Recro Pharma Announces Dosing of First Patient in Phase IIb Clinical Trial of Dex-IN for Treatment of Acute Pain Following Surgery

Dex-IN – rapid acting, non-opioid, intranasal treatment for acute pain following surgery

MALVERN, PA, June 17, 2014 – Recro Pharma, Inc. (Nasdaq: REPH), a clinical stage specialty pharmaceutical company developing non-opioid therapeutics for the treatment of pain, initially for acute pain following surgery, today announced dosing of the first patient in a Phase IIb clinical trial of Dex-IN in patients undergoing bunionectomy surgery.

"This trial is designed to explore Dex-IN in a robust post-operative setting," said Gerri Henwood, Recro Pharma's President and Chief Executive Officer. "Positive results from this Phase IIb clinical trial following bunionectomy surgery would represent a significant advancement for this non-opioid alternative for patients experiencing acute pain following surgery. We expect to report top line data from this trial by the end of 2014."

The Phase IIb trial is 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 subjects undergoing bunionectomy surgery. The trial is expected to enroll approximately 150 to 200 subjects. Subjects who meet the eligibility criteria will be randomized to either a 50µg dose of Dex-IN, a 35µg of Dex-IN or a placebo intranasal dose. Following the beginning of treatment, subjects will remain under observation for 48 hours at study centers. Following the initial dose of study medication, patients are followed for 7 days.

The primary efficacy endpoint of the trial is the summed pain intensity difference over 48 hours, SPID48. Additional efficacy endpoints include use of rescue medication, Patient Global Assessment (PGA) of pain control, opioid consumption and side effects of opioid use.

Bunion 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.

Christina Carnegie, M.D., Recro Pharma's consulting Senior Medical Director stated: "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 in other post-operative procedures that result in moderate to severe, acute pain. We believe that success in treating acute pain associated with bunionectomy surgery will support the use of Dex-IN in addressing moderate to severe acute pain associated with a wide range of surgical procedures."

About Recro Pharma, Inc.

Recro Pharma is a clinical stage specialty pharmaceutical company developing non-opioid therapeutics for the treatment of pain, initially for acute pain following surgery. Recro Pharma's lead product candidate, Dex-IN, is a proprietary intranasal formulation of dexmedetomidine and has completed a placebo controlled, proof of concept Phase Ib trial demonstrating effective pain relief. 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. If approved, Dex-IN would be the first and only approved acute pain drug in its class of drugs.

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 operating results, performance and opportunities that involve substantial risks and uncertainties. When used herein, the words "anticipate," "believe," "estimate," "upcoming," "plan," "target", "intend" and "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 actual results, performance, prospects, and opportunities 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 results to materially differ from those expressed in the forward-looking statements set forth in this press release include, without limitation: the results and timing of the company's Phase IIb clinical trial of Dex-IN; the ability to obtain and maintain regulatory approval of product candidates, 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 the company's product candidates; and the successful implementation of the company's strategy. 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.

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