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Syros Pharmaceuticals Announces New Findings on Central Role of Super-Enhancers in Controlling Cell Biology and Disease

- *Cell* paper describes presence of Super-Enhancers across multiple cell types and points to their utility as biomarkers -

- Research further supports Syros' Super-Enhancer platform for diagnostic and therapeutic applications -

WATERTOWN, Mass.--(BUSINESS WIRE)-- Syros Pharmaceuticals, a life sciences company harnessing breakthroughs in gene control to revolutionize the treatment of cancer and other diseases, today announced the publication of new findings about the central role of recently discovered gene control regulators, called Super-Enhancers, in cell biology and disease. The research, described in the journal *Cell*, confirms the broad potential of Super-Enhancers, the basis of Syros' proprietary discovery and development platform as both diagnostic and therapeutic targets.[1] Earlier this year, Syros completed an exclusive licensing agreement with the Whitehead Institute for intellectual property related to this gene control discovery and other gene control technologies and assets.

The new findings include an inventory of the enhancer factors that occupy Super-Enhancer domains, an overview of Super-Enhancers found in 86 cell and tissue types, the acquisition of Super-Enhancers during tumor pathogenesis and the association with DNA sequence variation in disease. They are a continuation of groundbreaking work published in a pair of papers in *Cell* earlier this year.[2,3] Syros Co-founder Richard A. Young, Ph.D., who is a member of the Whitehead Institute for Biomedical Research and Professor of Biology at Massachusetts Institute of Technology, led the scientific team that published this research, which was supported in part by grants from the National Institutes of Health.

"We find that cancer cells acquire Super-Enhancers at oncogenes and other genes that play important roles in cancer pathogenesis, thus serving as useful biomarkers for understanding an individual's cancer," said Dr. Young. "In addition, we find that genetic sequence variation associated with Alzheimer's disease, type I diabetes and other autoimmune diseases is especially enriched in the Super-Enhancers of disease-relevant cell types."

"This work strengthens our leading platform in understanding and using Super-Enhancers for therapeutic and diagnostic applications in cancer and other disease states," said Nancy Simonian, M.D., Syros Chief Executive Officer. "Modern drug discovery and development demands patient-specific linkages to disease biology from the initiation of a program through the treatment of patients. We believe that the Syros platform is well-positioned to deliver an unique advantage in this regard."

The paper, “Super-Enhancers in the Control of Cell Identity and Disease,” will be published in the November 7th print edition of *Cell* and is currently available on line by subscription.

About Syros Pharmaceuticals

Syros Pharmaceuticals is a life sciences company harnessing breakthroughs in gene control to revolutionize the treatment of cancer and other diseases. Syros’ proprietary platform identifies the master switches for disease genes, opening a whole new approach to novel therapeutics. Syros’ initial focus is in cancer, but the company platform will also be applicable to other therapeutic areas. The Company’s founders are pioneers in gene control research and translation. Co-founded and backed by Flagship Ventures and ARCH Venture Partners, Syros Pharmaceuticals is located in Watertown, MA. For more information, visit www.syros.com.

[1] Hnisz, D., Abraham, B., Lee, T., Lau, A., Saint-André, V., Sigova, A., Hoke, H., & Young, R. (2013). Super-enhancers in the control of cell identity and disease. *Cell*, 155(2).

[2] Loven, J., Hoke, H., Yin, C., Lau, A., Orlando, D., Vakoc, C., Bradner, J., Lee, T. & Young, R. (2013). Selective inhibition of tumor oncogenes by disruption of super-enhancers. *Cell,* 153(2).

[3] Whyte, W., Orlando, D., Hnisz, D., Abraham, B., Lin, C., Kagey, M., Rahl, P., Lee, T. & Young, R. (2013). Master transcription factors and mediator establish super-enhancers at key cell identity genes. *Cell,* 153(2).

Sam Brown Inc.
Mike Beyer, 312-961-2502
beyer@sambrown.com

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