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Publication in Science Further Validates Importance of Gene Control Research in Yielding New Insights into Diagnosing and Treating Cancer

–New Class of Mutations in Non-Coding Regions of DNA Shown to Fuel Cancer Growth–

CAMBRIDGE, Mass.--(BUSINESS WIRE)-- Syros Pharmaceuticals announced today that research from its scientific co-founder Richard Young, Ph.D., reveals a new mechanism by which genetic alterations in non-coding regions of the DNA fuel cancer growth, providing further validation for Syros' pioneering approach to discover and develop medicines that control the expression of genes with the aim of treating cancer and other serious diseases.

The most recent findings from Young's lab at the Whitehead Institute for Biomedical Research, which were published online today in the journal *Science* (Hnisz D. et al., "Activation of proto-oncogenes by disruption of chromosome neighborhoods"), build on his groundbreaking work in the field of gene control and underscore the importance of gene control research in yielding new insights into diagnosing and treating cancer and other serious diseases.

Genomic analysis of more than 50 cancer types revealed mutations in specific non-coding regions of DNA that may lead to activation of previously silent oncogenes. This mechanism may be valuable in identifying genes that drive poorly understood cancers. The research showed that in some cancers, such as esophageal cancer, mutations of the type described in this work are often located near genes associated with driving cancer growth.

"Cancer research has focused primarily on regions of the genome that encode for proteins, which account for only 2 percent of the genome, and the other 98 percent is proving to be critically important in driving disease," said Eric Olson, Ph.D., Syros' Chief Scientific Officer. "These findings demonstrate the importance of understanding the mechanisms by which non-coding DNA elements control the expression of genes that drive numerous cancers."

Building on earlier discoveries made by Young and its other scientific founders, Syros has built a proprietary platform to systematically and efficiently identify disease-causing alterations in non-coding regions of the genome, including the identification of specialized regions of DNA known as super-enhancers, which allows Syros to hone in on the genes most crucial for determining cell type and function. By comparing super-enhancers and their associated genes in healthy and diseased cells, Syros can identify potential points of therapeutic intervention in specific subsets of patients.

Using its platform, Syros is building a pipeline of gene control medicines. Syros identified a super-enhancer associated with the *RARA* gene in subsets of AML and breast cancer

patients, which led to Syros' lead product candidate, SY-1425 (tamibarotene). The Company expects to advance SY-1425 into a Phase 2 clinical trial this year in genomically defined subsets of AML and MDS patients. Syros is also developing an inhibitor of CDK7, which is a transcriptional kinase associated with super-enhancers controlling the expression of transcription factors driving certain cancers' growth and survival. The Company expects to advance its CDK7 inhibitor program into a Phase 1/2 trial in the first half of 2017 in patients with acute leukemias.

About Syros Pharmaceuticals

Syros Pharmaceuticals is a biopharmaceutical company applying a pioneering approach to discover and develop medicines that control the expression of genes with the aim of treating cancer and other serious diseases. Syros has built a proprietary gene control platform that provides the Company with a unique lens to identify crucial genes that become dysregulated in diseased cells. Syros is leveraging its platform to develop a pipeline of gene control product candidates that it believes will provide a profound and durable benefit for patients. The Company's scientific founders are world-class leaders in gene control research and translation. Launched by Flagship Ventures and ARCH Venture Partners, Syros Pharmaceuticals is located in Cambridge, Mass.

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