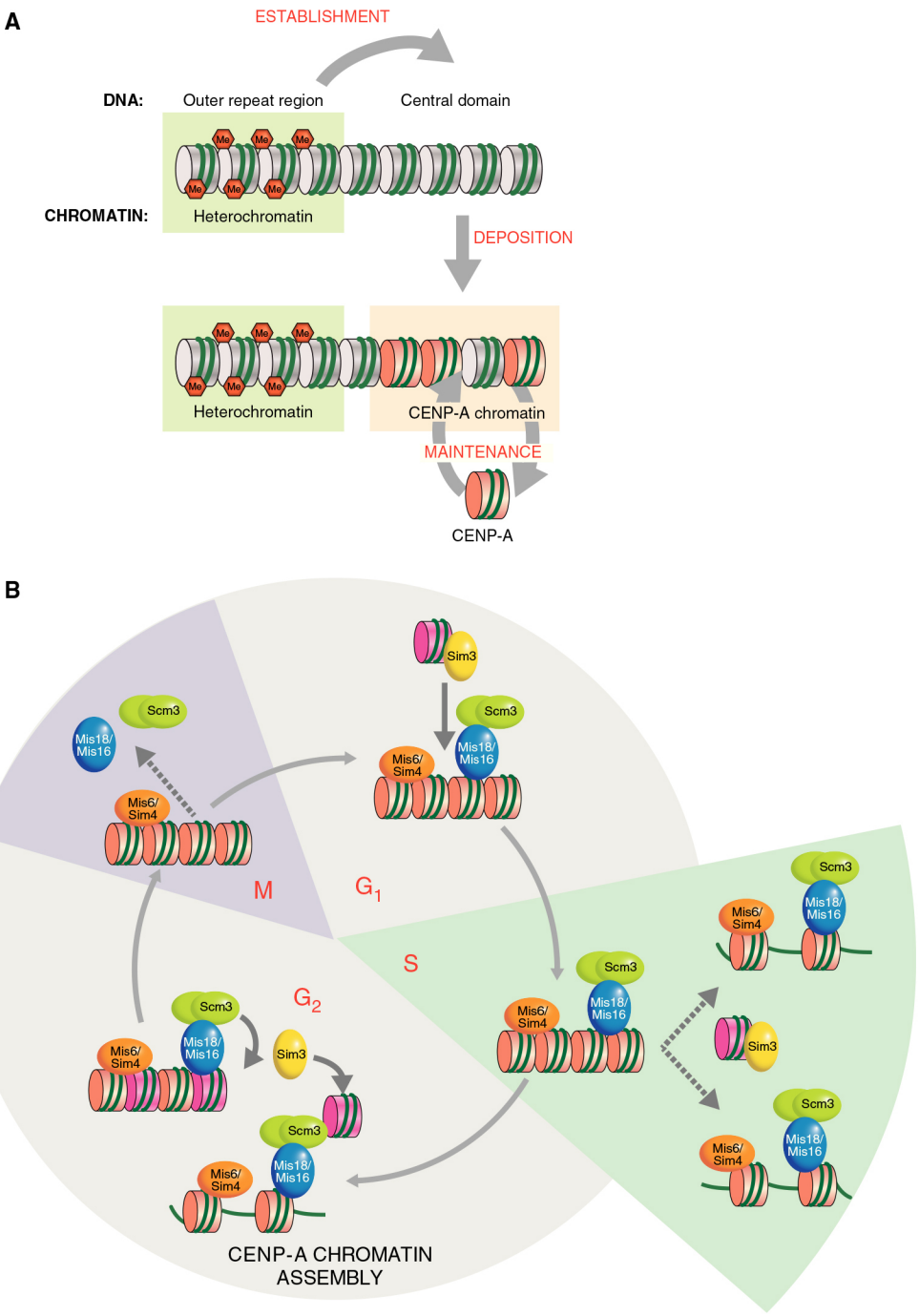

Figure 7. CENP-A chromatin establishment and propagation through the cell cycle. (*A*) Central domain DNA alone is unable to establish a functional centromere; outer repeats are required. Loss of heterochromatin from established centromeres does not affect CENP-A^{cnp1} or kinetochore maintenance in the central domain. This suggests that heterochromatin may, in some way, initially direct the site of CENP-A^{cnp1} chromatin and thus kinetochore assembly. (*B*) Cell-cycle dependency of CENP-A^{Cnp1} recruitment in *S. pombe*. In *S. pombe*, centromeric DNA is replicated and existing CENP-A^{Cnp1} is diluted by nucleosome segregation to sister chromatids during S phase. Recruitment of new CENP-A occurs during the G_2 phase, indicated by the pink nucleosomes. The Sim3 histone chaperone interacts with new CENP-A^{Cnp1} and delivers it to the centromere, where it is received by Scm3 and assembled into nucleosomes by unknown factors and mechanisms. Nucleosome gaps could be filled or H3 nucleosomes could be replaced. Scm3 is shown as a dimer interacting directly with Mis18. Scm3 recruitment at centromeres requires the Sim4/Mis6 and Mis16/Mis18 complexes. Mis16/Mis18 and Scm3 are removed from centromeres during mitosis and reassociate in G_1. (*B*, Adapted from Mellone et al. 2009.)