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## Chapter 9 - Septin proteins and their role in fungi and yeast

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### Abstract

Septins were first discovered in *Saccharomyces cerevisiae* and are a group of GTP binding proteins. Yeast septin consists of eight subunits and assembles as heterooctamer Cdc11-Cdc12-Cdc3-Cdc10-Cdc10-Cdc3-Cdc12-Cdc11. Septins are associated with actin filaments, cellular membranes, and microtubules. Septins are found to be involved in many biological processes such as cytokinesis, apoptosis, exocytosis, phagocytosis, spermatogenesis, cell polarity, ciliogenesis, and motility. The main septin filament polymer is formed by the septins Cdc3, Cdc11, and Cdc12. Cross-linking is promoted by Cdc10. Septins are regulated by a number of genes such as Bni5, Gin4, Kcc4, Cla4, Iqg1, and Hof1. The septin ring is formed before the bud emerges. This ring makes an appearance to define a boundary or to differentiate between the mother cell and daughter cell. The actomyosin ring contracts and forms the septum in between the newly divided rings. Septins establish a diffusion barrier by forming a continuous filament that is packed tightly in the plasma membrane. Passage of the integral proteins through the plasma membrane is prevented by the gasket formed by the septin filaments.

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[The Septin Gene StSep4 Contributes to the Pathogenicity of \*Setosphaeria turcica\* by Regulating the Morphology, Cell Wall Integrity, and Pathogenic Factor Biosynthesis](#) ↗

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