three dose cohorts, as of July 27, 2018, demonstrating that RGX-314 was well-tolerated and showed dose-dependent protein expression levels and dose-dependent reductions in anti-vascular endothelial growth factor (anti-VEGF) injections, along with maintenance of central retinal thickness and vision. Of the subjects treated at the 6 x 10^10 (Cohort 3) genome copies (GC)/eye dose, 50 percent were free of anti-VEGF injections at six months. A summary of these data can be found **here**.

The interim data update presented today contains new assessments of protein expression levels at six months after administration of RGX-314 for Cohort 3. These new data are summarized below.

Summary of Cohort 3 Intraocular Protein Expression Levels at Six Months

RGX-314 protein expression continues to be detected in all subjects in Cohort 3. At six months, Cohort 3 subjects demonstrated evidence of sustained RGX-314 protein expression levels, as measured from aqueous samples by electrochemiluminescence immunoassay (ECL) after administration of RGX-314 (see Table 1).

Table 1: RGX-314 Protein Expression Levels (ng/ml) of Cohort 3 at One Month and Six Months (N=6)

Visit (Months)	1	6
N	6	6
Mean Protein Level (ng/ml)	160.2	217.8*
Median Protein Level (ng/ml)	93.1	181.7*

* One subject received an anti-VEGF rescue injection 1 month prior to sample.

“Many wet AMD patients require frequent anti-VEGF injections to maintain their vision. The burden of such treatment weighs upon patients, their family and their caregivers. Patients such as these were enrolled in the RGX-314 trial,” said Dr. Heier. “The dose-dependent protein expression in the trial, coupled with the sustained expression at six months in Cohort 3 is encouraging. RGX-314 has the potential to provide optimal long-term visual outcomes with a single treatment.”

Detailed study findings presented by Dr. Heier at AAO 2018 are available **here**.

Phase I Trial Dose Expansion and Status of Expected Phase II Trial

REGENXBIO recently announced it has completed dosing (six subjects) in the Phase I clinical trial of RGX-314 at the 1.6 x 10^11 GC/eye (Cohort 4) dose. A total of 24 subjects have now been dosed in the trial. REGENXBIO plans to initiate a Phase II clinical trial for RGX-314 in 2019. Final determination of the study design is under way. REGENXBIO expects to provide further information regarding the initial assessments of protein expression levels from Cohort 4, anticipated Phase II clinical trial design and overall plans for the RGX-314 clinical program in early 2019.
"We continue to be encouraged by the RGX-314 interim results and the potential of NAV® gene therapy as a one-time treatment for wet AMD, a leading cause of irreversible blindness and visual impairment in the world," said Kenneth T. Mills, President and Chief Executive Officer of REGENXBIO. "We extend our thanks to the patients and the investigators who have participated in this trial and contributed to the growing body of evidence to give hope to patients living with wet AMD for a long-lasting solution to their condition."

Seven leading retinal surgery centers across the United States are participating in the Phase I clinical trial of RGX-314. This multi-center, open-label, multiple-cohort, dose-escalation clinical trial is designed to assess the safety and tolerability of RGX-314 as a one-time therapy for patients with previously treated wet AMD. For further details on the trial, enrollment criteria and eligibility, visit **clinicaltrials.gov/ct2/show/NCT03066258**.

About the Phase I Clinical Trial of RGX-314

RGX-314 is currently being evaluated in a Phase I, multi-center, open-label, multiple-cohort, dose-escalation study in adult subjects with wet AMD in the United States. The study has enrolled 24 previously treated wet AMD subjects across four cohorts that are responsive to anti-VEGF therapy and are 50 years of age or older. The study is designed to evaluate four doses of RGX-314 (3 x 10^9 GC/eye, 1 x 10^10 GC/eye, 6 x 10^10 GC/eye, and 1.6 x 10^11 GC/eye). The primary purpose of the clinical study is to evaluate the safety and tolerability of RGX-314 at 24 weeks after a single dose administered by subretinal delivery. Primary endpoints include safety and tolerability and secondary endpoints include ocular examinations, visual acuity, imaging (including spectral domain optical coherence tomography (SD-OCT)) and the need for additional anti-VEGF therapy. Following completion of the primary study period, subjects will enter a follow-up period and will continue to be assessed until week 106 for long-term safety and durability of effect.

About RGX-314

RGX-314 is being developed as a one-time subretinal treatment for wet AMD. It includes the NAV AAV8 vector encoding an antibody fragment which inhibits VEGF, modifying the pathway for formation of new leaky blood vessels which lead to retinal fluid accumulation and vision loss. In preclinical animal models with conditions similar to macular degeneration, significant and dose-dependent reduction of blood vessel growth and prevention of disease progression was observed after a single subretinal dose of RGX-314.

About Wet AMD

Wet AMD is characterized by loss of vision due to new leaky blood vessel formation in the retina. This results in fluid leakage that can manifest in physical changes in the structure of the retina and loss of vision. Wet AMD is a significant cause of vision loss in the United States, Europe and Japan. There may be more than 2 million people living with wet AMD in these geographies alone. Current anti-VEGF therapies have significantly changed the landscape for treatment of wet AMD, becoming the standard of care due to their ability to improve vision and retinal fluid in the majority of patients. These therapies, however, require repetitive and inconvenient intraocular injections, typically ranging from every four to eight weeks in frequency, to maintain efficacy. Patients often experience a decline in the initial vision gain from therapy with reduced frequency of treatment over time.

About REGENXBIO Inc.

REGENXBIO is a leading clinical-stage biotechnology company seeking to improve lives through the curative potential of gene therapy. REGENXBIO's NAV® Technology Platform, a proprietary adeno-associated virus (AAV) gene delivery platform, consists of exclusive rights to more than 100 novel AAV vectors, including AAV7, AAV8, AAV9 and AAVrh10. REGENXBIO and its third-party NAV Technology Platform Licensees are applying the NAV Technology Platform in the development of a broad pipeline of candidates in multiple therapeutic areas.

Forward-Looking Statements

This press release includes “forward-looking statements,” within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. These statements express a belief, expectation or intention and are generally accompanied by words that convey projected future events or outcomes such as “believe,” “may,” “will,” “estimate,” “continue,” “anticipate,” “design,” “intend,” “expect,” “could,” “plan,” “potential,” “predict,” “seek,” “should,” “would” or by variations of such words or by similar expressions. The forward-looking statements include statements relating to, among other things, REGENXBIO’s future operations and clinical trials. REGENXBIO has based these forward-looking statements on its current expectations and assumptions and analyses made by REGENXBIO in light of its experience and its perception of historical trends, current conditions and expected future developments, as well as other factors REGENXBIO believes are appropriate under the circumstances. However, whether actual results and developments will conform with REGENXBIO’s expectations and predictions is subject to a number of risks and uncertainties, including the timing of enrollment, commencement and completion and the success of clinical trials conducted by REGENXBIO, its licensees and its partners, the timing of commencement and completion and the success of preclinical studies conducted by REGENXBIO and its development partners, the timely development and launch of new products, the ability to obtain and maintain regulatory approval of product candidates, the ability to obtain and maintain intellectual property protection for product candidates and technology, trends and challenges in the business and markets in which REGENXBIO operates, the size and growth of potential markets for product candidates and the ability to serve those markets, the rate and degree of acceptance of product candidates, and other factors, many of which are beyond the control of REGENXBIO. Refer to the “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” sections of REGENXBIO’s Annual Report on Form 10-K for the year ended December 31, 2017 and comparable “risk factors” sections of REGENXBIO’s Quarterly Reports on Form 10-Q and other filings, which have been filed with the U.S. Securities and Exchange Commission (SEC) and are available on the SEC’s website at **www.sec.gov**. All of the forward-looking statements made in this press release are expressly qualified by the cautionary statements contained or referred to herein. The actual results or developments anticipated may not be realized or, even if substantially realized, they may not have the expected consequences to or effects on REGENXBIO or its businesses or operations. Such statements are not guarantees of future performance and actual results or developments may differ materially from those projected in the forward-looking statements. Readers are cautioned not to rely too heavily on the forward-looking statements contained in this press release. These forward-looking statements speak only as of the date of this press release. REGENXBIO does not undertake any obligation, and specifically declines any obligation, to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

CONTACT:

Investors
Natalie Wildenradt, 646-681-8192
natalie@argotpartners.com

Media
Adam Pawluk, 202-591-4063
apawluk@jpa.com