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## **IRONWOOD PRESENTS POSITIVE PHASE 2B STUDY RESULTS FOR LINACLOTIDE IN PATIENTS WITH IRRITABLE BOWEL SYNDROME WITH CONSTIPATION**

— Data Presented Today at the 16<sup>th</sup> United European Gastroenterology Week—

VIENNA, Austria, October 21, 2008—Ironwood Pharmaceuticals, Inc. (formerly Microbia, Inc.) today announced the presentation of results from a Phase 2b study assessing linaclotide's safety and efficacy in 420 patients with irritable bowel syndrome with constipation (IBS-C). Analysis of the data indicates that once-daily oral dosing of linaclotide, across a range of doses, significantly reduced abdominal pain and significantly improved constipation symptoms in patients with IBS-C throughout the 12-week study period. Further, the safety and tolerability profile support advancing this novel compound into Phase 3 clinical trials. The study results were presented today at the 16th United European Gastroenterology Week (UEGW) in Vienna.

"IBS-C is characterized by abdominal pain and constipation, and in this study, patients who received linaclotide reported statistically significant improvements in these symptoms," said Jeffrey M. Johnston, M.D., F.A.C.P., vice president and chief medical officer at Ironwood.

"Patients need effective and well tolerated therapies that address both the pain and the constipation of IBS-C. The encouraging results of this study indicate that linaclotide may be a valuable new treatment for these patients."

### **Study Results**

420 patients were randomized into the study and 337 completed the 12-week treatment period. At all linaclotide dose levels, the improvement from baseline vs. placebo for complete spontaneous bowel movement (CSBM) frequency—the study's primary endpoint—was statistically significant (2.5 to 3.6 vs. 1.0;  $p = 0.0036$  to  $<0.0001$ ). In addition, abdominal pain was statistically significantly reduced in all linaclotide treatment groups compared to placebo (-0.7 to -0.9 change from baseline on a 5-point ordinal severity scale vs. -0.5;  $p = 0.0239$  to  $<0.0001$ ) and, in the 26 percent of patients with severe/very severe baseline abdominal pain, improvement was even more pronounced (-0.8 to -1.3 v -0.2;  $p = 0.0236$  to  $<0.0001$ ). Results for spontaneous bowel movement (SBM) frequency, stool consistency, straining, abdominal discomfort, bloating, IBS symptom severity, and other global assessments were statistically

significant for the two highest dose groups, 300 ug and 600 ug, and for at least one of the two lower doses, 75 and 150 ug, for each endpoint. Treatment effects of linaclotide occurred within the first week of treatment and were maintained throughout the entire 12-week treatment period; there was no indication of rebound worsening of IBS symptoms following cessation of treatment. Linaclotide was well tolerated at all doses with no treatment-related serious adverse events. The most common adverse event was diarrhea, which occurred in 11 percent to 18 percent of linaclotide-treated patients compared to 1 percent of placebo-treated patients. Diarrhea resulted in the discontinuation of 1 percent to 7 percent of linaclotide-treated patients and none of the placebo-treated patients. There were no associated dehydration or electrolyte abnormalities.

Ironwood and North American partner Forest Laboratories expect to initiate two pivotal Phase 3 trials in patients with IBS-C by January 2009.

### **IBS-C Phase 2b Study Design**

This North American-based, randomized, multi-center, double-blind, placebo-controlled, dose-range-finding, parallel-group Phase 2b study was designed to assess the safety, efficacy, and dose response of linaclotide in patients with IBS-C. The primary efficacy endpoint was change from baseline in CSBM frequency. The study evaluated the effects of 75, 150, 300 or 600 ug linaclotide or placebo administered orally once daily to adults meeting modified Rome II criteria for IBS-C. Participants underwent two-week baseline, 12-week treatment, and two-week post-treatment evaluations with daily assessments of bowel habits and symptom severity, and weekly global assessments using an interactive voice response system. During the baseline period patients had to demonstrate <3 CSBM/week and mean daily abdominal pain or discomfort of at least mild severity. Treatment effects in the intent-to-treat population were estimated using an analysis of covariance and the Cochran-Mantel Haenszel test.

### **About Linaclotide**

Linaclotide is a first-in-class compound currently being evaluated for the treatment of IBS-C, chronic constipation (CC), and other gastrointestinal disorders. Linaclotide was designed to exert its effect on the intestine with minimal systemic exposure. Linaclotide is an agonist of guanylate cyclase type-C, a receptor found on the lining of the intestine. The safety and efficacy of linaclotide were evaluated in a comprehensive Phase 2b program, comprised of two clinical studies in over 700 patients with either IBS-C or CC. In patients with IBS-C, linaclotide reduced abdominal pain and relieved constipation—the hallmarks of the condition—throughout the 12-week treatment period. In patients with CC, linaclotide reduced constipation throughout the four-week study period. Linaclotide was well tolerated at all doses in both Phase 2b studies, with the most common adverse event being diarrhea. A United States patent covering linaclotide composition of matter expires in 2025. In September 2007, Ironwood and Forest Laboratories entered into a 50/50 collaboration to co-develop and co-promote linaclotide in the United States. Ironwood retains exclusive rights to linaclotide outside of North America.

### **About Irritable Bowel Syndrome (IBS)**

One out of six adults in developed countries suffers from IBS, a chronic condition marked by abdominal pain and disturbed bowel function. IBS accounts for 12 percent of adult visits to primary care physicians and is the most common disorder diagnosed by gastroenterologists. Healthcare costs associated with IBS exceed \$25 billion annually. IBS patients fall largely into three subgroups—constipation-predominant (IBS-C), diarrhea-predominant (IBS-D), and mixed IBS (IBS-M)—and 30 percent to 40 percent of these patients suffer from IBS-C. There are currently few available therapies to treat the nine million U.S. patients diagnosed with IBS-C.

### **About Ironwood Pharmaceuticals**

Ironwood Pharmaceuticals (formerly Microbia) ([www.ironwoodpharma.com](http://www.ironwoodpharma.com)) is an entrepreneurial pharmaceutical company dedicated to the science and art of great drugmaking. The Company is advancing several clinical candidates—linaclotide for the treatment of irritable bowel syndrome with constipation, chronic constipation, and other functional gastrointestinal disorders; and novel, next-generation cholesterol absorption inhibitors for the treatment of hypercholesterolemia. Ironwood also has a growing pipeline of additional drug candidates in earlier stages of development. Microbia Precision Engineering, Inc., a majority-owned subsidiary of Ironwood, is an industrial biotechnology company developing and commercializing novel bioprocesses for the production of specialty chemicals. Ironwood has raised \$281 million in private equity financing and is located in Cambridge, Massachusetts.

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