SII-2-1

Cln3 associated kinase activity is inactivated by the mating factor pathway

Doo-il Jeoung* and Fred R Cross

The *S.Cerevisiae* cell cycle is arrested in G1 phase by the maitng factor pathway. Genetic evidence suggested that the 'G1 cyclins' Cln1,Cln2 and Cln3 are targets of this pathway whose inhibition results in G1 arrest. Inhibition of Cln1 and Cln2 -associated kinase activity by the mating factor pathway acting through Far1 has been described. Here we report that Cln3-associated kinase activity is inhibited by the mating factor treatment, with dose-response and timing consistent with involvement in cell cycle arrest. no regulation of cln3-associated kinase activity was observed in fus3 kss1 strain deficient in mating factor pathway MAP kinases.
Inhibition occurs mainly at the level of specific activity of Cln3-Cdc28 complex. Inhibition of C-terminally truncated Cln3-1 associated kinase is not observed. Regulation of Cln3-associated kinase specific activity by maitng factor requires Far1. Overexpression of Far1 restores inhibition of C-terminally truncated Cln3-1 associated kinase activity.

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Byr4, a dosage-dependent regulator of cytokinesis in *S. pombe*, functions in a small GTPase pathway including Spg1 & Cdc16

Kiwon Song* and Miri Jwa
Department of Biochemistry, Yonsei University, Seoul, 120-749

Coordination between karyokinesis and cytokinesis in cell division cycle is essential for genomic integrity. *byr4* is an essential gene in fission yeast *S. pombe* and phenotypic analyses of its null alleles and overexpression suggest that *byr4* is a dosage-dependent coordinator of karyokinesis and cytokinesis. *byr4* encodes a novel protein but has imperfect repeats in C-terminus. Deletion analysis of Byr4 protein suggests that the repeats are key domains for function. The functional mechanism of Byr4 was deduced by examining the relationships of *byr4* and other genes that are previously known to regulate cytokinesis. Combined genetic suppression and two-hybrid analyses suggest that Byr4 genetically and directly interacts with Cdc16, Spg1, and Cdc7. Recent works suggests that *spg1* encodes a small GTPase, Cdc7 is a downstream kinase, and *cdc16* encodes a possible GTPase activating protein(GAP) for Spg1. Therefore, *byr4* is a part of this possible small GTPase signaling pathway that regulates cytokinesis in *S. pombe*. Preliminary localization of Byr4 on spindle pole body coincides with its role as a possible coordinator of karyokinesis and cytokinesis.