NEWS RELEASE

Mirum’s Volixibat Achieves Positive Interim Analyses in VANTAGE PBC and VISTAS PSC Studies

6/17/2024

- VANTAGE PBC interim analysis shows 3.8 point reduction from baseline and 2.3 point placebo-adjusted (p=0.0026) reduction in primary endpoint of pruritus

- VISTAS PSC interim analysis exceeds efficacy threshold for study continuation

- Mirum to host conference call to discuss analyses, today, June 17 at 8:30 a.m. ET/5:30 a.m. PT

FOSTER CITY, Calif.--(BUSINESS WIRE)-- Mirum Pharmaceuticals, Inc. (Nasdaq: MIRM) today announced interim results from two Phase 2b studies evaluating volixibat, an oral ileal bile acid transporter (IBAT) inhibitor in patients with primary biliary cholangitis (PBC) and primary sclerosing cholangitis (PSC).

Interim results from the VANTAGE study evaluating volixibat in patients with PBC demonstrated a statistically significant (-3.82, p<0.0001) improvement in pruritus for volixibat and a placebo-adjusted difference of -2.32 points in the primary endpoint, p=0.0026, as measured by the Adult ItchRO scale. 75% of patients on volixibat achieved a greater than 50% reduction in serum bile acids. In addition, there was a significant improvement in fatigue at week 16 with volixibat compared to placebo.

No new safety signals were observed, and adverse events were similar between the 20 mg and 80 mg treatment groups. The most common adverse event was diarrhea (77%) with all cases mild to moderate, and mostly transient; one case resulted in discontinuation. Four patients experienced serious adverse events, including one in the placebo arm. There were no clinically meaningful changes in liver biomarkers.

Adult ItchRO Change from Baseline

Mean change in Adult ItchRO score*	20 mg (n=10)	80 mg (n=10)	20+80 mg (n=20)	PBO (n=10)
LSMean (SE) P-value	-3.84 (0.609) <0.0001	-3.79 (0.564) <0.0001	-3.82 (0.414) <0.0001	-1.50 (0.585) 0.0149
Difference between VLX and PBO P-value	-2.34 0.0090	-2.29 0.0075	-2.32 0.0026	

*Adult ItchRO is a 0-10 numerical rating scale; MMRM weekly averaged worst daily itch score, assessed over weeks 17-28 of the treatment period.

Based on these results, the VANTAGE PBC trial will continue with a volixibat dose of 20 mg twice daily.

Concurrently, the interim analysis for the VISTAS PSC study was conducted and the independent data review committee recommended that the study continue with the selected volixibat dose of 20 mg twice daily, with no changes to the study. The criteria for continuation included safety as well as a predefined threshold for efficacy. The sponsor and investigators are blinded to the interim results and analysis.

“The interim data from the VANTAGE study provide outstanding results in relation to what has been shown for treatment of pruritus in PBC,” said Joanne Quan, MD, chief medical officer at Mirum. “With both VISTAS and VANTAGE advancing to enroll their confirmatory portions, we are excited about volixibat as a potential future option to help patients overcome one of the most prevalent and burdensome symptoms of these rare liver diseases.”

“The results of the interim analyses are very impressive as they confirm the potential of volixibat in targeting bile acids in PBC and PSC,” said Kris Kowdley, MD, Washington State University and an investigator for VANTAGE and VISTAS. “I look forward to seeing the final data with the goal of having additional therapies available to address the burden of disease in adult cholestasis.”

“The symptomatic burden in PBC is significant and often an underappreciated aspect of this disease. Both itch and fatigue are devastating hallmarks of PBC that can significantly decrease quality of life,” said Carol Roberts, president of the PBCers Organization. “It is incredibly encouraging for PBC patients to see such promising results with volixibat.”

Conference Call to Discuss Interim Analysis

Mirum will be hosting a conference call to discuss the interim analyses from VISTAS and VANTAGE today, Monday, June 17 at 8:30 a.m. ET/5:30 a.m. PT. Join the call by dialing (404) 975-4839 (local/int’l) or (833) 470-1428 (toll-free) and using the access code: 205511. You may also access the webcast through Mirum’s **Investor Relations website**.

About Volixibat

Volixibat is an oral, minimally absorbed agent designed to selectively inhibit the ileal bile acid transporter (IBAT). Volixibat may offer a novel approach in the treatment of adult cholestatic diseases by blocking the recycling of bile acids, through inhibition of IBAT, thereby reducing bile acids systemically and in the liver. Phase 1 and Phase 2 studies of volixibat demonstrated on-target fecal bile acid excretion, a pharmacodynamic marker of ASBT inhibition, in addition to decreases in LDL cholesterol and increases in 7αC4 which are markers of bile acid synthesis. Volixibat has been evaluated in more than 400 individuals across multiple clinical trials. The most common adverse events reported were mild to moderate gastrointestinal events observed in the volixibat groups. Volixibat is currently being evaluated in Phase 2b studies for primary sclerosing cholangitis (**VISTAS study**), and primary biliary cholangitis (**VANTAGE study**).

About Mirum Pharmaceuticals, Inc.

Mirum Pharmaceuticals, Inc. is a biopharmaceutical company dedicated to transforming the treatment of rare diseases affecting children and adults. Mirum has three approved medications: **LIVMARLI® (maralixibat) oral solution**, **CHOLBAM® (cholic acid) capsules,** and **CHENODAL® (chenodiol) tablets.**

LIVMARLI, an IBAT inhibitor, is approved for the treatment of two rare liver diseases affecting children and adults. It is approved for the treatment of cholestatic pruritus in patients with Alagille syndrome in the U.S. (three months and older), in Europe (two months and older), and in other regions globally. It is also approved in the U.S. in cholestatic pruritus in PFIC patients five years of age and older and in Europe the Committee for Medicinal Products for Human Use (CHMP) has adopted positive opinion of LIVMARLI to treat patients with PFIC three months and older. A decision by the European Commission is expected in the third quarter 2024. CHOLBAM is FDA-approved for the treatment of bile acid synthesis disorders due to single enzyme deficiencies and adjunctive treatment of peroxisomal disorders in patients who show signs or symptoms or liver disease. CHENODAL has received medical necessity recognition by the FDA to treat patients with cerebrotendinous xanthomatosis (CTX).

Mirum's late-stage pipeline includes two investigational treatments for debilitating liver diseases. Volixibat, an IBAT inhibitor, is being evaluated in two potentially registrational studies including the Phase 2b **VISTAS** study for primary sclerosing cholangitis and Phase 2b **VANTAGE** study for primary biliary cholangitis. Lastly, CHENODAL has been evaluated in a Phase 3 clinical study, RESTORE, to treat patients with CTX, with positive topline results **reported** in 2023.

To learn more about Mirum, visit mirumpharma.com and follow Mirum on **Facebook**, **LinkedIn**, **Instagram** and **Twitter (X)**.

LIVMARLI® (maralixibat) Oral Solution

IMPORTANT SAFETY INFORMATION

Limitation of Use: LIVMARLI is not for use in PFIC type 2 patients who have a severe defect in the bile salt export pump (BSEP) protein.

LIVMARLI can cause side effects, including:

Liver injury. Changes in certain liver tests are common in patients with Alagille syndrome and PFIC but can worsen during treatment. These changes may be a sign of liver injury. In PFIC, this can be serious or may lead to liver transplant or death. Your healthcare provider should do blood tests and physical exams before starting and during treatment to check your liver function. Tell your healthcare provider right away if you get any signs or symptoms of liver problems, including nausea or vomiting, skin or the white part of the eye turns yellow, dark or brown urine, pain on the right side of the stomach (abdomen), bloating in your stomach area, loss of appetite or bleeding or bruising more easily than normal.

Stomach and intestinal (gastrointestinal) problems. LIVMARLI can cause stomach and intestinal problems, including diarrhea and stomach pain. Your healthcare provider may advise you to monitor for new or worsening stomach problems including stomach pain, diarrhea, blood in your stool or vomiting. Tell your healthcare provider right away if you have any of these symptoms more often or more severely than normal for you.

A condition called Fat Soluble Vitamin (FSV) Deficiency caused by low levels of certain vitamins (vitamin A, D, E, and K) stored in body fat is common in patients with Alagille syndrome and PFIC but may worsen during treatment. Your healthcare provider should do blood tests before starting and during treatment and may monitor for bone fractures and bleeding which have been reported as common side effects.

US Prescribing Information

EU SmPC

Forward-Looking Statements

This press release contains “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. Such forward-looking

statements include those regarding the clinical potential and regulatory process for volixibat, the ability for volixibat to impact bile acids or pruritus in patients with PSC or PBC, and the effectiveness of volixibat in a real-world population, if ever approved by the FDA. Because such statements are subject to risks and uncertainties, actual results may differ materially from those expressed or implied by such forward-looking statements. Words such as “will,” “could,” “would,” “potential” and similar expressions are intended to identify forward-looking statements. These forward-looking statements are based upon Mirum’s current expectations and involve assumptions that may never materialize or may prove to be incorrect. Actual results could differ materially from those anticipated in such forward-looking statements as a result of various risks and uncertainties, which include, without limitation, risks and uncertainties associated with Mirum’s business in general, the impact of the COVID-19 pandemic, and the other risks described in Mirum’s filings with the Securities and Exchange Commission. All forward-looking statements contained in this press release speak only as of the date on which they were made and are based on management’s assumptions and estimates as of such date. Mirum undertakes no obligation to update such statements to reflect events that occur or circumstances that exist after the date on which they were made, except as required by law. A further description of risks and uncertainties can be found in Mirum’s Annual Report on Form 10-K for the fiscal year ended December 31, 2023 and in its subsequent reports on Form 10-Q, including in the sections thereof captioned “Risk Factors,” as well as in its subsequent reports on Form 8-K, all of which are filed with the U.S. Securities and Exchange Commission and available at **www.sec.gov** .

Media Contact:

Erin Murphy

media@mirumpharma.com

Investor Contact:

Andrew McKibben

ir@mirumpharma.com

Source: Mirum Pharmaceuticals, Inc.