

Recro Pharma, Inc.  
Form 424B3  
July 24, 2015

**Filed Pursuant to Rule 424(b)(3)**

**Registration Statement No. 333-201841**

**Prospectus Supplement No. 13**

**to Prospectus dated February 26, 2015**

**2,500,000 Shares**

**Common Stock**

This Prospectus Supplement No. 13 supplements and amends our prospectus dated February 26, 2015 (the Prospectus ), relating to the sale, from time to time, of up to 2,500,000 shares of our common stock by Aspire Capital Fund, LLC.

This prospectus supplement is being filed to include the information set forth in our Current Report on Form 8-K filed with the Securities and Exchange Commission on July 24, 2015. This prospectus supplement should be read in conjunction with the Prospectus and any amendments or supplements thereto, which are to be delivered with this prospectus supplement, and is qualified by reference to the Prospectus, except to the extent that the information in this prospectus supplement updates or supersedes the information contained in the Prospectus, including any amendments or supplements thereto.

Our common stock trades on the NASDAQ Capital Market under the ticker symbol REPH. On July 23, 2015, the last reported sale price per share of our common stock was \$15.24 per share.

**Investing in our common stock involves risk. Please read carefully the section entitled Risk Factors beginning on page 8 of the Prospectus.**

**Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved these securities or determined if the Prospectus or this prospectus supplement is truthful or complete. Any representation to the contrary is a criminal offense.**

**The date of this Prospectus Supplement No. 13 is July 24, 2015.**

**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): July 24, 2015**

**Recro Pharma, Inc.**

**(Exact name of registrant as specified in its charter)**

**Pennsylvania**  
**(State or other jurisdiction**  
  
**of incorporation)**

**001-36329**  
**(Commission**  
  
**File Number)**

**26-1523233**  
**(I.R.S. Employer**  
  
**Identification No.)**

**490 Lapp Road,**

**19355**

**Malvern, Pennsylvania**  
**(Address of principal executive offices)** **(Zip Code)**  
**Registrant's telephone number, including area code: (484) 395 2470**

**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))

**Item 8.01 Other Events.**

On July 24, 2015, Recro Pharma, Inc. (the Company ) issued a press release announcing additional results for the Company's Phase II clinical trial of Dex-IN, a proprietary intranasal formulation of dexmedetomidine, for the treatment of acute pain in adult patients undergoing bunionectomy surgery. A copy of the press release is filed as Exhibit 99.1 to this Current Report on Form 8-K and is incorporated herein by reference.

On July 24, 2015, the Company updated information reflected in a slide presentation, which is attached as Exhibit 99.2 to this Current Report on Form 8-K and is incorporated herein by reference. Representatives of the Company will use the updated presentation in various meetings with investors from time to time.

**Item 9.01 Financial Statements and Exhibits.**

**(d) Exhibits**

Exhibit

No.	Document
99.1	Press release of Recro Pharma, Inc., dated July 24, 2015.
99.2	Investor presentation of Recro Pharma, Inc., dated July 24, 2015.

**SIGNATURE**

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.

Date: July 24, 2015

Recro Pharma, Inc.

By: /s/ Gerri A. Henwood

*Name: Gerri A. Henwood*

*Title: Chief Executive Officer*

**EXHIBIT INDEX**

Exhibit

No.	Document
99.1	Press release of Recro Pharma, Inc., dated July 24, 2015.
99.2	Investor presentation of Recro Pharma, Inc., dated July 24, 2015.

**Recro Pharma Announces Additional Information for Phase II Clinical Trial of Dex-IN***Additional safety and efficacy information provided*

MALVERN, PA, July 24, 2015 Recro Pharma, Inc. (Nasdaq: REPH), a revenue generating specialty pharmaceutical company developing multiple non-opioid therapeutics for the treatment of acute post operative pain, today announced additional results from the Phase II clinical trial for Dex-IN, a proprietary intranasal formulation of dexmedetomidine, for the treatment of acute pain in adult patients undergoing bunionectomy surgery. As previously released, Dex-IN met the primary endpoint of the clinical trial in demonstrating significant pain relief compared with placebo over 48 hours ( $p=0.0214$ ). The Company plans to meet with the FDA to discuss the Company's Phase III plans and determine what, if any, additional information will be required in association with the Phase III clinical program for Dex-IN.

The Phase II trial was a randomized, multicenter, double-blind, placebo-controlled study to evaluate the efficacy and safety of Recro Pharma's proprietary intranasal formulation of dexmedetomidine, Dex-IN, in adult patients undergoing bunionectomy surgery, initiating dosing of study medication on Post Op Day 1. Patients who met the eligibility criteria were randomized to either a 50µg dose of Dex-IN or a placebo intranasal dose given every 6 hours. Following the beginning of treatment, patients remained under observation for 48 hours at study centers. Patients were followed for 7 days after the initial dose of study medication. There was an oral opioid rescue treatment available to patients in either treatment group, if required, to provide adequate pain relief. A total of 168 patients were randomized and received study medication in the clinical trial, 84 patients in each treatment group. The key subject characteristics are listed in Table 1 below. The one discontinued subject was for a serious adverse event of hypotension.

**Table 1: Summary of Key Subject Characteristics REC-14-013**

<b>Characteristic</b>	<b>Placebo (N = 84)</b>	<b>DEX-IN 50 µg (N =84)</b>
Female, n (%)	75 (89.3)	79 (94.0)
Age, Mean (range)	44 (46 - 70)	43.9 (46 - 69)
Discontinued Subjects, n (%)	3 (3.6)	4 (4.8)
Lack of Efficacy	3 (3.6)	3 (3.6)
Adverse Event	0	1 (1.2)
Race, n (%)		
White	56 (66.7)	59 (70.2)
Black/African American	21 (25.0)	20 (23.8)
Other	7 (8.4)	5 (6.0)
Baseline PI Score, Mean (range)	6.7 (4 - 10)	6.4 (4 - 10)

The primary efficacy endpoint of the trial was the summed pain intensity difference over 48 hours, SPID48, utilizing the last observation carry forward analysis method. Additional efficacy endpoints included use of opioid rescue medication, SPIDs over various time intervals, as well as other standard efficacy analyses. An adverse event of bradycardia was reported in 3 subjects in the Dex-IN treatment group. No patients with blood pressure decrease, hypotension nor with bradycardia required medication to treat these events. The most frequently reported adverse events reported in the Dex-IN group from the REC-14-013 trial are summarized in Table 2 below.



**Table 2: Summary of Key Safety Data of Interest REC-14-013**

<b>Adverse Event</b>	<b>n (%) of Subjects</b>	
	<b>Placebo (N = 84)</b>	<b>DEX-IN 50 µg (N =84)</b>
BP Decreased	3 (3.6)	22 (26.2)
Nausea	14 (16.7)	13 (15.5)
Nasal Discomfort	2 (2.4)	7 (8.3)
Headache	4 (4.8)	6 (7.1)
Vomiting	6 (7.1)	4 (4.8)
Nasal Dryness	3 (3.6)	4 (4.8)
Nasal Congestion	1 (1.2)	4 (4.8)
Nasal Obstruction	2 (2.4)	3 (3.6)
Bradycardia	0	3 (3.6)
Dizziness	1 (1.2)	3 (3.6)
Hypotension	0	3 (3.6)

All nasal related adverse events were rated as mild, except one case of nasal congestion rated as moderate.

Bunionectomy surgery generally involves an incision in the top or side of the big toe joint and the removal or realignment of soft tissue and bone. This is done to relieve pain and restore normal alignment to the joint. Bunionectomy surgery typically results in intense post operative pain. In the past, drugs that have demonstrated analgesic effectiveness following bunionectomy surgery have frequently translated that analgesic success into other post operative procedures that result in moderate to severe, acute pain.

#### **About Recro Pharma, Inc.**

Recro Pharma is a revenue generating specialty pharmaceutical company developing multiple non-opioid therapeutics for the treatment of acute post operative pain. Recro Pharma is currently developing IV/IM meloxicam, a proprietary, Phase III-ready, long-acting preferential COX-2 inhibitor, and Dex-IN, a proprietary intranasal formulation of dexmedetomidine that has completed Phase II clinical trials, for the treatment of acute post operative pain. As Recro Pharma's product candidates are not in the opioid class of drugs, the Company believes its candidates would avoid many of the side effects associated with commonly prescribed opioid therapeutics, such as addiction, constipation and respiratory distress, while maintaining analgesic effect.

Recro Pharma also owns and operates an 87,000 square foot, DEA-licensed facility that manufactures five commercial products and receives royalties associated with the sales of these products.

#### **Cautionary Statement Regarding Forward Looking Statements**

This press release contains forward-looking statements that involve risks and uncertainties. Such forward-looking statements reflect Recro Pharma's expectations about its future performance and opportunities that involve substantial risks and uncertainties. When used herein, the words anticipate, believe, estimate, upcoming, plan, target, in expect and similar expressions, as they relate to Recro Pharma or its management, are intended to identify such forward-looking statements. These forward-looking statements are based on information available to Recro Pharma as of the date of this press release and are subject to a number of risks, uncertainties, and other factors that could cause

Recro Pharma's performance to differ materially from those expressed in, or implied by, these forward-looking statements. Recro Pharma assumes no obligation to update any such forward-looking statements. Factors that could cause Recro Pharma's actual performance to materially differ from those expressed in the forward-looking statements set forth in this press release include, without limitation: results and timing of the clinical trials of IV/IM meloxicam and Dex-IN; the ability to obtain and maintain regulatory approval of IV/IM meloxicam and Dex-IN, and the labeling under any such approval; regulatory developments in the United States and foreign countries; the Company's ability to raise future financing for continued development; the performance of third-party suppliers and manufacturers; the Company's ability to obtain, maintain and successfully enforce adequate patent and other intellectual property protection; the successful commercialization of IV/IM meloxicam and Dex-IN; In addition, the forward-looking statements in this press release should be considered together with the risks and uncertainties that may affect Recro Pharma's business and future results included in Recro Pharma's filings with the Securities and Exchange Commission at [www.sec.gov](http://www.sec.gov). Recro Pharma assumes no obligation to update any such forward looking statements.

**CONTACT:**

**Recro Pharma, Inc.**

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**Media and Investors:**

Argot Partners

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Relieving pain .Improving lives  
Exhibit 99.2

Special Note Regarding Forward-Looking  
Statements

This presentation includes forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. These statements, among other things, relate to our business strategy, goals and expectations concerning our product candidates, future operations, prospects, plans and objectives of management. The words "anticipate", "believe", "could",

"estimate", "expect", "intend", "may", "plan", "predict", "project", "will" and similar terms and phrases are used to identify forward-looking statements in this presentation. Our operations involve risks and uncertainties, including the integration of our recently acquired assets, many of which are outside our control, and any one of which, or a combination of which, could materially affect our results of operations and whether the forward-looking statements ultimately prove to be correct. These forward-looking statements should be considered together with the risks and uncertainties that may affect our business and future results included in our filings with the Securities and Exchange Commission at [www.sec.gov](http://www.sec.gov). These forward-looking statements are based on information currently available to us, and we assume no obligation to update any forward-looking statements except as required by applicable law.

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#### Company Highlights

Multiple non-opioid therapeutics in advanced clinical development for acute post operative pain

IV/IM  
meloxicam

Phase  
III  
ready  
long  
acting,  
demonstrated efficacy in successful Ph II trials

Dex-IN  
proprietary,  
intranasal  
therapeutic  
with  
recently announced positive Ph II results

Revenue and cashflow  
positive manufacturing &  
royalty business

Experienced management team with significant  
development, regulatory and commercial experience  
3

Experienced Management and Board

Gerri  
Henwood

President  
and



CEO  
Founded Auxilium  
Pharmaceuticals (AUXL,  
NASDAQ) and IBAH (former NASDAQ Co.

acquired 1998); GSK

Chuck  
Garner

CFO,  
CBO  
and  
Treasurer  
Over 14 years of life sciences investment  
banking experience  
Deutsche Bank, Burrill  
& Co., Inverness Advisors; PwC

Randy  
Mack

SVP,  
Development  
Over 20 years of clinical development  
experience

Adolor,  
Auxilium,  
Abbott  
Labs  
and Harris Labs  
Board of Directors  
Wayne  
B.  
Weisman  
Chairman  
SCP VitaLife  
Partners  
Winston J. Churchill  
SCP VitaLife  
Partners  
Gerri  
Henwood

CEO  
William L. Ashton  
Harrison Consulting Group; frmly  
Amgen  
Abraham Ludomirski, M.D.

SCP VitaLife

Partners

Alfred Altomari

CEO, Agile Therapeutics

Michael Berelowitz, M.D.

Former SVP, Specialty Care Business

Unit, Pfizer

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Recent Transformative Transaction

Acquired IV/IM meloxicam and manufacturing & royalty  
business from Alkermes

\$50M up-front cash payment; meloxicam milestones and royalties

Warrants  
issued  
to  
Alkermes  
and  
OrbiMed

Non-dilutive up-front financed by loan from OrbiMed

IV/IM  
meloxicam

long  
acting  
preferential  
COX-2  
inhibitor  
for  
moderate  
to  
severe  
acute  
pain  
ready  
for  
Ph  
III

Widely prescribed, approved oral chronic pain therapeutic

Multiple Phase II studies successfully completed in acute pain  
models

Dosing advantages over existing acute pain therapeutics, including  
long action

Manufacturing, royalty and formulation business

87,000 sq. ft. facility (DEA licensed) manufactures 5 commercial  
products marketed by partners

\$75M in revenues and cashflow  
positive (2014)  
5

Positive Dex-IN Ph II Results  
(REC-14-013

Post  
Op  
Day  
1

Dosing)

Randomized, placebo  
controlled

Phase

II

bunionectomy

study

(168 patients)

Randomized, placebo controlled study

50 mcg of Dex-IN or placebo every 6 hours

Primary

endpoint

SPID48

( $p=0.0214$ )

Oral opioid rescue therapy allowed

6 patients discontinued for lack of efficacy (3 in each treatment  
group) and 1 patient due to serious adverse event of hypotension

Most common adverse events observed in the study were:

blood pressure decrease / hypotension

nausea (similar incidences to placebo)

nasal discomfort and headache

Adverse event of bradycardia was reported in 3 subjects in the  
Dex-IN treatment group

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Clinical Stage Pipeline  
Product  
PC  
I  
II  
III  
Rights

Meloxicam

WW

IV formulation

Acute post operative pain

Phase III ready

IM formulation

Acute pain

Dexmedetomidine

( Dex )

WW, exc. Europe, Turkey, CIS

Dex-IN (intranasal)

Acute post operative pain

Cancer breakthrough pain

Dex-SL (sublingual)

Fadolmidine

( Fado )

WW, exc. Europe, Turkey, CIS

Intrathecal

Topical

7



Post Op Pain Market Underserved

\$5.9 billion market

(1)

Predominantly opioid  
use

Significant side  
effects / issues  
associated with  
opioids

Dearth of non-opioid  
drugs in development  
Inpatient procedures  
Total procedures (2009)  
47.9M

Addressable  
>25M

Ambulatory procedures  
Total procedures (2006)  
53.3M

Addressable  
>25M

Note: Addressable includes procedures expected to  
utilize pain medication.

Source: National Center for Health Statistics and  
management estimates.

(1) GBI Research, 2010 sales.

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Limited Pain Relief Options for Patients

Pain

Severity

Class

Compounds

Advantages

Disadvantages

Mild

Acetaminophen

Antipyretic properties;

Oral; no opioid AEs

Only effective for mild pain; short acting

NSAIDs

Ketorolac,

ibuprofen, aspirin

Mild to moderate

analgesia; oral; no

opioid AEs

Bleeding risk; GI and renal

complications; short acting

Moderate

Sodium channel

blockers

Bupivacaine,

lidocaine

Use directly at pain

site; mostly peri-

operative

Limited duration of action; some are concerned about local tissue impact

Moderate to

Severe

Long-acting

preferential COX-2

IV/IM meloxicam

(Recro Pharma)

Long acting; fast onset,

high pain relief, and

less constipation

Bleeding risk; GI and renal

complications

Alpha 2 agonists

Dexmedetomidine

(Recro Pharma)

Good pain relief;

anxiolytic properties;

no respiratory

depression, impaired GI

or addictive properties

In development

potential for first in

class to be approved for post-

operative pain

Opioids

Morphine,

hydrocodone,

oxycodone, fentanyl

Good pain relief

Respiratory depression, impaired GI

motility after even one dose;

frequent nausea and vomiting;

abuse/addiction potential

Note: Pain severity based upon market research / physician feedback

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IV/IM Meloxicam

#### IV/IM Meloxicam Overview

FDA approved, oral preferential COX-2 inhibitor  
used in a wide variety of indications

Proprietary long acting injectable form for moderate  
to severe acute pain

Incorporates Alkermes NanoCrystal technology

Phase

III

ready

multiple

Phase

II

studies

completed on IV and a Phase I on IM

Positive Ph

II hysterectomy and dental pain studies with  
demonstrated efficacy

IP issued through 2022 and additional IP could  
extend protection through 2030

NanoCrystal

®

is

a

registered

trademark

of

Alkermes

plc.

11



Favorable Dosing Profile

Attribute

Meloxicam

Ketorolac

Caldolor

(ibuprofen)

Ofirmev

(APAP)

Route

IV/IM

IV/IM

IV

IV

Onset of pain

relief

< 10 min

30 min

N/A

N/A

Time to peak

analgesic effect

40 min

1-2 hrs

N/A

N/A

Duration of

pain relief

18-24

hrs

4-6 hrs

4-6 hrs

4-6 hrs

Admin.

IV bolus / pre-

filled syringe

(later)

Ready to use IV

bolus (15 sec)

Dilution required,

30 min infusion

Ready to use,

15

min infusion

12

#### IV/IM Meloxicam Clinical Overview

Elan/ALKS conducted 5 IV and 1 IM clinical trials

Two Phase 1 IV PK & Safety trials

One Phase 1 IM PK & Safety trial

Three Phase 2 IV efficacy trials in various acute pain models

Good safety & tolerability across large dose range  
IV/IM

Demonstrated efficacy using various measures in multiple pain models  
13

#### Multiple Successful IV Phase 2 Trials

Elan/ALKS have conducted 5 IV and 1 IM clinical trials

Trial

Design

Outcome

Phase II Study

N1539-02

Acute pain following dental  
surgery (N = 230)

Statistically significant differences for all  
doses compared to placebo were seen in  
SPID24, pain relief and onset of pain relief

Phase II Study

N1539-04

Acute pain following open  
abdominal hysterectomy

surgery (N = 486)

Statistically significant differences for all  
doses compared to placebo were seen in  
multiple efficacy analyses, including SPID24.  
meloxicam 30 mg and 60 mg produced the  
greatest response with no difference

between doses

Phase II Study

N1539-05

Acute pain following  
laparoscopic abdominal

surgery (N =50)

Study stopped early (planned N = 250) for  
business reasons. However, statistically  
significant differences in SPID48 observed for  
30mg QD dose despite small sample size

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Phase II Abdominal Hysterectomy Study

Multicenter, single-dose, randomized, double-blind,  
placebo-  
& active-controlled study in Eastern Europe

In double-blind period, single doses of:

Placebo

IV Morphine (10-15 mg)

Meloxicam 5 mg, 7.5 mg, 15 mg, 30 mg, 60 mg

After 24 hours, open-label Meloxicam was available

Standard analgesia study design

Pain Intensity assessments (SPID24 = Primary Endpoint)

Pain Relief

Rescue mediation

Time to onset

15



Robust Efficacy  
(Abdominal  
Hysterectomy  
Trial

IV  
Meloxicam)

\*\*\*  $p < 0.001$  vs. Placebo

\*\*\*

\*\*\*

\*\*\*

\*\*\*

\*\*\*

\*\*\*

16

(10,000)

-

10,000

20,000

30,000

40,000

50,000

60,000

Placebo

n=64

Morphine

n=62

5 mg

n=60

7.5 mg

n=91

15 mg

n=60

30 mg

n=60

60 mg

n=89

Confirmed Efficacy in Multiple Studies  
Summary of Pain Intensity Differences (SPID)

\*\*\*  $p < 0.001$  vs. Placebo

Dental Pain Study

$p = 0.0682$

$p = 0.0392$

Abdominal Laparoscopic Pain Study

17  
0  
20000  
40000  
60000  
80000  
100000  
120000  
140000  
160000  
180000  
200000  
-  
10,000  
20,000  
30,000  
40,000  
50,000  
60,000  
70,000  
80,000  
\*\*\*  
\*\*\*  
\*\*\*  
\*\*\*

Single 30 mg Dose Performance over 24 hrs  
(Abdominal Hysterectomy  
Trial

IV  
Meloxicam)  
Baseline Pain Level

60  
18  
-10  
0  
10  
20  
30  
40  
50  
60  
0  
4  
8  
12  
16  
20  
24

Time (Hours)  
Placebo n=64  
Morphine n=62  
15 mg n=60  
30 mg n=60  
60 mg n=89

Well Tolerated  
(Abdominal  
Hysterectomy  
Trial

IV  
Meloxicam)

\*\*Reported in

3% of Subjects in any group and greater than Placebo

Meloxicam

Placebo

n=64

Morphine

n=62

5 mg

n=60

7.5 mg

n=91

15 mg

n=60

30 mg

n=60

60 mg

n=89

Anemia

3.1

4.8

3.3

13.2

3.3

1.7

10.1

Anemia Postoperative

-

1.6

-

-

-

3.3

-

Constipation

-

4.8

5.0

1.1

1.7

-

-

Flatulence

-

4.8

1.7

1.1

3.3

-

-

Hypokalaemia



-  
3.2  
1.7  
1.1  
-  
1.7  
-  
Insomnia  
4.7  
8.1  
10.0  
4.4  
5.0  
5.0  
4.5  
Ketonuria  
7.8  
9.7  
6.7  
9.9  
15  
10  
10.1  
Leukocytosis  
-  
-  
1.7  
-  
-  
3.3  
-  
Pyrexia  
1.6  
3.2  
3.3  
2.2  
-  
-  
-  
Sinus Tachycardia  
-  
-  
3.3  
-  
-  
-  
1.1  
Percent of Subjects Reporting an Adverse Event \*\*  
19

Next Steps for IV Meloxicam

Production of a clinical supply batch

Conduct Phase III Pivotal Study in hard and soft  
tissue models

Verify need for additional safety studies to meet  
adequate exposures / special populations

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Dexmedetomidine  
( Dex )

Dex  
Has Demonstrated Analgesia & Safety

Alpha 2 agonist (non-opioid)

Injectable  
form

(Precedex)  
marketed  
by  
Hospira  
in  
US  
as  
sedative

Multiple studies demonstrating analgesia of alpha 2 agonists

Intranasal formulation in clinical development for acute  
pain

In-licensed non-IV rights from Orion

Worldwide  
rights  
except  
Europe,  
Turkey,  
and  
CIS

Multiple  
studies  
demonstrate  
Dex  
pain  
relief  
and  
safe  
profile

Including our completed placebo controlled trials

Expect strong IP position

Pending IP coverage could run through 2030

Expect to file 505(b)(2) NDA after completion of Ph  
III  
22

Dex  
Efficacy and Safety in Multiple Studies  
Beneficial effects  
Source  
Approved sedative and safe profile  
NDA filing / pivotal trials -  
Abbott/Hospira, Orion

Morphine sparing  
NDA studies plus Literature  
Analgesia by IV route  
Chan, 2010; Grosu, 2010; Lin, 2009, Arain,  
2010  
Demonstration of pain relief (VAS)  
Placebo controlled trials; L. Webster, MD  
(Utah) CLBP study (Recro sponsored)  
Positive PK/PD plasma levels  
demonstrating analgesic potential  
Clinical trials run by Recro  
Relieves morphine Max  
( hyperalgesia )  
University of Minnesota; M. Belgrade, MD  
23



Significant Advantages Over Opioids  
Dex  
Fast-acting Opioids  
Non-opioid (Not controlled substance)  
Opioid -  
DEA scheduled product  
No habituation effects

Addictive

Does not cause respiratory depression

Respiratory depression

Not associated with constipation,

nausea, or vomiting

Unwanted side-effects of constipation,

nausea and vomiting

Enhances morphine effectiveness

without morphine dose increase

Additive effect requires higher dose

More cognitively intact

Frequently Foggy / may be confused

Anxiolytic

properties

Not anxiolytic

Effective Analgesic

Effective Analgesic

24

Dex  
Has Been Well Studied by Recro

Evaluated proprietary formulations of Dex  
in 10 trials  
Trial  
Form

Design

Outcome

REC-14-013

Dex-IN

Acute pain following

bunionectomy

surgery

(n=168)

Statistically significant difference of  
SPID48 between 50 mcg of Dex-IN vs.  
placebo (p=0.0214)

REC-13-012

Dex-IN

Acute pain following

bunionectomy

surgery

(n=85 evaluable)

Within subset of patients (n=42), with  
baseline pain intensity of 6 or below,  
there was a trend towards analgesia in 50  
mcg and reduced opioid use vs placebo

REC-11-010

Dex-IN

Chronic lower back pain

POC study (n=24)

Statistically significant pain relief within  
30 minutes demonstrated in placebo  
controlled  
trial

single

use

device

REC-09-003

Dex-SL

Chronic lower back pain

POC study (n=21)

Statistically significant reduction in pain  
intensity demonstrated in placebo  
controlled trial

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Dex-IN Study REC-14-013  
(US placebo controlled trial)

Phase II bunionectomy  
study

Randomized, placebo controlled study

Primary  
endpoint

SPID48

Oral opioid rescue therapy allowed

Post Op Day 1 dosing

50 mcg of Dex-IN or placebo every 6 hours

84 patients in each treatment group (168 in total)

Additional secondary endpoints included:

Use of opioid rescue medication

SPIDs over various time intervals

Other standard efficacy analyses

Patients followed for 7 days after initial dosing  
26

Study REC-14-013  
(SPID48

Primary  
Endpoint)  
27

Note: Last Observation Carried Forward Analysis Method

p = 0.0214

0

500

1000

2000

2500

3000

Placebo N = 84

DEX-IN 50 µg N = 84

1500



Study REC-14-013  
(Subject Characteristics)  
Placebo  
(N=84)  
DEX-IN 50 µg  
(N=84)  
Female, n (%)

75 (89.3)

79 (94.0)

Age, Mean

44

43.9

(range)

(46 -

70)

(46 -

69)

Discontinued Subjects, n (%)

3 (3.6)

4 (4.8)

Lack of Efficacy

3 (3.6)

3 (3.6)

Adverse Event

0

1 (1.2)\*\*

Race, n (%)

White

56 (66.7)

59 (70.2)

Black/African American

21 (25.0)

20 (23.8)

Other

7 (8.4)

5 (6.0)

Baseline PI Score, Mean

6.7

6.4

(range)

(4 -

10)

(4 -

10)

28

\*\*Serious Adverse Event of Hypotension

Study REC-14-013  
(Adverse Events  
3 in Dex-IN Group)  
29

If IV fluid given and no symptoms present, BP Decrease  
recorded as AE

No medication given to any patient with BP or HR change

All nasal related AEs were rated as mild, except one case of nasal congestion rated as moderate

Adverse Event

Placebo

(N=84)

DEX-IN 50 µg

(N=84)

BP Decreased

3 (3.6%)

22 (26.2%)

Nausea

14 (16.7%)

13 (15.5%)

Nasal Discomfort

2 (2.4%)

7 (8.3%)

Headache

4 (4.8%)

6 (7.1%)

Vomiting

6 (7.1%)

4 (4.8%)

Nasal Dryness

3 (3.6%)

4 (4.8%)

Nasal Congestion

1 (1.2%)

4 (4.8%)

Nasal Obstruction

2 (2.4%)

3 (3.6%)

Bradycardia

0

3 (3.6%)

Dizziness

1 (1.2%)

3 (3.6%)

Hypotension

0

3 (3.6%)

Clinical Pipeline Intellectual Property

IV/IM meloxicam

formulation

IP

through

2022

Additional IP filed could run to 2030

Dex applications for methods for treating/preventing pain  
through intranasal  
and  
sublingual  
formulations  
without  
significant sedation

Fado  
IP in-licensed from Orion

Composition of matter

Method of administration for analgesia

Treatment and prevention of hypotension and shock

Pro-Drug

Regulatory exclusivity

505(b)(2)

3  
years  
(Meloxicam,  
Dex-IN,  
Dex-SL)

505(b)(1)

NCE,  
5  
years  
(Fado)  
30

Fadolmidine  
( Fado )

Fado

Effective in Phase II for Pain Relief

Alpha 2 agonist

more potent at the alpha 2c receptor than Dex



>20 fold less potent at the alpha 1b receptor than clonidine

Fado  
has demonstrated analgesia in multiple animal models

Positive  
Phase  
II  
analgesia  
study  
in  
bunionectomy  
patients

Intrathecal route of administration

Formulation work underway for topical prototype

Potential in regional neuropathies

WW rights to all human uses except Europe, Turkey and CIS

NCE  
patent  
w/  
expected  
extension  
to  
2021  
/  
pursuing  
add 1  
IP  
32

Corporate Overview

US Based Manufacturing Facility

34

Manufacturing & Royalty Overview  
Manufacturing  
facility

87,000 sq. ft. solid oral dosage manufacturing cGMP

DEA licensed

~165 employees  
Service capabilities

Formulation,  
process  
development  
and  
optimization

Process scale-up

Clinical supply and validation

Commercial supply  
Ritalin LA

Once  
daily ADHD treatment  
marketed by Novartis  
Focalin  
XR

ADHD treatment marketed by Novartis  
Verelan  
/ verapamil

CV/High blood pressure treatment  
marketed by Actavis  
and UCB  
Zohydro  
ER

Extended release hydrocodone marketed by Pernix

Launched  
in 2014

Abuse deterrent form launched  
35

Strong Historical Manufacturing Performance

Carve-out financials

Zohydro

ER

abuse deterrent form launched

Additional capacity for new product opportunities

Positive cashflow  
expected to cover all debt service  
obligations and excess cashflows  
to repay loan  
principal  
36

\*EBITDA is a non-GAAP financial metric. Please see slide 38 for additional information including a reconciliation of Net Income to EBITDA.

(in millions)

12 months ended

Dec.

31, 2014

(audited)

3 months ended

March 31, 2015

3 months ended

March 31, 2014

Revenues

\$75.2

\$19.4

\$16.6

EBITDA\*

\$29.2

\$5.2

\$6.8

#### Company Highlights

Multiple non-opioid therapeutics in mid to late stage clinical development for acute post operative pain

IV/IM  
meloxicam



Phase  
III  
ready

long  
acting,  
demonstrated efficacy in successful Ph II trials

Dex-IN

proprietary,  
intranasal  
therapeutic  
with  
recently announced positive Ph II results

Revenue and cashflow  
positive manufacturing &  
royalty business

Experienced management team with significant  
development, regulatory and commercial experience

37

Supplemental Financial Information  
Non-GAAP Reconciliation  
(in millions)  
12 months  
ended  
Dec.  
31, 2014

(audited)

3 months

ended

March 31,

2015

3 months

ended

March 31,

2014

Net income

\$14.3

\$1.8

\$3.5

Income

tax expense

\$3.3

\$0.6

\$0.8

Impairment of long-lived assets

\$1.4

\$0.0

\$0.0

Depreciation and amortization

\$10.3

\$2.9

\$2.5

EBITDA

\$29.2

\$5.2

\$6.8

38

The Company defines EBITDA as earnings before interest, taxes, depreciation and amortization. The Company also presents EBITDA because it believes it is frequently used by securities analysts, investors and other interested parties as a measure of financial performance. EBITDA has limitations as an analytical tool, and when assessing the Company's operating performance, investors should not consider EBITDA in isolation, or as a substitute for net income (loss) or other consolidated income statement data prepared in accordance with U.S. GAAP.