

## Biodiversidad genética y bioquímica de piruvato decarboxilasas en cepas indígenas de *saccharomyces cerevisiae*.

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### Resumen

Pyruvate decarboxylase (PDC) catalyzes the thiamine pyrophosphate- and magnesium-dependent decarboxylation of pyruvate to acetaldehyde and carbon dioxide, a relevant pathway in ethanol production. The budding yeast *S. cerevisiae* is a major player in alcoholic fermentation and a detailed knowledge of the biochemistry and metabolic control of the fermentative pathway in this microorganism is available. Our laboratory has contributed to the study of the genes encoding PDC in the filamentous fungus *N. crassa* (i.e. *cfp-1* and *cfp-2*). We also discovered that PDC in filamentous fungi assembles into macromolecular filaments co-localizing with cytoplasmic microtubules. We showed that abundance and organization of PDC-filaments in fungi is dependent on the carbon sources and/or metabolic conditions of the cell. In *S. cerevisiae*, three structural genes for PDC have been identified (i.e. PDC1, PDC5 and PDC6) but the potential genetic and protein diversity of PDC genes in indigenous strains of *S. cerevisiae* has not been systematically studied. Also, the subcellular distribution and potential supramolecular arrangement of PDC from indigenous *S. cerevisiae* strains, perhaps during budding growth on alternative carbon sources and/or pseudohyphal growth under nutrient deprivation, has not been explored yet. In this project we will explore the molecular genetic diversity, biochemical properties and subcellular distribution of wild PDC variants from indigenous *S. cerevisiae* strains. Results from this project will contribute to the knowledge of the genetic and phenotypic diversity of *S. cerevisiae* PDC genes and their protein products. These studies also constitute the basis for future analyses of PDC genes from the isolated indigenous non-*Saccharomyces* yeasts strains.

**Tipología documental:** Proyecto de Investigación

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