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**Ionis Pharmaceuticals Partners with Johnson & Johnson to Fight Disease More Rapidly**

With the use of groundbreaking antisense technology, scientists will be able to determine the specific gene that causes a disease and how to cure it quickly and effectively

**Vancouver, BC** – February 12, 2017 – Ionis Pharmaceuticals and Johnson & Johnson will work together to fight disease with the use of genetic testing and cutting edge antisense technology to 'turn off' harmful genes. Ionis Pharmaceuticals, Inc. (NASDAQ:ISIP) announced today that its Genetic Testing division (GeneTrove) has initiated a collaboration with The R. W. Johnson Pharmaceutical Research Institute (PRI), a member of the Johnson & Johnson family of companies (NYSE: JNJ), to assess and prioritize genes that cause disease. Using antisense technology, scientists will be able to determine the specific genes which are disease causing, their overall function in the human body, and how they can be treated rapidly and efficiently with the most effective use of pharmaceuticals. Antisense technology allows pharmaceutical treatment to deactivate the disease causing gene, treating the disease as quickly as possible.

"We are pleased to add PRI to our growing list of GeneTrove partners. GeneTrove's proprietary antisense approach allows the pharmaceutical industry to determine which genes are the best targets for drug testing" said Stanley T. Crooke, Ionis' Chairman and CEO.

Ionis and its GeneTrove division can rapidly, efficiently and precisely determine the role of a particular gene within a biological system (both human and animal). If the gene is disease causing, they can create the most effective pharmaceutical treatment for use in a matter of days.

Ionis Pharmaceuticals, based in northern San Diego County, is engaged in the discovery and development of therapeutic drugs. The company's first product, Vitravene (TM), (fomivirsen), to treat AIDS patients, is being sold in the United States, Europe, Brazil and Switzerland. Ionis is currently developing a formulation for colitis and a topical formulation for psoriasis. In addition, Ionis has three anticancer drugs and is testing an antiviral for the treatment of Hepatitis C. The company has been recognized as one of the top ten holders of gene patents in the U.S.

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