

Fig. 2-3 欠損により酵母に亜ヒ酸耐性を与える遺伝子

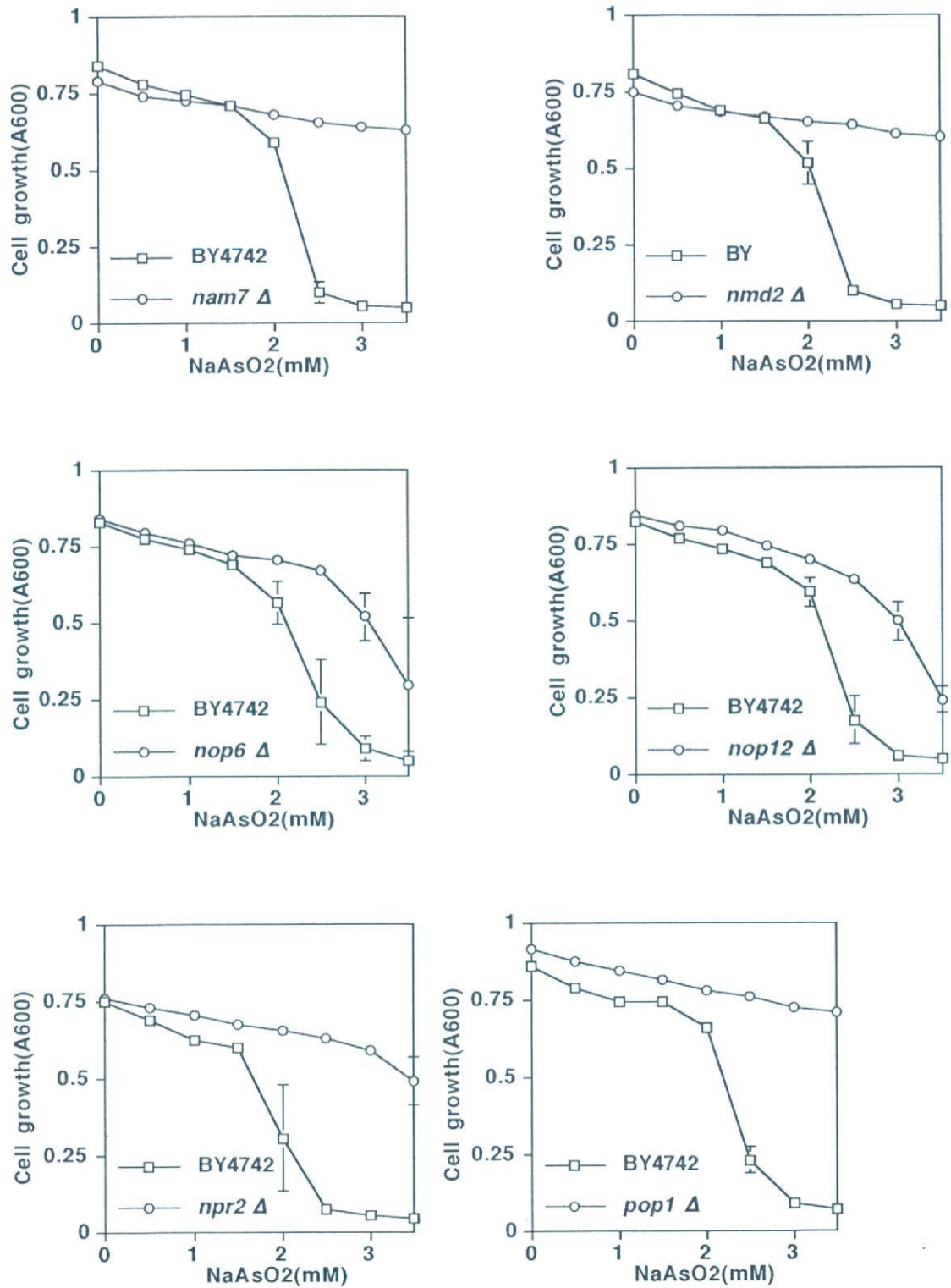


Fig. 2-4 欠損により酵母に亜ヒ酸耐性を与える遺伝子

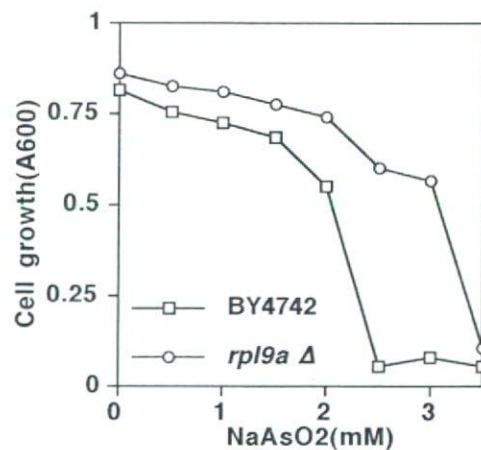
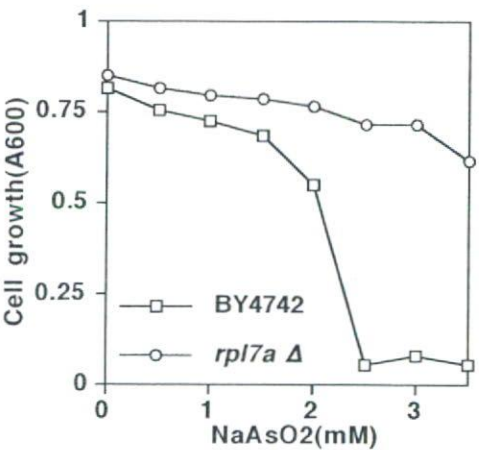
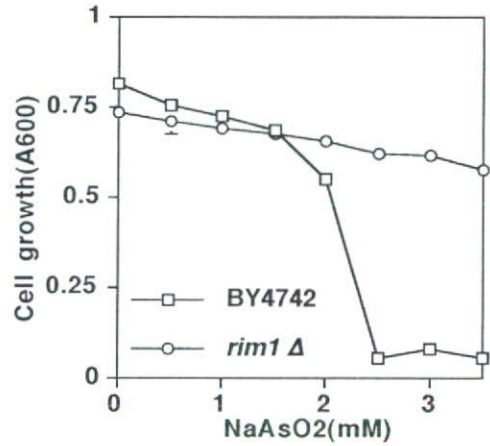
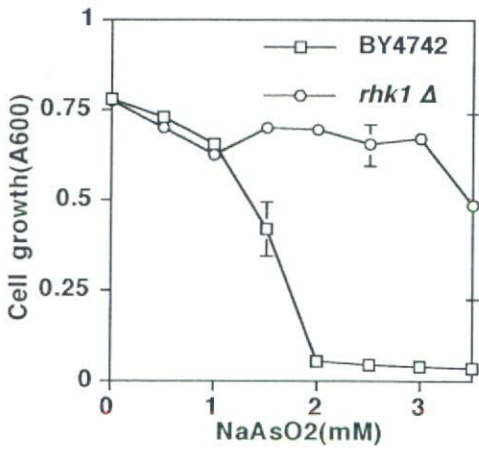
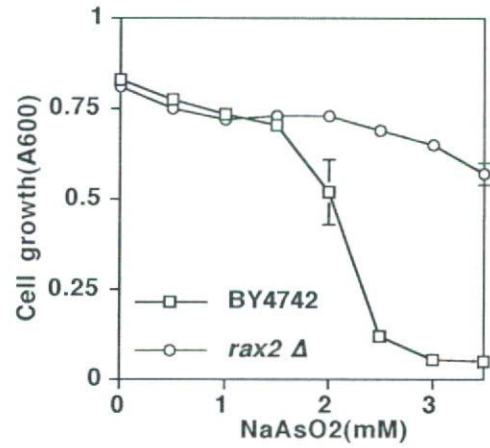
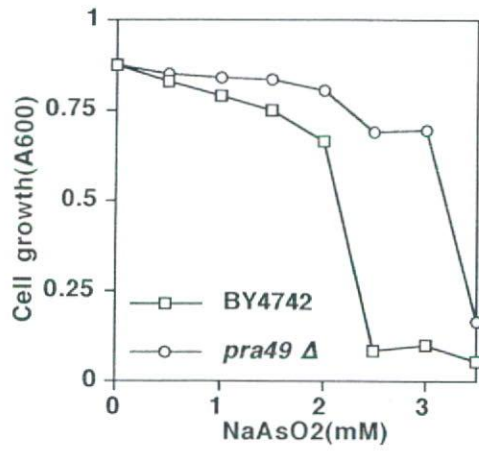


Fig. 2-5 欠損により酵母に亜ヒ酸耐性を与える遺伝子

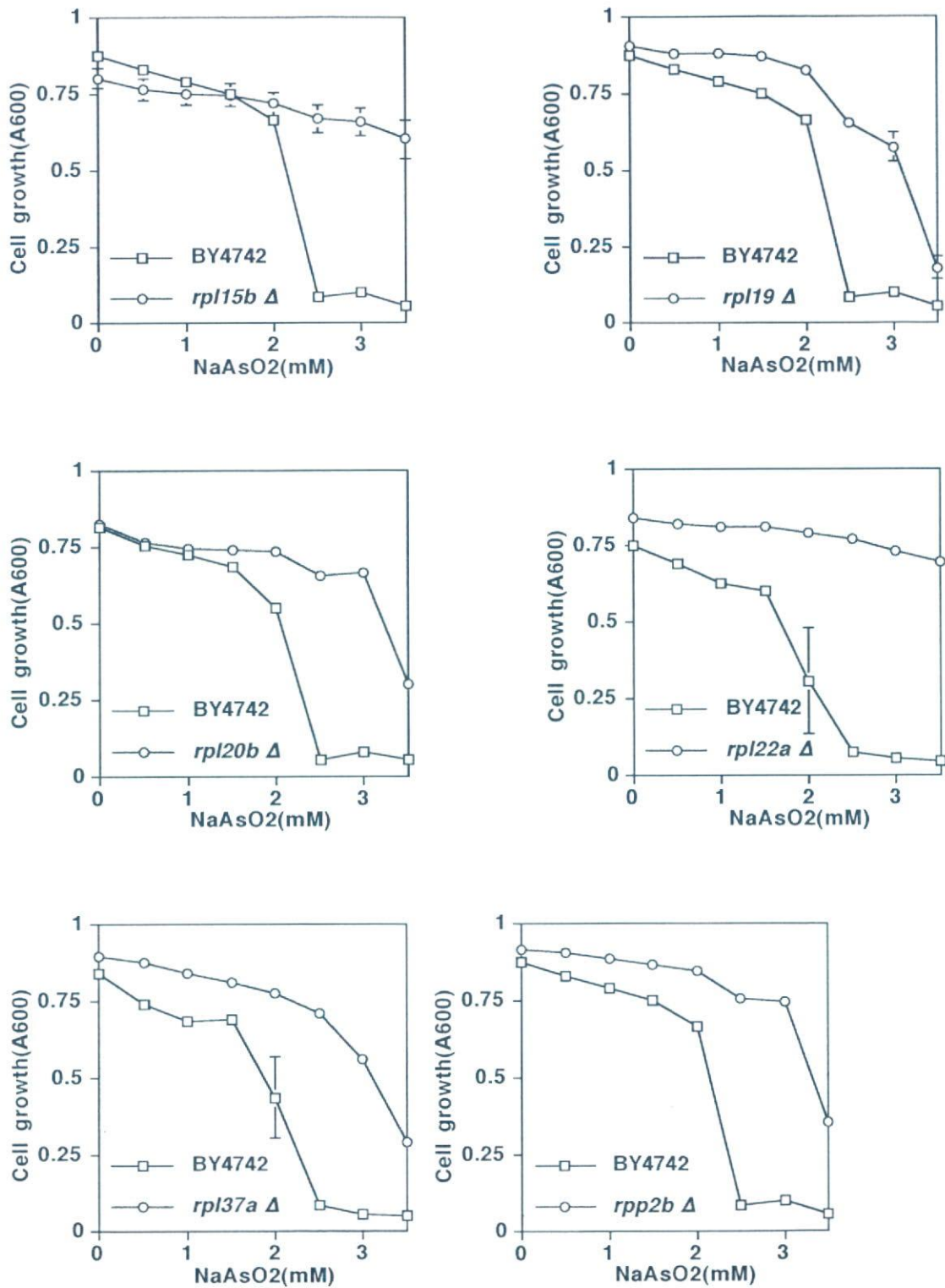


Fig. 2-6 欠損により酵母に亜ヒ酸耐性を与える遺伝子

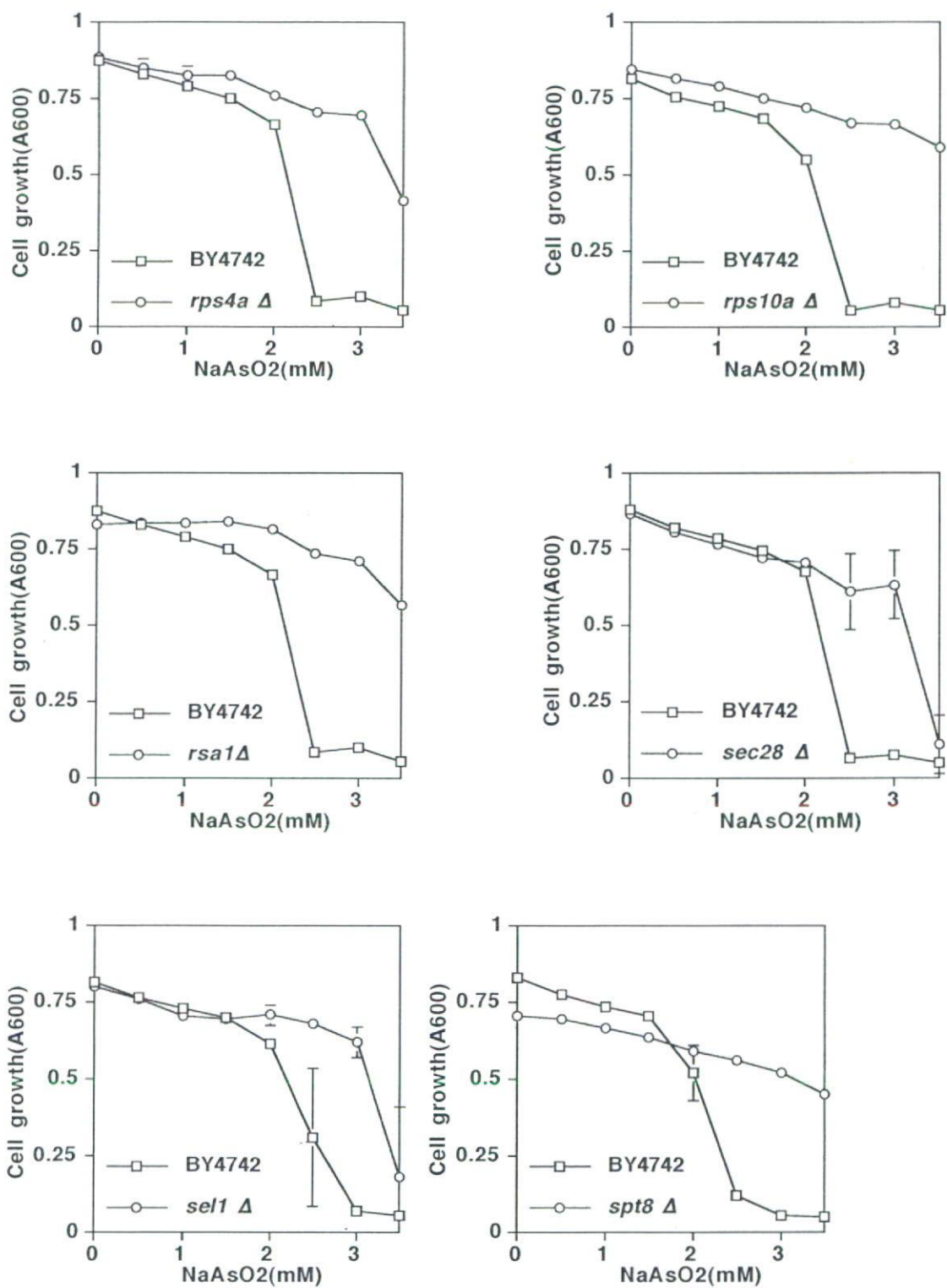


Fig. 2-7 欠損により酵母に亜ヒ酸耐性を与える遺伝子

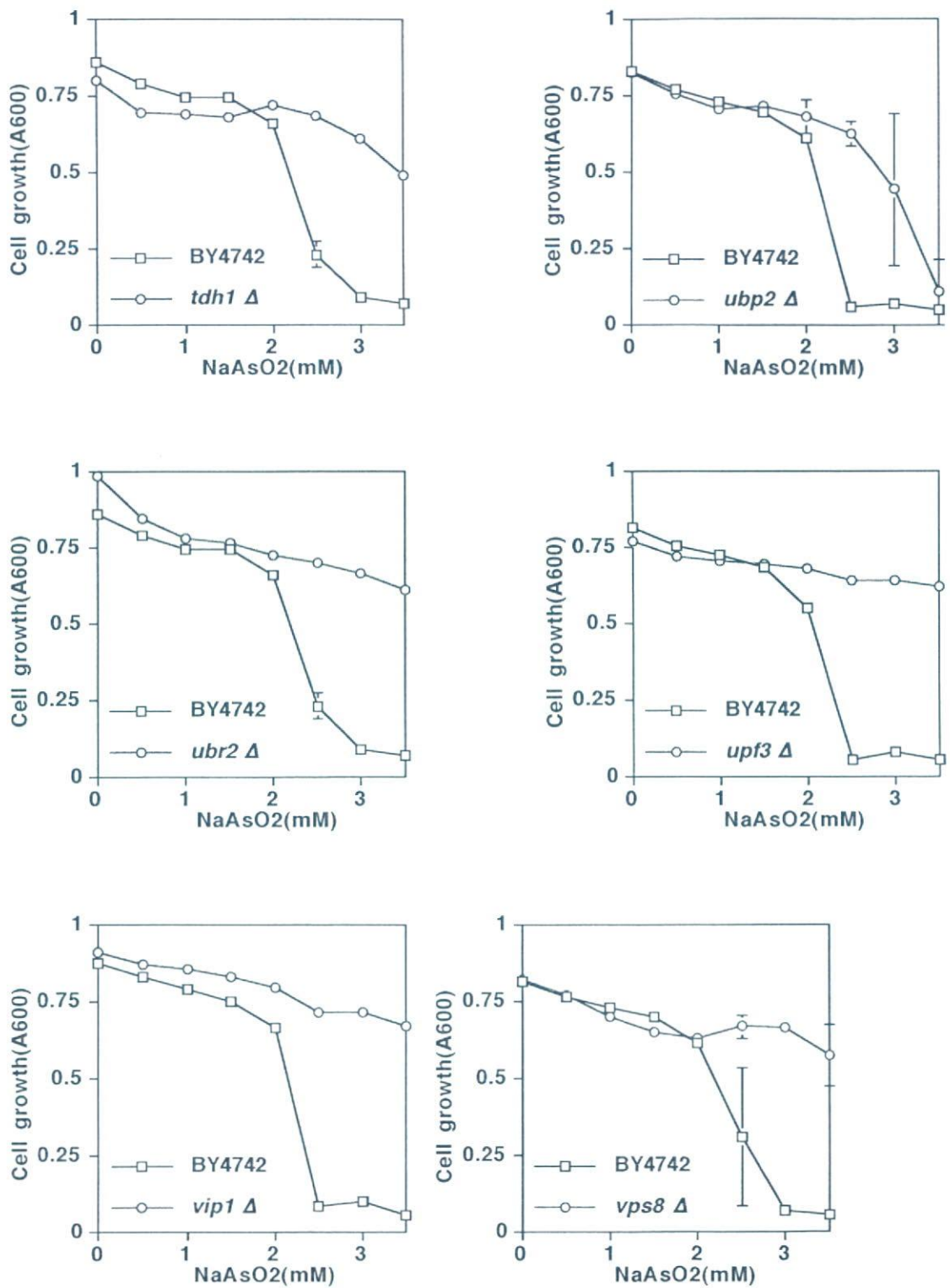


Fig. 2-8 欠損により酵母に亜ヒ酸耐性を与える遺伝子

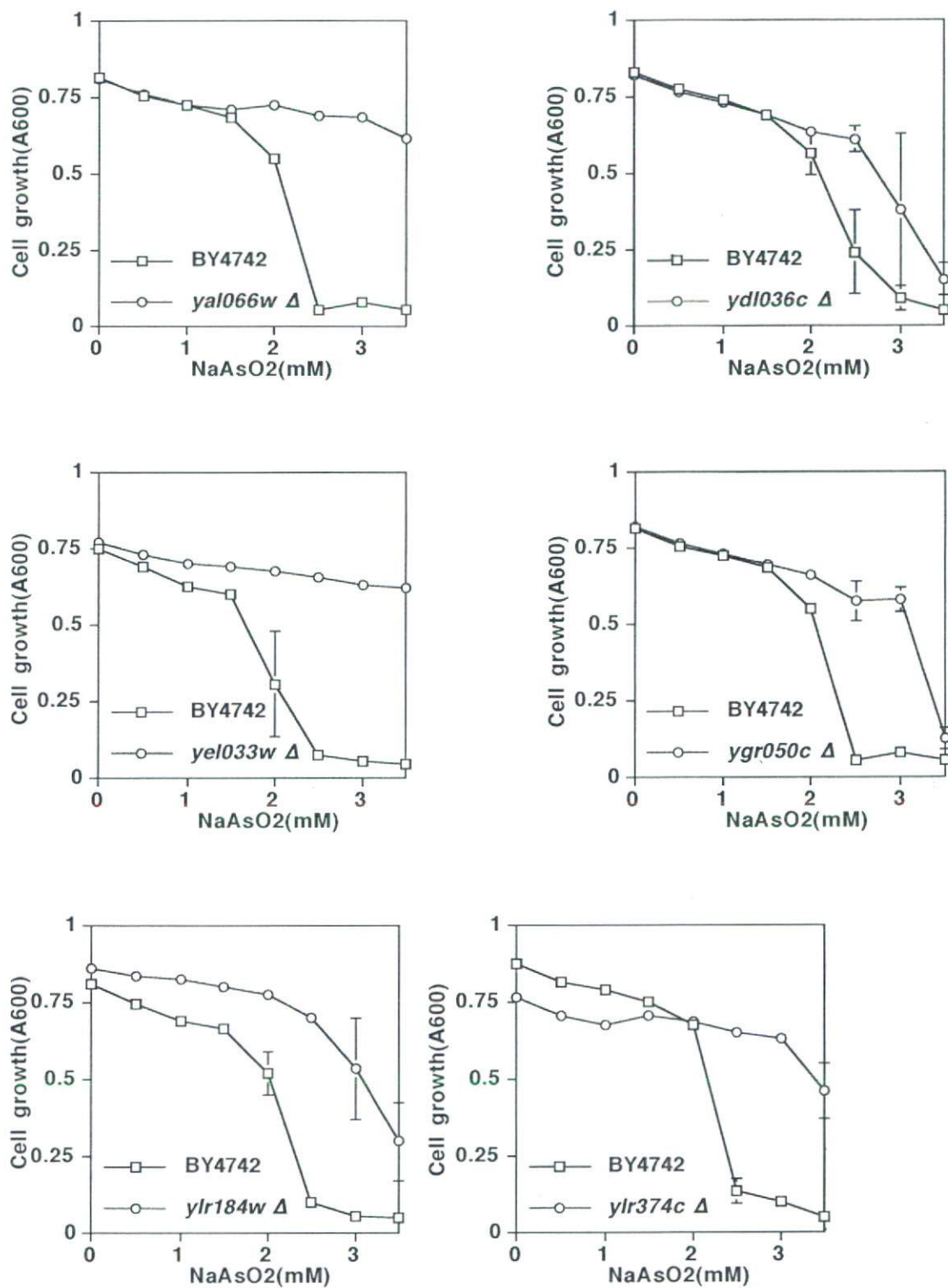


Fig. 2-9 欠損により酵母に亜ヒ酸耐性を与える遺伝子

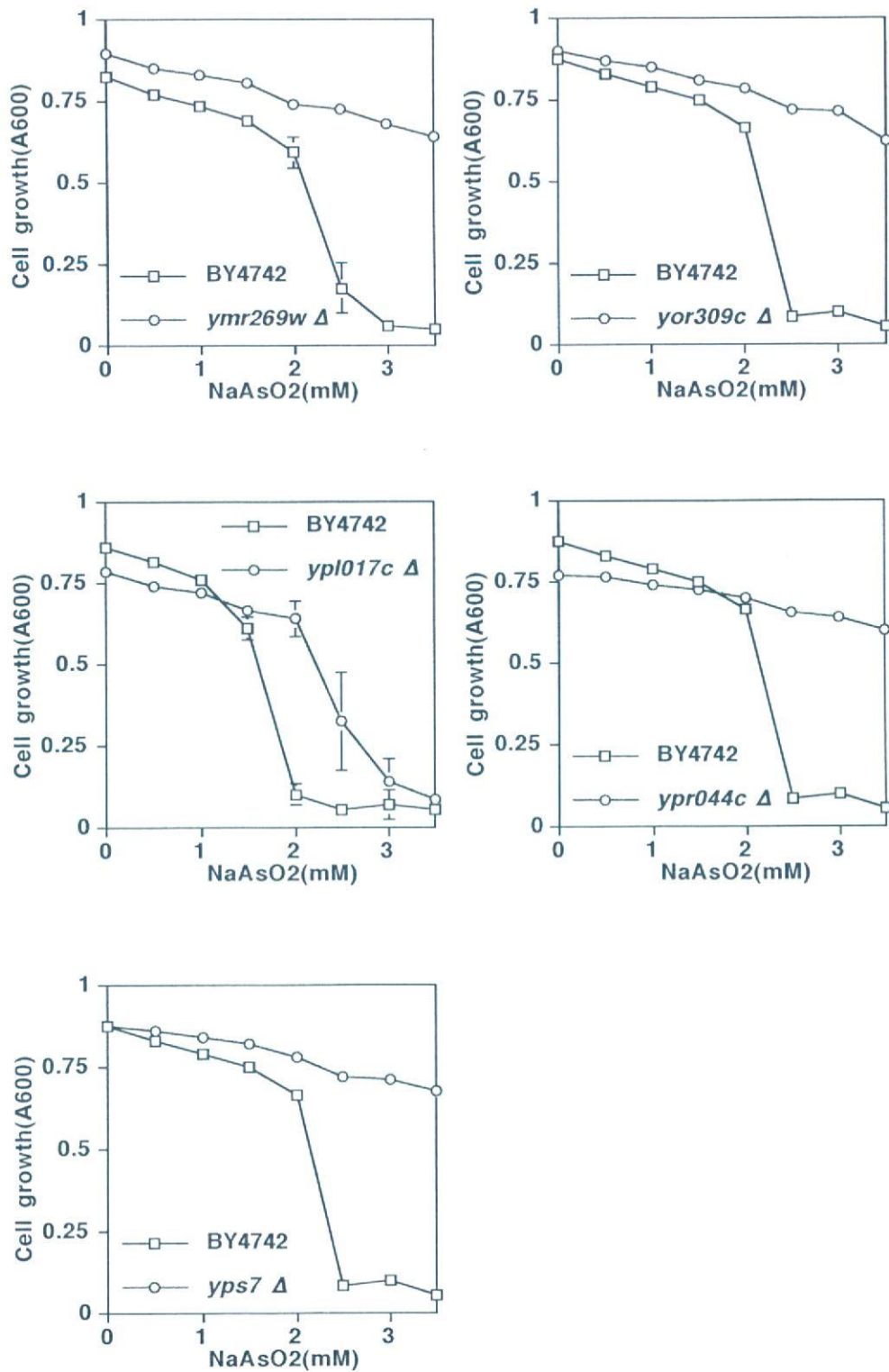


Fig. 2-10 欠損により酵母に亜ヒ酸耐性を与える遺伝子

Table. 1-1 欠損により酵母に亜硫酸耐性を与える遺伝子がコードする

蛋白の機能

| 遺伝子 | 機能 |
|--------------|--|
| <i>ARO1</i> | Arom pentafunctional enzyme |
| <i>ASK10</i> | Potential transcription factor involved in Skn7p-mediated two-component regulatory system |
| <i>BUD19</i> | Protein that may be involved in bud site selection and bipolar budding pattern |
| <i>BUD28</i> | Protein that may be involved in bud site selection in diploid cells |
| <i>BUD31</i> | Protein that may be involved in polar bud site selection in diploids, has similarity to <i>Xenopus</i> G10, a developmentally-regulated protein that is thought to be involved in translation during oocyte maturation |
| <i>BUL1</i> | Protein involved in the ubiquitination pathway |
| <i>CDC73</i> | RNA polymerase II accessory protein, may be involved in transcription elongation |
| <i>EAF3</i> | Component of the NuA4 histone acetyltransferase complex |
| <i>ERJ5</i> | Protein containing a DnaJ domain, which are part of chaperone (protein folding) system that mediates interaction with heat shock proteins, has moderate similarity to uncharacterized <i>C. albicans</i> Ipf14630p |
| <i>ERV14</i> | Protein of ER-derived vesicles that is required for efficient degradation of soluble ER quality control substrates, has similarity to <i>Drosophila melanogaster</i> cni protein |

Table. 1-2 欠損により酵母に亜ヒ酸耐性を与える遺伝子がコードする

蛋白の機能

| 遺伝子 | 機能 |
|--------------|--|
| <i>FPS1</i> | Glycerol channel protein that is also involved in uptake of As ³⁺ and Sb ³⁺ , member of the major intrinsic protein (MIP) family of transmembrane channel proteins |
| <i>HIT1</i> | Protein required for growth at high temperature |
| <i>JID1</i> | Member of a DnaJ-like family of putative protein chaperones |
| <i>KCS1</i> | Inositol (1,2,3,4,5,6) hexaphosphate kinase, suppressor of temperature-sensitive growth and hyperrecombination in <i>pkc1-4</i> , involved in endocytosis |
| <i>MDH3</i> | Malate dehydrogenase, peroxisomal |
| <i>MRT4</i> | Protein involved in mRNA turnover |
| <i>MUB1</i> | Zinc finger protein, involved in the regulation of bud site selection |
| <i>NAM7</i> | Protein involved with Nmd2p and Upf3p in decay of mRNAs that contain premature nonsense codons |
| <i>NMD2</i> | Protein involved with Nam7p and Upf3p in decay of mRNA containing nonsense codons |
| <i>NOP12</i> | Protein important for the synthesis of 25S pre-rRNA |
| <i>NOP6</i> | Protein of the hydrophilin family, has an N-terminal RNA recognition (RRM) domain |
| <i>NPR2</i> | Nitrogen permease regulator |
| <i>POP1</i> | Protein component of both RNase P and RNase MRP, involved in both tRNA maturation (RNase P) and in 5.8S rRNA processing (RNase MRP) |

Table. 1-3 欠損により酵母に垂ヒ酸耐性を与える遺伝子がコードする

蛋白の機能

| 遺伝子 | 機能 |
|---------------|--|
| <i>RAX2</i> | Protein involved in bipolar budding |
| <i>RHK1</i> | Mannosyltransferase involved in N-glycosylation, <i>Hansenula mrakii</i> HM-1 killer toxin resistance protein |
| <i>RIM1</i> | Protein that binds single-stranded DNA, required for replication in mitochondria |
| <i>RPA49</i> | RNA polymerase I third largest subunit |
| <i>RPL15B</i> | Ribosomal protein L15 (yeast L13; YL10; rp15R; rat L15), nearly identical to Rpl15Ap |
| <i>RPL19B</i> | Ribosomal protein L19 (yeast L23; YL14; rp15L; rp33; rat L19), nearly identical to Rpl19Ap |
| <i>RPL20B</i> | Ribosomal protein L20, nearly identical to Rpl20Ap |
| <i>RPL22A</i> | Ribosomal protein L22, similar to Rpl22Bp |
| <i>RPL37A</i> | Ribosomal protein L37 (yeast L46; rat L37), nearly identical to Rpl37Bp |
| <i>RPL7A</i> | Ribosomal protein L7 (yeast L6; YL8A; rp11; <i>E. coli</i> L30; rat L7), nearly identical to Rpl7Bp |
| <i>RPL9A</i> | Ribosomal protein L9 (YL11; rp25; rp24; <i>E. coli</i> L6; rat L9), nearly identical to Rpl9Bp |
| <i>RPP2B</i> | Acidic ribosomal protein P2B (L45; YPA1; YL44C; YP2 beta; <i>E. coli</i> L12eIA; human and rat P2) |
| <i>RPS10A</i> | Ribosomal protein S10 (rat S10), nearly identical to Rps10Bp |

Table. 1-4 欠損により酵母に垂ヒ酸耐性を与える遺伝子がコードする

蛋白の機能

| 遺伝子 | 機能 |
|--------------|--|
| <i>RPS4A</i> | Ribosomal protein S4 (yeast S7; YS6; rp5; rat and human S4), identical to Rps4Bp |
| <i>RSA1</i> | Nucleoplasmic protein involved in assembly of 60S ribosomal subunits |
| <i>SEC28</i> | Coatomer (COPI) complex epsilon chain (epsilon-COP) of secretory pathway vesicles, required for retrograde transport from Golgi to endoplasmic reticulum |
| <i>SEL1</i> | Protein involved in secretion, may play a role in regulating membrane tethering and vesicle docking |
| <i>SPT8</i> | Component of the nucleosomal histone acetyltransferase complex (Spt-Ada-Gcn5-Acetyltransferase or SAGA) complex, member of TBP class of SPT proteins |
| <i>TDHI</i> | Glyceraldehyde-3-phosphate dehydrogenase 1, catalyzes the reversible oxidation and phosphorylation of D-glyceraldehyde-3-phosphate to 1,3-diphosphoglycerate in glycolysis |
| <i>UBP2</i> | Ubiquitin-specific protease (ubiquitin C-terminal hydrolase), cleaves at the C terminus of ubiquitin |
| <i>UBR2</i> | Member of the putative zinc finger in N-recogin family, has weak similarity to <i>S. pombe</i> Ubr1p, which is a putative component of ubiquitin protein ligase required for ubiquitin-proteasome dependent degradation of <i>S. pombe</i> Mei2p |

Table. 1-5 欠損により酵母に亜硫酸耐性を与える遺伝子がコードする

蛋白の機能

| 遺伝子 | 機能 |
|----------------|--|
| <i>UPF3</i> | Protein involved with Nam7p and Nmd2p in decay of mRNA containing nonsense codons |
| <i>VIP1</i> | Protein with possible methionine N(alpha)-acetyltransferase activity, involved in cortical actin function |
| <i>VPS8</i> | Protein involved in vacuolar sorting |
| <i>YAL066W</i> | Protein of unknown function |
| <i>YDL036C</i> | Protein with similarity to Rib2p |
| <i>YEL033W</i> | Protein required for invasive growth and pseudohyphal development |
| <i>YGR050C</i> | Protein of unknown function |
| <i>YLR184W</i> | Protein of unknown function |
| <i>YLR374C</i> | Protein of unknown function |
| <i>YMR269W</i> | Protein that may be involved in protein synthesis, rich in lysine and serine |
| <i>YOR309C</i> | Protein of unknown function |
| <i>YPL017C</i> | Protein containing a pyridine nucleotide-disulfide oxidoreductase domain, which bind NADH, and a pyridine nucleotide-disulfide oxidoreductase dimerization domain, has moderate similarity to dihydrolipoamide dehydrogenase (<i>S. cerevisiae</i> Lpd1p) |
| <i>YPR044C</i> | Protein of unknown function |
| <i>YPS7</i> | Yapsin 7, GPI-anchored aspartyl protease |

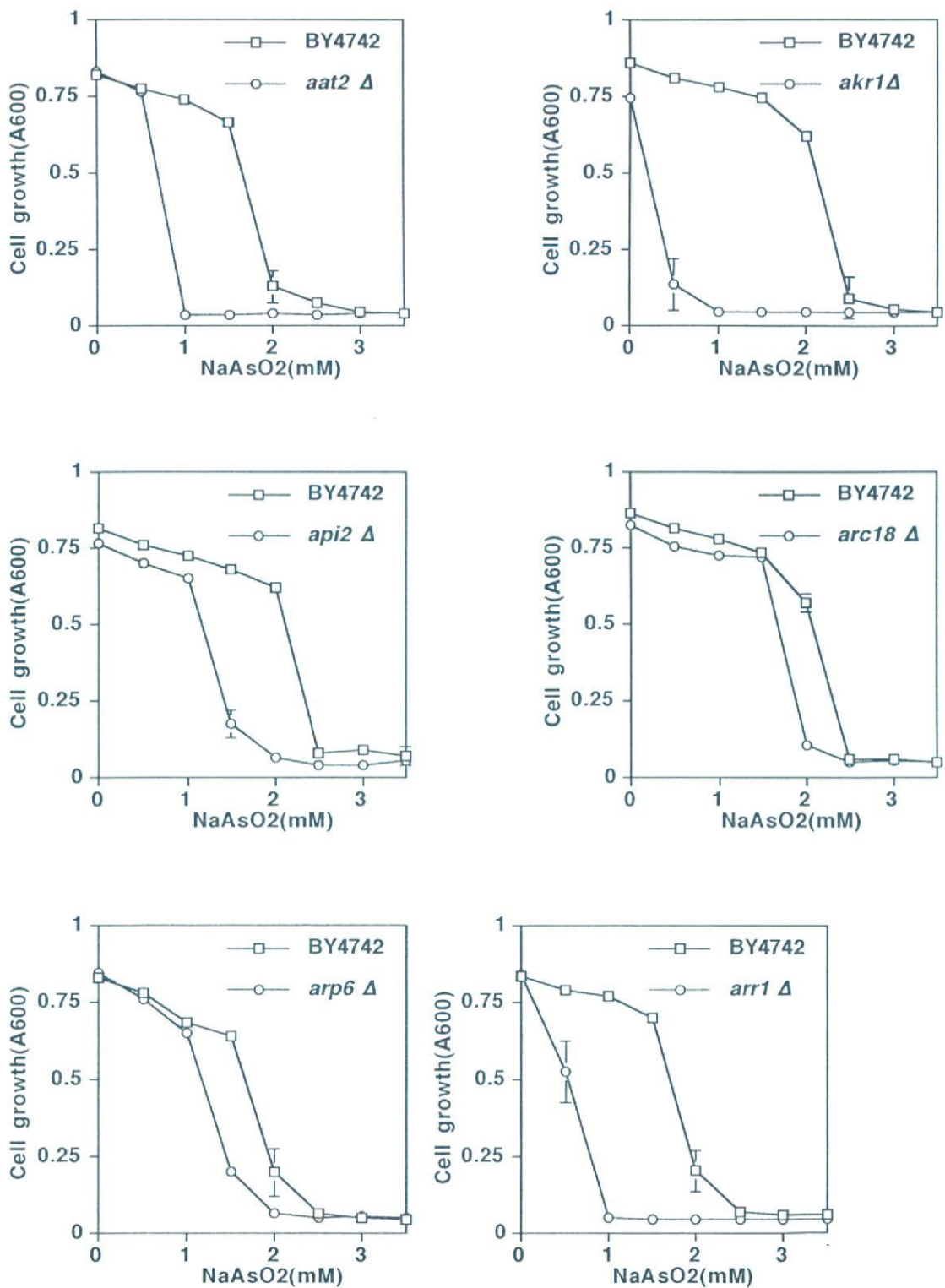


Fig.3-1 欠損により酵母に亜ヒ酸高感受性を与える遺伝子

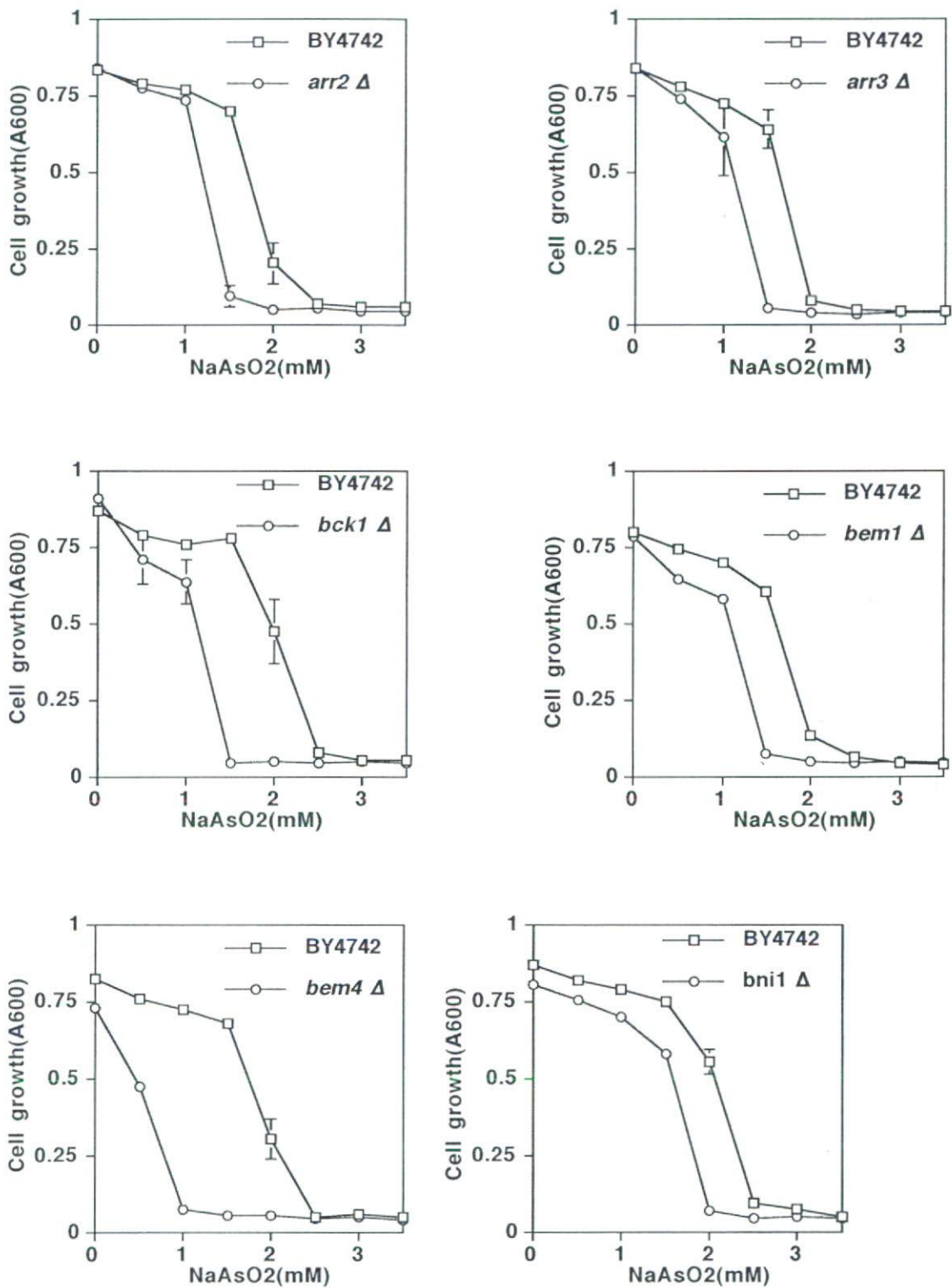


Fig.3-2 欠損により酵母に亜ヒ酸高感受性を与える遺伝子

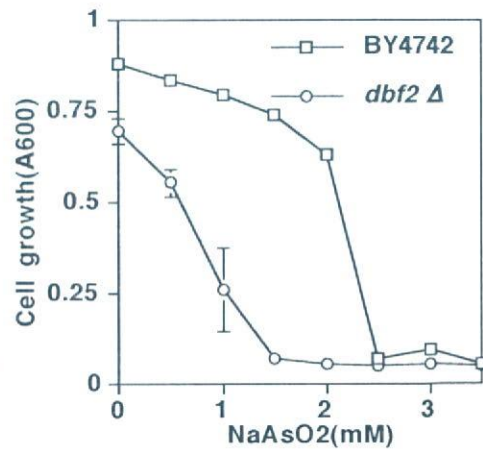
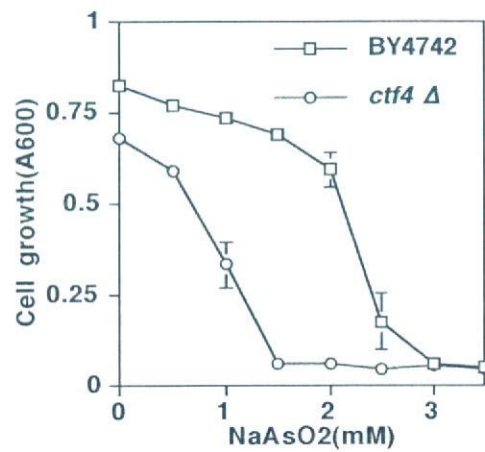
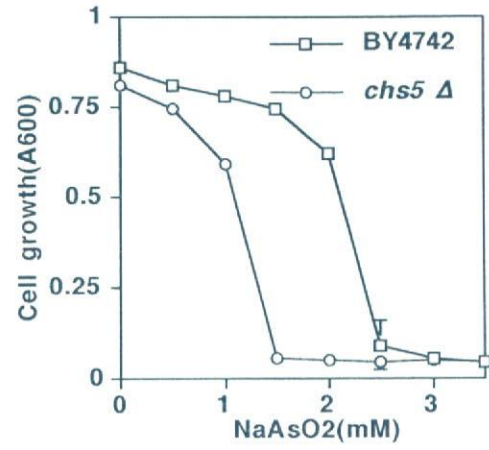
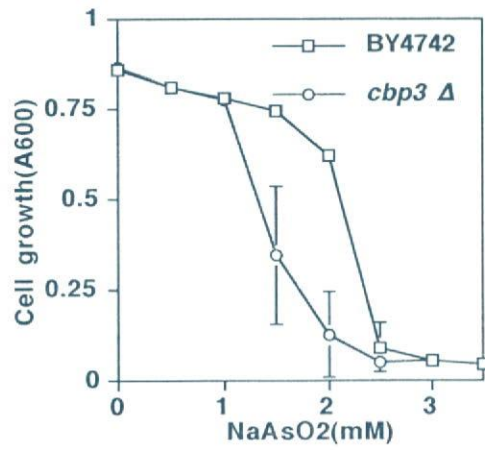
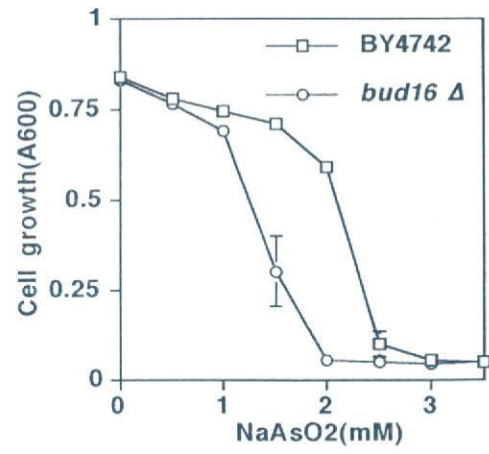
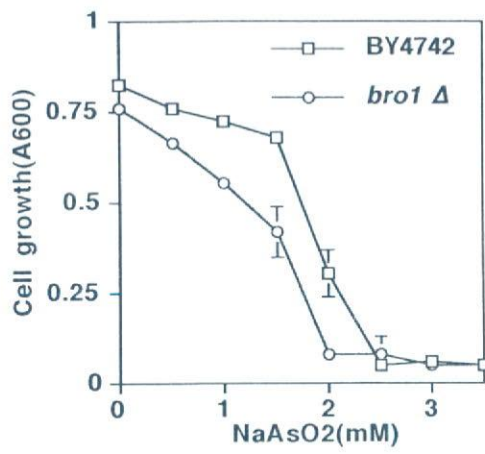


Fig.3-3 欠損により酵母に亜ヒ酸高感受性を与える遺伝子

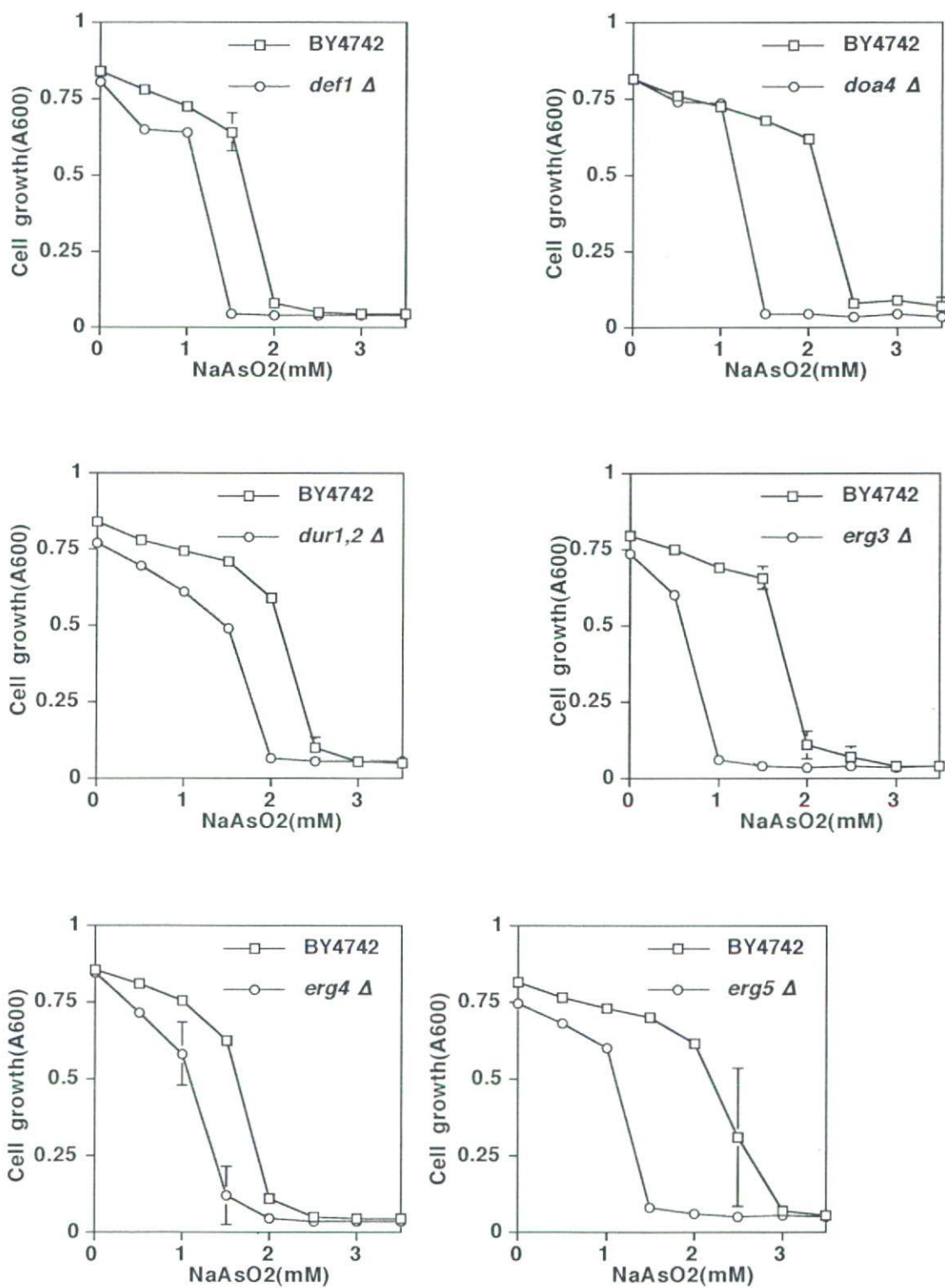


Fig.3-4 欠損により酵母に亜ヒ酸高感受性を与える遺伝子

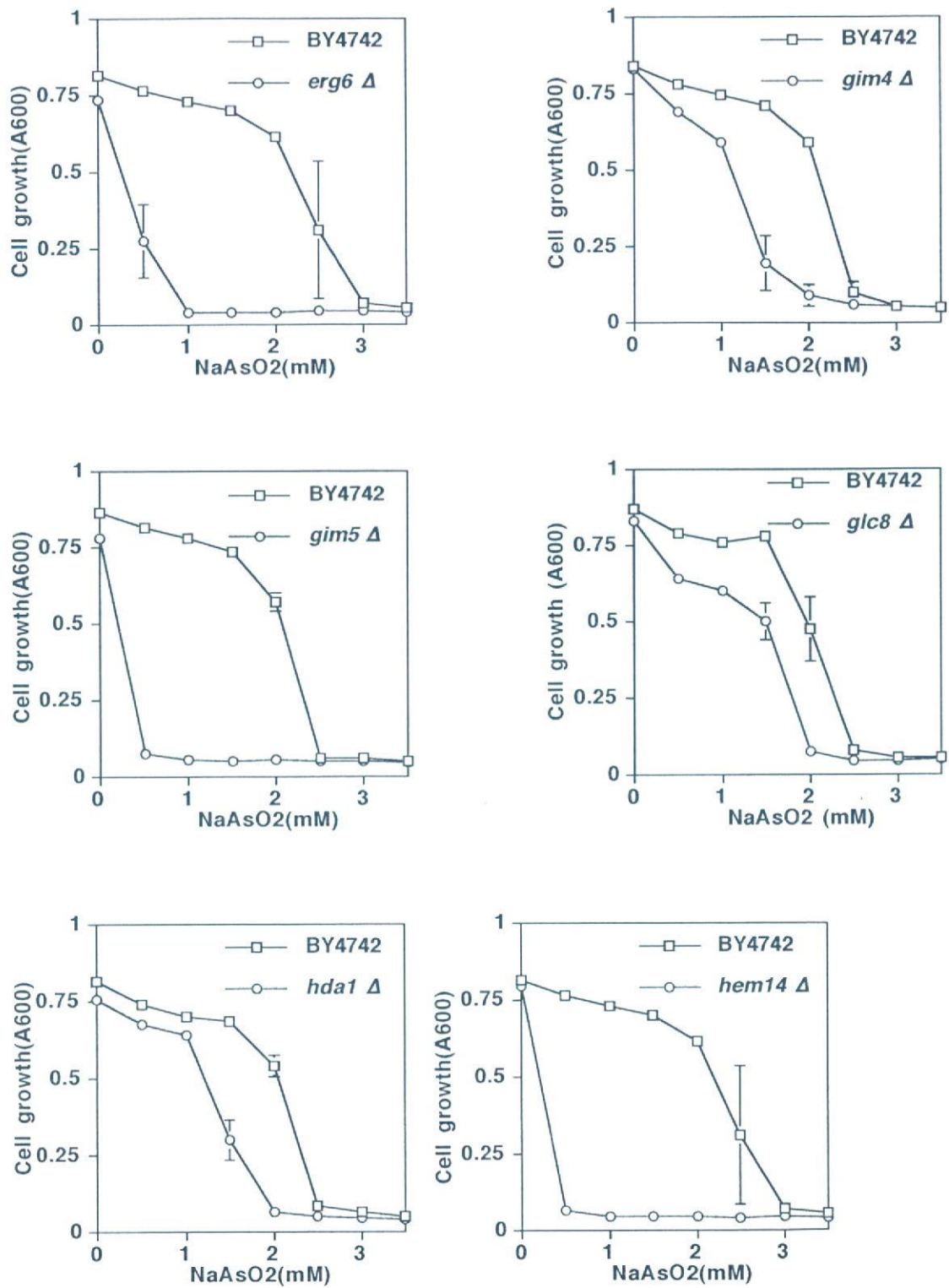


Fig.3-5 欠損により酵母に亜ヒ酸高感受性を与える遺伝子

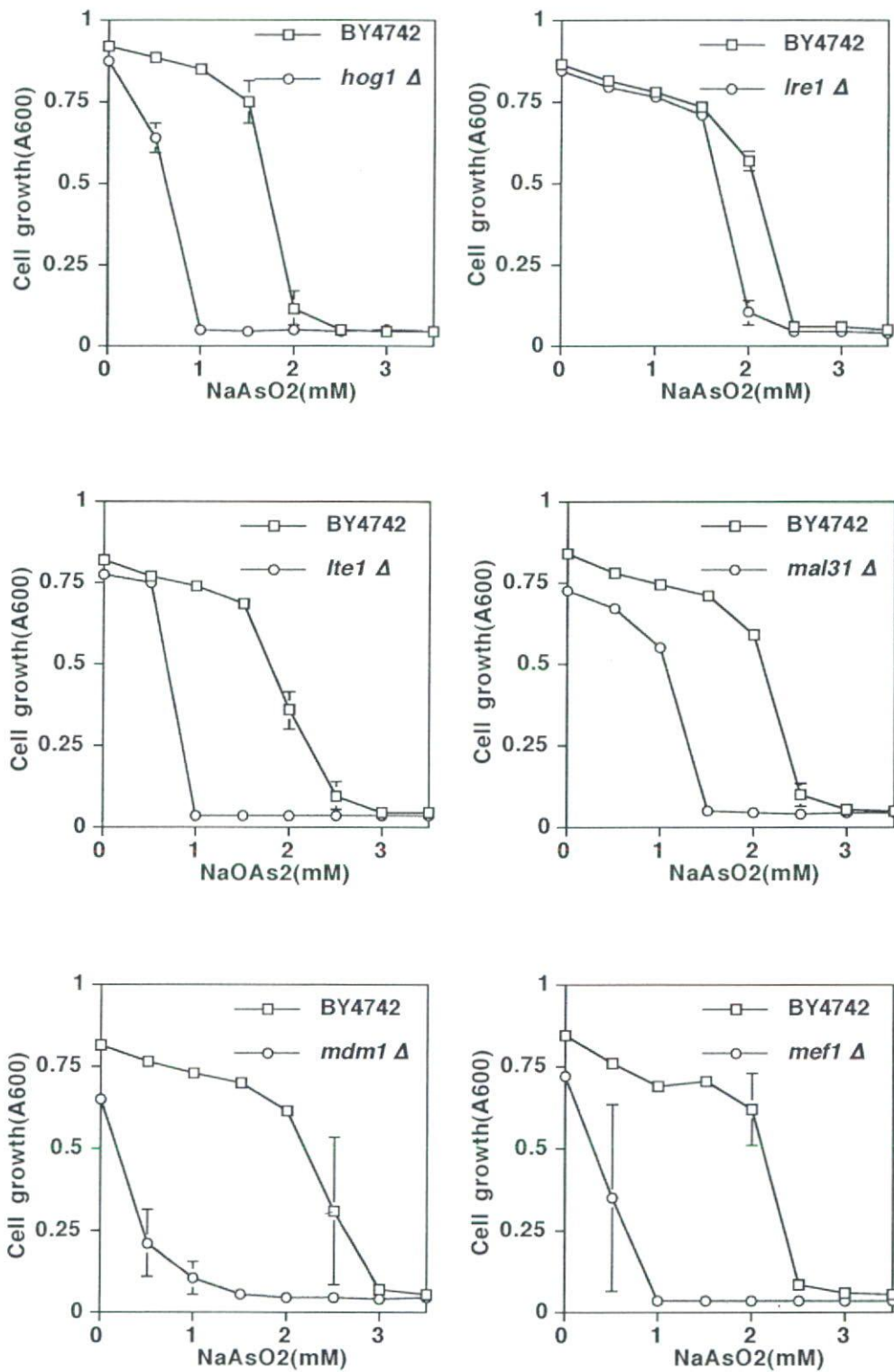


Fig.3-6 欠損により酵母に亜ヒ酸高感受性を与える遺伝子

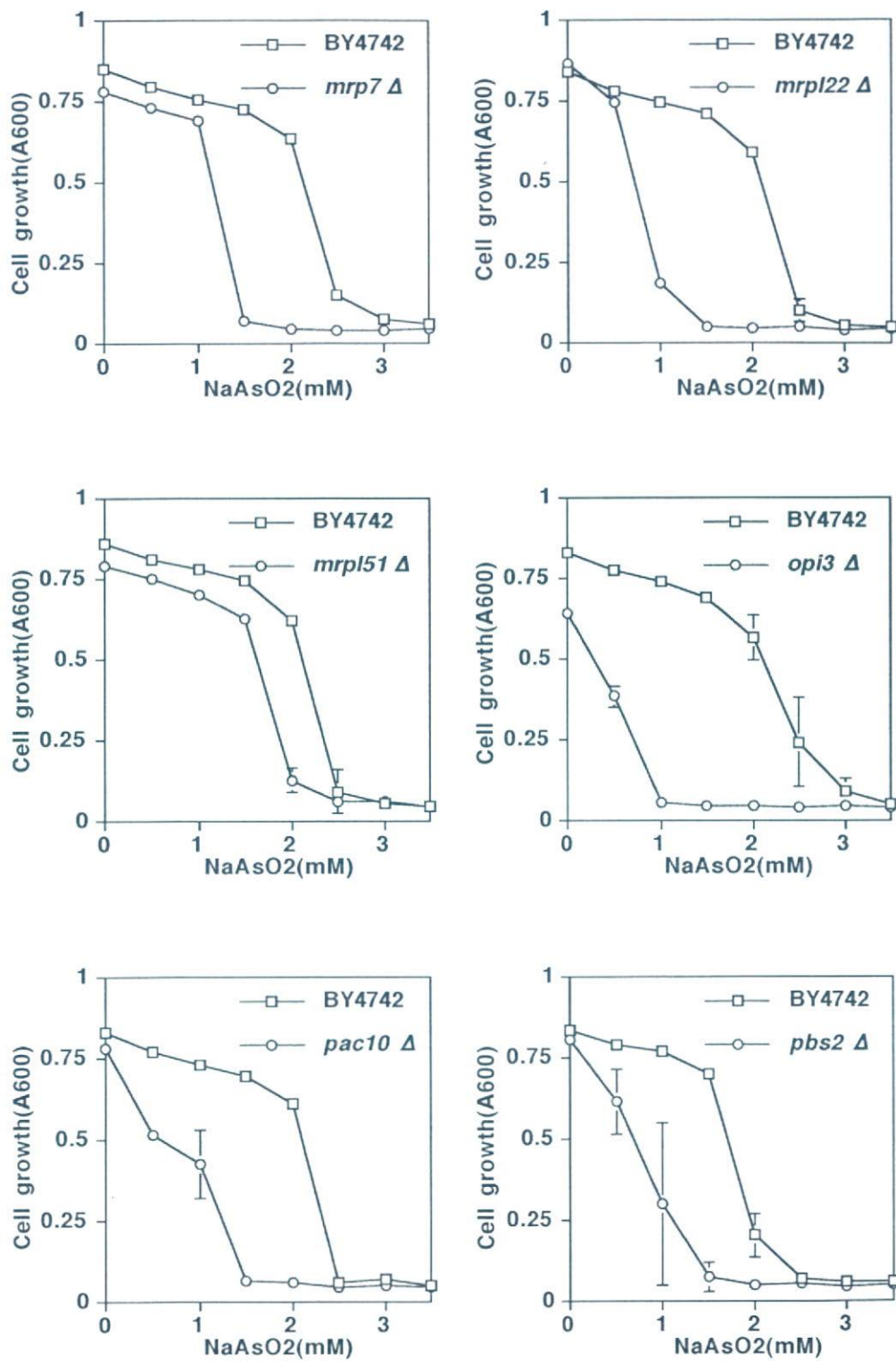


Fig.3-7 欠損により酵母に亜ヒ酸高感受性を与える遺伝子