

Glucose and Pyruvate Transport in Yeast: New Roles of Snf1/AMPK in the Control of Metabolism

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Metabolic transporters play a pivotal role in the regulation of metabolism, despite this their interplay with signal transduction pathway is still poorly understood.

We recently described an interaction between the Snf1/AMPK protein kinase and the pyruvate metabolism ^[1]. *SNF1* deletion have been shown to rewire yeast metabolism under glucose repression, increasing pyruvate transport into mitochondria and respiration ^[1]. Pyruvate import into mitochondria is mediated by MPC complex, composed by the constant subunit Mpc1, and one of the alternative subunits Mpc2 or Mpc3 ^[2]. Since the lack of knowledge about these transporters, we are investigating the genetic interaction between Snf1 and each subunit of the complex, as well as their post-translational modifications as a function of Snf1 activity.

Snf1/AMPK activity is supposed to be responsive to the glucose concentration in the medium. Anyway, some reports indicate that a decrease in the glucose uptake rate, activates Snf1 in glucose repression ^[3]. Because of this, we are now working with strains carrying defective glucose transporters to investigate if the Snf1/AMPK activity could be regulated by the rate of glucose transport rather than by glucose availability.

References

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