Centrosome amplification can initiate tumorigenesis in flies.

Centrosome amplification is a common feature of many cancer cells, and it has been previously proposed that centrosome amplification can drive genetic instability and so tumorigenesis. To test this hypothesis, we generated Drosophila lines that have extra centrosomes in approximately 60% of their somatic cells. Many cells with extra centrosomes initially form multipolar spindles, but these spindles ultimately become bipolar. This requires a delay in mitosis that is mediated by the spindle assembly checkpoint (SAC). As a result of this delay, there is no dramatic increase in genetic instability in flies with extra centrosomes, and these flies maintain a stable diploid genome over many generations. The asymmetric division of the larval neural stem cells, however, is compromised in the presence of extra centrosomes, and larval brain cells with extra centrosomes can generate metastatic tumors when transplanted into the abdomens of wild-type hosts. Thus, centrosome amplification can initiate tumorigenesis in flies.

HIV-1 buds and accumulates in « nonacidic » endosomes of macrophages.

Macrophages represent viral reservoirs in HIV-1-infected patients and accumulate viral particles within an endosomal compartment where they remain infectious for long periods of time. To determine how HIV-1 survives in endocytic compartments that become highly acidic and proteolytic and to study the nature of these virus-containing compartments, we carried out an ultrastructural study on HIV-1-infected primary macrophages. The endosomal compartments contain newly formed virions rather than internalized ones. In contrast to endocytic compartments free of viral proteins within the same infected cells, the virus containing compartments do not acidify. The lack of acidification is associated with an inability to recruit the proton pump vacuolar ATPase into the viral assembly compartment. This may prevent its fusion with lysosomes, since acidification is required for the maturation of endosomes. Thus, HIV-1 has developed a strategy for survival within infected macrophages involving prevention of acidification within a devoted endocytic virus assembly compartment.

AP-1 and ARF1 control endosomal dynamics at sites of FcR mediated phagocytosis.
*Molecular biology of the cell* : 4921-31

**Résumé**

Phagocytosis, the mechanism of ingestion of large material and microorganisms, relies on actin polymerization and on the focal delivery of intracellular endocytic compartments. The molecular mechanisms involved in the formation and delivery of the endocytic vesicles that are recruited at sites of phagocytosis are not well characterized. Here we show that adaptor protein (AP)-1 but not AP-2 clathrin adaptor complexes are recruited early below the sites of particle attachment and are required for efficient receptor-mediated phagocytosis in murine macrophages. Clathrin, however, is not recruited with the AP complexes. We further show that the recruitment of AP-1-positive structures at sites of phagocytosis is regulated by the GTP-binding protein ARF1 but is not sensitive to brefeldin A. Furthermore, AP-1 depletion leads to increased surface levels of TNF-alpha, a cargo known to traffic through the endosomes to the plasma membrane upon stimulation of the macrophages. Together, our results support a clathrin-independent role for AP complexes in endosomal dynamics in macrophages by retaining some cargo proteins, a process important for membrane remodeling during phagocytosis.

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**From stem cell to embryo without centrioles.**
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**Résumé**

Centrosome asymmetry plays a key role in ensuring the asymmetric division of Drosophila neural stem cells (neuroblasts [NBs]) and male germline stem cells (GSCs) [1-3]. In both cases, one centrosome is anchored close to a specific cortical region during interphase, thus defining the orientation of the spindle during the ensuing mitosis. To test whether asymmetric centrosome behavior is a general feature of stem cells, we have studied female GSCs, which divide asymmetrically, producing another GSC and a cystoblast. The cystoblast then divides and matures into an oocyte, a process in which centrosomes exhibit a series of complex behaviors proposed to play a crucial role in oogenesis [4-6]. We show that the interphase centrosome does not define spindle orientation in female GSCs and that DSas-4 mutant GSCs [7], lacking centrioles and centrosomes, invariably divide asymmetrically to produce cystoblasts that proceed normally through oogenesis—remarkably, oocyte specification, microtubule organization, and mRNA localization are all unperturbed. Mature oocytes can be fertilized, but embryos that cannot support centriole replication arrest very early in development. Thus, centrosomes are dispensable for oogenesis but essential for early embryogenesis. These results reveal that asymmetric centrosome behavior is not an
essential feature of stem cell divisions.