# Collegium Announces Positive Topline Results of Comparative Clinical Trial Evaluating the Effect of Crushing Xtampza™ ER Compared with OxyContin®

May 4, 2016

CANTON, Mass., May 04, 2016 (GLOBE NEWSWIRE) -- Collegium Pharmaceutical, Inc. (Nasdaq:COLL) today announced positive topline results from a comparative clinical trial evaluating the effect of physical manipulation by crushing of Xtampza™ ER (oxycodone extended-release capsules) compared with the abuse-deterrent version of OxyContin® (oxycodone hydrochloride extended-release tablets). Xtampza ER, Collegium's first FDA approved product utilizing its proprietary DETERx® technology platform, is designed to maintain its ER pharmacokinetic (PK) profile after being subjected to common methods of manipulation including chewing and crushing the product prior to oral administration. Xtampza ER capsules are a twice-daily, opioid agonist product indicated for the management of pain severe enough to require daily, around-the-clock, long-term opioid treatment and for which alternative treatment options are inadequate.

The objective of the clinical trial was to assess the safety and PK of Xtampza ER when the capsule was taken intact compared with opening the capsule and crushing the capsule contents (microspheres) prior to oral administration. These treatments were compared with OxyContin intact, OxyContin crushed, and an immediate-release (IR) oxycodone tablet formulation that was crushed. The clinical trial was an open label, randomized, active-controlled, 5-treatment, 5-period, cross-over comparison in naltrexone-blocked, healthy subjects (n=41). The tools used to crush the formulations are commonly available household tools and were previously identified as the most effective tools to reduce the particle size for each respective product.

**The top-line results of the clinical trial demonstrated the following:**

- Crushed Xtampza ER capsule contents (microspheres) (Cmax = 61.2 ng/mL; AUC = 549 hr × ng/mL) were bioequivalent to intact Xtampza ER capsules (Cmax = 56.9 ng/mL; AUC = 534 hr × ng/mL) with similar Tmax demonstrating that crushing the contents of Xtampza ER capsules did not alter the ER PK profile of Xtampza ER.
- Crushed OxyContin tablets (Cmax = 79.9 ng/mL; AUC = 540 hr × ng/mL) were bioequivalent to crushed IR oxycodone tablets (Cmax = 78.1 ng/mL; AUC = 497 hr × ng/mL), demonstrating that crushing OxyContin compromised the integrity of the time-release formulation, transforming the drug-release PK profile from an ER profile to an IR profile.
- At one hour after dosing, crushed OxyContin resulted in an approximately 5-fold higher mean plasma concentration than taking OxyContin intact and an approximately 4-fold higher mean plasma concentration than crushed Xtampza ER.

"This is the second comparative clinical trial to demonstrate that Xtampza ER maintains its ER properties after being subjected to crushing followed by oral administration, whereas OxyContin did not retain its ER properties after crushing, which resulted in OxyContin being bioequivalent to immediate-release oxycodone. The results of this study are consistent with our prior clinical trial comparing OxyContin to Xtampza ER," said Dr. Ernest Kopecky, Vice President, Clinical Development, Collegium.

**About Collegium Pharmaceutical, Inc.**

Collegium is a specialty pharmaceutical company focused on developing a portfolio of products that incorporate its patent-protected DETERx® technology platform for the treatment of chronic pain and other diseases. The DETERx oral drug delivery technology is designed to provide extended-release delivery, unique abuse-deterrent properties, and flexible dose administration options.

**About Xtampza ER**

**INDICATION**

Xtampza ER is an opioid agonist product indicated for the management of pain severe enough to require daily, around-the-clock, long-term opioid treatment and for which alternative treatment options are inadequate.

**LIMITATIONS OF USE**

Because of the risks of addiction, abuse, and misuse with opioids, even at recommended doses, and because of the greater risks of overdose and death with extended-release opioid formulations, reserve Xtampza ER for use in patients for whom alternative treatment options (e.g., non-opioid analgesics or immediate-release opioids) are ineffective, not tolerated, or would be otherwise inadequate to provide sufficient management of pain.

Xtampza ER is not indicated as an as-needed (prn) analgesic.

The Full Prescribing Information for Xtampza ER contains the following Boxed Warning:

**WARNING: ADDICTION, ABUSE, AND MISUSE; LIFE-THREATENING RESPIRATORY DEPRESSION; ACCIDENTAL INGESTION; NEONATAL OPIOID WITHDRAWAL SYNDROME; and CYTOCHROME P450 3A4 INTERACTION**

**Addiction, Abuse, and Misuse**
Xtampza ER exposes patients and other users to the risks of opioid addiction, abuse, and misuse, which can lead to overdose and death. Assess

each patient's risk prior to prescribing Xtampza ER and monitor all patients regularly for the development of these behaviors or conditions.

**Life-Threatening Respiratory Depression**
Serious, life-threatening, or fatal respiratory depression may occur with use of Xtampza ER. Monitor for respiratory depression, especially during initiation of Xtampza ER or following a dose increase.

**Accidental Ingestion**
Accidental ingestion of even one dose of Xtampza ER, especially by children, can result in a fatal overdose of oxycodone.

**Neonatal Opioid Withdrawal Syndrome**
Prolonged use of Xtampza ER during pregnancy can result in neonatal opioid withdrawal syndrome, which may be life threatening if not recognized and treated, and requires management according to protocols developed by neonatology experts. If opioid use is required for a prolonged period in a pregnant woman, advise the patient of the risk of neonatal opioid withdrawal syndrome and ensure that appropriate treatment will be available.

**Cytochrome P450 3A4 Interaction**
The concomitant use of Xtampza ER with all cytochrome P450 3A4 inhibitors may result in an increase in oxycodone plasma concentrations, which could increase or prolong adverse drug effects and may cause potentially fatal respiratory depression. In addition, discontinuation of a concomitantly used cytochrome P450 3A4 inducer may result in an increase in oxycodone plasma concentration. Monitor patients receiving Xtampza ER and any CYP3A4 inhibitor or inducer.

**IMPORTANT SAFETY INFORMATION**

Xtampza ER is contraindicated in patients with: significant respiratory depression; acute or severe bronchial asthma in an unmonitored setting or in the absence of resuscitative equipment; known or suspected gastrointestinal obstruction, including paralytic ileus; and hypersensitivity (e.g., anaphylaxis) to oxycodone.

Xtampza ER contains oxycodone, a Schedule II controlled substance. As an opioid, Xtampza ER exposes users to the risks of addiction, abuse, and misuse. As extended-release products, such as Xtampza ER, deliver the opioid over an extended period of time, there is a greater risk for overdose and death due to the larger amount of oxycodone present.

Potential serious adverse events caused by opioids include addiction, abuse, and misuse, life-threatening respiratory depression, neonatal opioid withdrawal syndrome, risks of concomitant use or discontinuation of cytochrome P450 3A4 inhibitors and inducers, risks due to interactions with central nervous system depressants, risk of life-threatening respiratory depression in patients with chronic pulmonary disease or in elderly, cachectic, or debilitated patients, adrenal insufficiency, severe hypotension, risks of use in patients with increased intracranial pressure, brain tumors, head injury, or impaired consciousness, risks of use in patients with gastrointestinal conditions, risk of use in patients with seizure disorders, withdrawal, risks of driving and operating machinery, and laboratory monitoring.

The most common AEs (>5%) reported by patients in the Phase 3 clinical trial during the titration phase were: nausea (16.6%), headache (13.9%), constipation (13.0%), somnolence (8.8%), pruritus (7.4%), vomiting (6.4%), and dizziness (5.7%).

The Full Prescribing Information for Xtampza ER, including the Boxed Warning and Medication Guide is available on the following link: FDA Approved Drug Products

**Forward-Looking Statements**

This press release contains forward-looking statements within the meaning of The Private Securities Litigation Reform Act of 1995. We may, in some cases, use terms such as "predicts," "believes," "potential," "proposed," "continue," "estimates," "anticipates," "expects," "plans," "intends," "may," "could," "might," "will," "should" or other words that convey uncertainty of future events or outcomes to identify these forward-looking statements. Such statements are subject to numerous important factors, risks and uncertainties that may cause actual events or results to differ materially from the company's current expectations. Management's expectations and, therefore, any forward-looking statements in this press release could also be affected by risks and uncertainties relating to a number of other factors, including the following: our ability to commercialize our products and product candidates; the existence of any patent infringement or similar litigation relating to any of our products or product candidates, and costs and delays associated with such litigation; the size and growth potential of the markets for our product and product candidates, and our ability to service those markets; our ability to develop sales and marketing capabilities, whether alone or with potential future collaborators; the rate and degree of market acceptance of our product and product candidates; the success, cost and timing of our product development activities, studies and clinical trials; the success of competing products that are or become available; and our expectations regarding our ability to obtain and adequately maintain sufficient intellectual property protection for our product candidates. These and other risks are described under the heading "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2015, and those risks described from time to time in other reports which we file with the SEC. Any forward-looking statements that we make in this press release speak only as of the date of this press release. We assume no obligation to update our forward-looking statements whether as a result of new information, future events or otherwise, after the date of this press release.

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COLLEGIUM Pharmaceutical

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