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ACUSPHERE INC. REACHES SPECIAL PROTOCOL ASSESSMENT AGREEMENT WITH FDA FOR IMAGIFY™ PHASE 3 PLACEBO-CONTROLLED TRIAL

LEXINGTON, MASS., June 8, 2011 -- Acusphere, Inc. (ACUS.PK), a specialty pharmaceutical company, today announced that it had reached an agreement with the U.S. Food & Drug Administration (FDA) regarding the design of a new Phase 3 study of the company's lead product candidate, Imagify™ Perflubutane Polymer Microspheres for Injectable Suspension. As previously announced, this new study, designed under the Special Protocol Assessment (SPA) process, will compare stress ultrasound with Imagify to stress ultrasound without Imagify for the detection of coronary artery disease (CAD).

Said Sherri C. Oberg, President and Chief Executive Officer, "We are delighted to have reached agreement with FDA on the design for a new Phase 3 trial for Imagify under the SPA Process. This is a critical milestone for Acusphere, and one that may reduce the level of risk for potential partners. We believe that this trial design will help provide clear evidence of Imagify's superiority over stress ultrasound because it enables myocardial perfusion assessment, a potential \$2 billion market in the U.S. alone, and one that is growing. We continue to believe strongly in Imagify's potential for the condition proposed, and we remain committed to realizing that opportunity for the benefit of Acusphere and its shareholders."

She added, "We believe that this accomplishment, together with our continued progress in moving Imagify forward in the European regulatory process, will enable us to approach a wider range of potential partners, in the U.S. and abroad, in a significantly more appealing position. There are few new cardiology drugs that address markets of this size, and we feel that having an agreed-upon trial design for a new Phase 3 trial creates an improved opportunity for the right company."

The SPA is a process that creates a written agreement between the FDA and a sponsor on clinical trial design, including clinical endpoints and size of the clinical trial. Although the agreement is not legally binding on the FDA, the process is intended to provide assurance that the FDA and the sponsor have already agreed upon the pivotal study design and therefore the degree of confidence in going forward with executing a trial with that study design is enhanced. Acusphere believes that if the agreed-upon clinical trial protocol is followed, the clinical trial endpoints are achieved and there is a favorable risk benefit profile, the data should then likely support approval of the New Drug Application (NDA). FDA requested a placebo-controlled Phase 3 trial for Imagify, one that demonstrates that ultrasound with Imagify has benefits over ultrasound without Imagify, supplementing the comparator clinical trials that Acusphere has already completed. Under those trials, Imagify's efficacy was compared against the 'standard of care,' nuclear stress testing.

Based upon the agreement reached with FDA, Acusphere is now able to provide a scope for the new Phase 3 trial. The company expects that this trial will cost approximately \$15 million and require about 2 years to complete, based upon enrollment of 900 patients.

Ms. Oberg added, "We believe that Imagify, if approved, has the potential to improve the ability of heart stress ultrasound tests to compete with the nuclear stress test, an inconvenient and expensive method for assessing perfusion today which also exposes the patient to ionizing radiation resulting in increased risk of cancer. It's well-recognized that ultrasound alone is not capable of assessing myocardial perfusion (e.g. blood flow in the heart muscle), and that the ability to evaluate perfusion in the heart

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muscle allows for earlier detection of CAD. We believe our previous Imagify Phase 3 clinical program demonstrates that the efficacy of Imagify with ultrasound is non-inferior, or equivalent, to nuclear stress. In the total clinical program conducted prior to securing this agreement, Imagify was evaluated in more than 1,000 patients and as a result, we believe that it is well tolerated. The safety profile of the Imagify stress ultrasound test was similar to other stress imaging tests used in this patient population.”

Acusphere continues to work on its other major initiative for this year: fulfilling the necessary requirements to file a Marketing Authorisation Application (MAA) to the European Medicines Agency (EMA) for Imagify in the European Union (EU). The company expects to accomplish the underlying steps that will make this filing possible in the second half of this year.

About Acusphere, Inc.

Acusphere (ACUS.PK) is a specialty pharmaceutical company, primarily focused on the development of Imagify, a cardiovascular drug for the detection of coronary artery disease. For more information about Acusphere visit the Company's web site (www.acusphere.com).

Forward-looking Statements

The above press release contains forward-looking statements, including statements regarding the MAA submission for Imagify and likelihood of regulatory approval and the commercial opportunity for Imagify. There can be no assurance that Imagify will be approved for the indication the Company is seeking, or at all. The Company's actual results may differ materially from those anticipated in these forward-looking statements based upon a number of factors, including uncertainties associated with research, development, testing and related regulatory approvals, uncertainties regarding proposed Pediatric Investigational Plan with EMA, which must be agreed upon before filing the MAA, uncertainties regarding the potential effects of not achieving clinical endpoints, uncertainties regarding the amount of credence the FDA will give to the SPA, uncertainties regarding capital needs and uncertainty of additional financing, dependence on third-party manufacturers, suppliers and collaborators, uncertainties associated with intellectual property, competition, loss of key personnel, uncertainties associated with market acceptance and adequacy of reimbursement, technological change and government regulation. The Company notes that effective as of March 3, 2009, pursuant to a Form 15 filing made with the SEC, it is not currently required to file periodic reports with the SEC, including annual reports on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K. Readers are cautioned not to place undue reliance on any forward-looking statements, which speak only as of the date of this press release. The Company undertakes no obligation to publicly release the results of any revisions to these forward-looking statements that may be made to reflect events or circumstances that occur after the date of this press release or to reflect the occurrence of unanticipated events.

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