ARENA PHARMACEUTICALS INC
Form 8-K
August 02, 2011

# 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): August 2, 2011**

# Arena Pharmaceuticals, Inc.

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

| **Delaware** | **000-31161** | **23-2908305** |
|---|---|---|
| **(State or other jurisdiction of incorporation)** | **(Commission File Number)** | **(I.R.S. Employer Identification No.)** |

**6166 Nancy Ridge Drive, San Diego, California 92121**

**(Address of principal executive offices) (Zip Code)**

**858.453.7200**

**(Registrant s telephone number, including area code)**

**N/A**

**(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))

In this report, Arena Pharmaceuticals, Arena, Company, we, us and our refer to Arena Pharmaceuticals, Inc., unless the context otherwise provides.

**Item 8.01 Other Events.**

On August 2, 2011, we announced the completion of a clinical study that measured lorcaserin concentrations in human cerebrospinal fluid, or CSF, and plasma and related data analyses. The study was conducted to provide additional data that may be informative for determining the human relevance of the observation of brain astrocytoma in male rats. Using the results of this study and other preclinical and clinical studies, we estimate that the mean exposure of the human brain to lorcaserin at the clinically tested dose (10 mg dosed twice daily, or BID) is approximately 1.7 times the exposure in the human plasma. In contrast, the measured exposure of the male rat brain to lorcaserin at the dose at which no brain astrocytoma was observed (10 mg/kg/day) is approximately 24 times the exposure in the rat plasma.

This study is one of the activities intended to address the observation of brain astrocytoma in male rats as part of the overall plan to submit a response to the lorcaserin Complete Response Letter, or CRL. Activities intended to address the observation of mammary adenocarcinoma in female rats and other issues identified by the US Food and Drug Administration, or FDA, are ongoing.

**Study Rationale, Design and Related Analyses**

Brain astrocytoma was observed in male rats given certain doses of lorcaserin during a two-year carcinogenicity study. One approach to estimating a safety margin for this finding would be to use plasma concentrations in humans at the clinically tested dose of lorcaserin and in rats at the dose of lorcaserin at which no brain astrocytoma was observed; the human plasma exposure to lorcaserin 10 mg BID is approximately five times lower than the male rat plasma exposure to lorcaserin 10 mg/kg/day.

Because lorcaserin might enter the brain differently in rats and humans, relative brain exposure may more accurately estimate the safety margin than relative plasma exposure. The apparent consistent relationship of the lorcaserin brain to CSF exposure ratios in three animal species (mice, rats and monkeys) measured in five preclinical studies we conducted provides a method to estimate human brain exposure by using CSF measurements from humans and assuming a similar brain to CSF ratio found in animals.

In this clinical study, lorcaserin CSF and plasma concentrations were measured in nine healthy obese volunteers after oral administration of lorcaserin 10 mg BID for seven days. On Day 7, lumbar CSF and plasma were serially collected simultaneously over a 12-hour period. We calculated the estimated ratio of lorcaserin exposure in the brain relative to plasma in humans using the mean brain to CSF exposure ratio from the preclinical studies of 101, with a range of 75-117, and the measured human CSF and plasma exposures (mean $AUC_{12,\ ss}$ (standard deviation)) of 9.3 ($\pm$3.9) hr ng/mL and 540 ($\pm$157) hr ng/mL, respectively, from this study.

The following table provides lorcaserin brain to plasma and brain to CSF ratios we used in our analyses:

| Species | Brain/Plasma | Brain/CSF |
|---|---|---|
| Mice (male, 50 mg/kg/day) | 26.3 | 117 |
| Rats (male, 10 mg/kg/day) | 24.0 | 107 |
| Rats (male, 30 mg/kg/day) | 34.9 | 116 |
| Rats (female, 10 mg/kg/day) | 22.3 | 75 |
| Monkeys (male, 10 mg/kg/day) | 10.1 | 90 |
| | | |
| Mean preclinical brain/CSF | | 101 |
| Estimated human brain/plasma | 1.7 | |

It is important to note that our estimates are based on certain assumptions and extrapolations. The FDA may accept our assumptions and extrapolations or may use different ones in analyzing the data, which could lead the FDA to estimate a different exposure margin. The FDA also may or may not view the estimates as reliable or predictive of the safety margin.

**Forward-Looking Statements**

Certain statements in this Form 8-K are forward-looking statements that involve a number of risks and uncertainties. Such forward-looking statements include statements about the advancement, therapeutic indication and use, safety, efficacy, tolerability, mechanism of action and potential of lorcaserin; the significance of the results from the human CSF clinical study of lorcaserin, including the use of the results of the clinical study in determining the human relevance of, and addressing, the observation of brain astrocytoma in male rats, in estimating the exposure of the human brain to lorcaserin, and estimating safety margin; the accuracy of estimates of safety margin based on relative brain exposure; the FDA s analysis of data and its view and acceptance of the CSF data, estimates, and our assumptions, extrapolations and analysis; and the response to the CRL for the lorcaserin NDA, including related plans and activities. For such statements, we claim the protection of the Private Securities Litigation Reform Act of 1995. Actual events or results may differ materially from our expectations. Factors that could cause actual results to differ materially from the forward-looking statements include, but are not limited to, the following: the estimated human brain exposure of lorcaserin is an extrapolation that depends on the assumptions made and the particular human CSF and plasma and animal brain, CSF and plasma measurements used, and the estimate may differ depending on the analysis; the timing of regulatory review and approval is uncertain; the risk that data and other information related to our research and development programs may not meet safety or efficacy requirements or otherwise be sufficient for regulatory approval; our response to the CRL for the lorcaserin NDA or submission of a Marketing Authorization Application for regulatory approval of lorcaserin may not be submitted when anticipated, if at all; the FDA may request other information prior to or after we submit such response or approval of the lorcaserin NDA; unexpected or unfavorable new data; risks related to commercializing new products; our ability to obtain and defend our patents; the timing, success and cost of our research and development programs; results of clinical trials and other studies are subject to different interpretations and may not be predictive of future results; clinical trials and other studies may not proceed at the time or in the manner expected or at all; our ability to obtain adequate funds;

risks related to relying on collaborative agreements; the timing and receipt of payments and fees, if any, from collaborators; and satisfactory resolution of pending and any future litigation or other disagreements with others. Additional factors that could cause actual results to differ materially from those stated or implied by our forward-looking statements are disclosed in our filings with the Securities and Exchange Commission. These forward-looking statements represent our judgment as of the time of the filing of this Form 8-K. We disclaim any intent or obligation to update these forward-looking statements, other than as may be required under applicable law.

**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: August 2, 2011

Arena Pharmaceuticals, Inc.

By: /s/ Steven W. Spector
Steven W. Spector
Senior Vice President, General Counsel and Secretary