

Akcea Therapeutics Announces Three Additions to Board of Directors

Cambridge, Mass., March 28, 2017 – Akcea Therapeutics, a subsidiary of Ionis Pharmaceuticals, Inc. (NASDAQ: IONS), today announced three additions to the company's board of directors:

- Christopher Gabrieli, partner emeritus of Bessemer Venture Partners. Mr. Gabrieli will serve as chairman of the board of Akcea Therapeutics.
- Elaine Hochberg, former chief commercial officer of Forest Laboratories.
- Sandford D. Smith, founder and chairman of Global Biolink Partners.

"We are excited to announce this expansion to our board and the opportunity to work with these exceptional leaders and advisors as we bring forward our advanced pipeline of novel drugs to treat patients with inadequately addressed lipid disorders, including volanesorsen, which we plan to submit for regulatory approval in the U.S., EU and Canada later this year," stated Paula Soteropoulos, president and chief executive officer of Akcea. "These additions to our board underscore the commitment at Akcea to building a differentiated, expertise-based approach to addressing significant unmet medical needs."

Mr. Gabrieli will serve as chairman of the Akcea board of directors. He is a partner emeritus at Bessemer Venture Partners, a venture capital fund. Previously, as a partner at Bessemer, he led their life sciences practice and made a founding investment in Ionis Pharmaceuticals. During his time at Bessemer, he invested in over thirty life science and health care companies, including several that became publicly traded. He has also served as a past member of the Ionis board of directors and is currently chief executive officer of Empower Schools, a non-profit education innovation organization. Mr. Gabrieli is also the chairman of the Massachusetts Board of Higher Education and a part-time lecturer at the Harvard Graduate School of Education.

Ms. Hochberg is a managing partner of Elaran, LLC, a business strategy and management firm. She has held a number of commercial leadership positions at both Forest Laboratories and Wyeth-Ayerst Laboratories. At Forest, she served as chief commercial officer, executive vice president, international, strategic planning and government affairs and senior vice president-marketing. Ms. Hochberg has led the buildout of significant product portfolios and brand franchises spanning a broad array of therapeutic areas in both the U.S. and international markets. She has launched more than thirty products. She helped transform Forest from a generic product producer into a major, mid-cap branded pharmaceutical company, growing sales ten-fold to \$4.5 billion and expanding the company's global footprint as well as efforts in several major therapeutic areas, including CNS, GI, respiratory, cardiovascular and anti-infectives.

Mr. Smith has, for the past 20 years, focused on drugs and therapies for rare genetic diseases. He has served as founder and chairman of Global Biolink Partners, Aegerion's interim chief executive officer, and following Aegerion's merger with Novilion, he serves as Novilion's vice chair. Mr. Smith held various positions at Sanofi-Genzyme (formerly Genzyme Corporation), most recently leading the integration of Genzyme's international business into Sanofi's global organization and, prior to that, he served as executive vice president of Genzyme Corporation, and president of Genzyme International. As president of Genzyme International, he oversaw the launch of 12 new products around the globe and grew the international business from less than \$100 million to \$2.4 billion, representing more than 60% of Genzyme's \$5 billion in revenues. Mr. Smith was president, chief executive officer and a member of the board of directors of RepliGen Corporation. He also held various positions at Bristol-Myers Squibb, most recently as vice president of business development and strategic planning for the pharmaceutical and nutritional division. He currently serves on the boards of Cytokinetics Inc., Apricus Biosciences and Neuralstem Inc., each a publicly traded biopharmaceutical company.

With the additions of Mr. Gabrieli, Ms. Hochberg, and Mr. Smith as independent directors, the board of directors for Akcea will initially consist of six members, including Dr. Stanley Crooke, chairman and chief executive officer of Ionis Pharmaceuticals, B. Lynne Parshall, chief operating officer of Ionis Pharmaceuticals and Paula Soteropoulos, president and chief executive officer of Akcea Therapeutics.

ABOUT AKCEA THERAPEUTICS

Akcea Therapeutics is a late-stage pharmaceutical company focused on developing and commercializing drugs to treat patients with serious cardiometabolic diseases caused by lipid disorders. Akcea is advancing a mature pipeline of four novel drugs with the potential to treat multiple diseases, including volanesorsen, AKCEA-APO(a)-L_{Rx}, AKCEA-ANGPTL3-L_{Rx} and AKCEA-APOCIII-L_{Rx}, which are all based on antisense technology developed by Ionis Pharmaceuticals, Inc. The most advanced drug in its pipeline, volanesorsen, has completed a Phase 3 clinical program for the treatment of familial chylomicronemia syndrome, or FCS, and is currently in Phase 3 clinical development for the treatment of familial partial lipodystrophy, or FPL. Akcea is assembling the infrastructure to commercialize its drugs globally with a focus on lipid specialists as the primary call point. Akcea is a subsidiary of Ionis Pharmaceuticals, Inc. and is located in Cambridge, Massachusetts. Additional information about Akcea is available at www.akceatx.com.

FORWARD-LOOKING STATEMENT

This press release includes forward-looking statements regarding the business of Akcea Therapeutics, Inc., a subsidiary of Ionis Pharmaceuticals, and the therapeutic and commercial potential of volanesorsen and other products in development. Any statement describing Akcea's goals, expectations, financial or other projections, intentions or beliefs is a forward-looking statement and should be considered an at-risk statement. Such statements are subject to certain risks and uncertainties, particularly those inherent in the process of discovering, developing and commercializing drugs that are safe and effective for use as human therapeutics, and in the endeavor of building a business around such drugs. Akcea's forward-looking statements also involve assumptions that, if they never materialize or prove correct, could cause its results to differ materially from those expressed or implied by such forward-looking statements. Although Akcea's forward-looking statements reflect the good faith judgment of its management, these statements are based only on facts and factors currently known by Akcea. As a result, you are cautioned not to rely on these forward-looking statements. These and other risks concerning Akcea's programs are described in additional detail in Ionis Pharmaceuticals, Inc.'s annual report on Form 10-K for the year ended December 31, 2016, which is on file with the SEC.

In this press release, unless the context requires otherwise, "Ionis", "Akcea," "Company," "Companies" "we," "our," and "us" refers to Ionis Pharmaceuticals and/or Akcea Therapeutics.

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