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### Linking high-resolution metabolic flux phenotypes and transcriptional regulation in yeast modulated by the global regulator Gcn4p.

Moxley JF, Jewett MC, Antoniewicz MR, Villas-Boas SG, Alper H, Wheeler RT, Tong L, Hinnebusch AG, Ideker T, Nielsen J, Stephanopoulos G

*Proc Natl Acad Sci U S A* 2009 Apr 21 **106**(16):6477-82 [[abstract on PubMed](#)]

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### Faculty Member

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### Comments

**The findings of this systems biology paper provide an interesting model that addresses the effect of the global transcription factor Gcn4 on the metabolome and the transcriptome of baker's yeast.**

Gcn4 is one of the best-studied transcription factors of the basic zipper type and ensures that the budding yeast has sufficient amounts of amino acids as precursors of translation. Gcn4 activates numerous genes, including genes for enzymes of amino acid biosynthesis, when there is a shortage in any amino acid. This paper provides an interesting model for how transcriptional control networks, which are activated by a transcriptional activator, rewire the metabolic flux in a yeast cell in continuous culture by simultaneously monitoring the transcriptome and the metabolome. The paper is an important step in getting a comprehensive picture for how transcriptional activity affects the intracellular metabolites.

**Competing interests:** None declared

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