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Title: Epigenetic control of gene expression by nutrient metabolism

Abstract:
Organisms tune their metabolic state to adapt to changes in their environment. Metabolic pathways and intermediary metabolites have emerged as direct regulators of cellular transcription. For example, glucose-derived acetyl-CoA generated from ATP–citrate lyase (ACLY) controls gene expression by modifying histone acetylation. Remarkably, little is known if metabolites other than glucose generate signals to control gene expression. Recently, we've identified increases in lipid metabolism lead to potent changes in histone acetylation and gene expression. This work further expands our understanding of how nutrients are sensed, and their signals are integrated into epigenetic control of gene expression.