SACCHAROMYCES CEREVISIAE MUTANT STRAIN

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ABSTRACT

Reseachers at UC Berkeley have identified yeast mutants in the STE6 gene. This resarch was published in:

Kuchler K, Sterne RE, Thorner J.1989. Saccharomyces cerevisiae STE6 gene product: a novel pathway for protein export in eukaryotic cells. EMBO J. 8:3973-84.

Abstract: Saccharomyces cerevisiae MATa cells release a lipopeptide mating pheromone, a-factor. Radiolabeling and immunoprecipitation show that MATa ste6 mutants produce pro-a-factor and mature a-factor intracellularly, but little or no extracellular pheromone. Normal MATa cells carrying a multicopy plasmid containing both MFa1 (pro-a-factor structural gene) and the STE6 gene secrete a-factor at least five times faster than the same cells carrying only MFa1 in the same vector. The nucleotide sequence of the STE6 gene predicts a 1290 residue polypeptide with multiple membrane spanning segments and two hydrophilic domains, each strikingly homologous to a set of well-characterized prokaryotic permeases (including hlyB, oppD, hisP, malK and pstB) and sharing even greater identity with mammalian mdr (multiple drug resistance) transporters. These results suggest that the STE6 protein in yeast, and possibly mdr in animals, is a transmembrane translocator that exports polypeptides by a route independent of the classical secretory pathway.

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OTHER INFORMATION

KEYWORDS

cell line, research tool

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