Asm4p is a nuclear pore protein that forms a complex with two other nucleoporins, Nup53p and Nup170p. Transport of macromolecules between the nucleus and the cytoplasm of eukaryotic cells occurs through the nuclear pore complex, a large macromolecular complex that spans the nuclear envelope. The structure of the vertebrate NPC has been studied extensively; recent reviews include 12, 13, 14, and 15. The yeast NPC shares several features with the vertebrate NPC, despite being smaller and less elaborate. Many yeast nuclear pore proteins, or nucleoporins, have been identified by a variety of genetic approaches. The Asm4p-containing complex also interacts with the karyopherin Pse1p. Lopez et al.report that ASM4 is essential for vegetative growth in some strain backgrounds tested. Mutations in ASM4 also show genetic interactions with mutations in other nucleoporin genesand with POL3, which encodes a subunit of DNA polymerase delta. Asm4p is structurally similar to Nup53p, and similar protein sequences are found in several eukaryotes.