



SPECIAL REVIEWS

Mitosis Through the Microscope: Advances in Seeing Inside Live Dividing Cells

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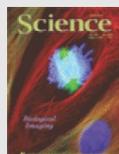
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Abstract

The most visually spectacular events in the life of a cell occur when it divides. This is especially true in higher eukaryotes, where the size and geometry of cells allow the division process to be followed through a microscope with considerable clarity. In these organisms, the membrane surrounding the nucleus breaks down after the replicated DNA has condensed to form discrete chromosomes. Several new structures are then assembled to separate the chromosomes and partition the cytoplasm into two separate cells.

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Cell division is fundamental to life and its perturbation can disrupt organismal development, alter tissue homeostasis, and cause disease. Analysis of mitotic abnormalities provides insight into how certain perturbations affect the fidelity of cell division and how specific cellular structures, molecules, and enzymatic activities contribute to the accuracy of this process. However, accurate classification of mitotic defects is instrumental for correct interpretation of data and formulation of new hypotheses. Rieder CL, Khodjakov A (2003) Mitosis through the microscope: advances in seeing inside live dividing cells. Science 300:91–96. <https://doi.org/10.1126/science.1082177> CrossRefPubMedGoogle Scholar. We can identify cells in interphase, cells undergoing mitosis or cell death. We demonstrate that this histone fusion reporter allows the direct visualization of active chromatin in situ. Rieder CL, Khodjakov A: Mitosis through the microscope: advances in seeing inside live dividing cells. Science. 2003, 300 (5616): 91-96. The most visually spectacular events in the life of a cell occur when it divides. This is especially true in higher eukaryotes, where the size and geometry of cells allow the division process to be followed through a microscope with considerable clarity. In these organisms, the membrane surrounding the nucleus breaks down after the replicated DNA has condensed to form discrete chromosomes. Several new structures are then assembled to separate the chromosomes and partition the cytoplasm into two separate cells. Authors: Conly L Rieder, Alexey Khodjakov. Related Documents : 6863389 - Evidence fo