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Sommario	The faithful generation of two daughter cells genetically identical to each other relies on a complex cellular machinery called the mitotic spindle, which binds to each sister chromatid pair in a bipolar fashion and drives their segregation to the two newly generated daughters. The mitotic spindle is mainly composed of microtubules, microtubule-associated proteins and motor proteins. Spindle microtubules are conventionally divided into three different categories: (i) kinetochore microtubules (kMTs), which connect the spindle poles to chromosomes, (ii) interpolar microtubules (iMTs), which form a bundle that connects the two poles together, and (iii) astral microtubules (aMTs), which connect the poles to the cellular cortex. Proper spindle functions require drastic changes in microtubule dynamics. kMTs are unstable while searching for chromosomes, stabilized upon reaching a correct bipolar attachment and destabilized again soon after sister chromatids separation. iMTs remain unstable up to anaphase, when they become stable to drive spindle elongation. Finally, aMTs are stabilized and destabilized upon binding to different zones of the cellular cortex, to correctly direct the spindle. If differences in microtubules dynamics have been reported, the molecular mechanisms underneath them remain elusive. To gather insights into the machinery controlling spindle microtubules, we took advantage of cdc14 cdc5 double mutant cells.

	These cells already proved to be precious as they revealed an essential requirement for spindle microtubule regulation – that is the activity of the phosphatase Cdc14 and the polo-like kinase Cdc5 for iMT stabilization in anaphase. We now show that central to the regulation of each type of spindle microtubule is the activity of the Anaphase Promoting Complex or Cyclosome in combination with its activator subunit Cdc20 (APC/C-Cdc20), that via removal of a yet to be identified substrate triggers aMT stabilization. We propose that the signalling cascade initiated by the APC/C-Cdc20 – namely the metaphase to anaphase transition – sets the order of events that finely control the chromosome segregation process through the regulation of specific types of spindle microtubule.
Localizzazioni e accesso	http://memoria.depositolegale.it/*/http://hdl.handle.net/2434/790260