

研究报告

粟酒裂殖酵母全基因组中含信号肽的蛋白质的研究

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摘要

对粟酒裂殖酵母全基因组3条染色体上的4,997个蛋白序列进行了全局性的分析,利用signalP3.0软件分析这些蛋白的N-末端信号肽序列,预测有N-末端分泌信号肽序列的蛋白196个;利用TMpred 软件分析跨膜结构,预测跨膜蛋白117个;使用PrositeScan程序分析膜脂蛋白的脂结合位点,预测有膜脂结合蛋白13个,进而预测分泌性蛋白序列66个。使用Target P分析66个分泌蛋白的蛋白序列,研究这些蛋白在细胞中的定位。这些分泌蛋白的功能涉及粟酒裂殖酵母的营养、生殖、细胞间以及细胞与环境间的交流等许多方面,对细胞的生存和繁殖有重要意义,在系统生物学的研究中有重要参考价值。粟酒裂殖酵母分泌组的研究也将为粟酒裂殖酵母作为药物筛选模型以及开发为外源蛋白表达的宿主提供基础。

关键词 [粟酒裂殖酵母](#) [信号肽](#) [膜脂蛋白](#) [膜整合蛋白](#) [分泌蛋白](#)

分类号

Characterization of *Schizosaccharomyces pombe* secreted proteins

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Abstract

<P>Secreted proteins play a vital physiological role. Schizosaccharomyces pombe is an important model organism for cell cycle study and a potential useful drug screen model. Secreted proteins also initiate the mating. However, few global studies concerning the secreted proteins of S. pombe was reported. To address this issue, bioinformatics were used to reveal the global secreted proteins of S. pombe. The 4,997 proteins deduced from the S. pombe genome were analyzed by combined several programs. One hundred and sixty proteins were identified carrying an NH₂-terminal secretory signal peptide by signalP3.0. Among them, 117 proteins are integral membrane proteins(TMpred), 13 proteins are lipoproteins(PrositeScan), and 66 proteins are secreted proteins. The location of the secreted proteins was also predicted by Target P. Some of the secreted proteins are involved in the nutrition, reproduction, as well as the communication between cells and environment. The global information of the secreted proteins of S. pombe will benefit further studies in drug screening model and host searching for heterologous gene expression.</P>

Key words [Schizosaccharomyces pombe](#) [signal peptides](#) [lipoprotein](#) [integral membrane protein](#) [secreted protein](#)

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