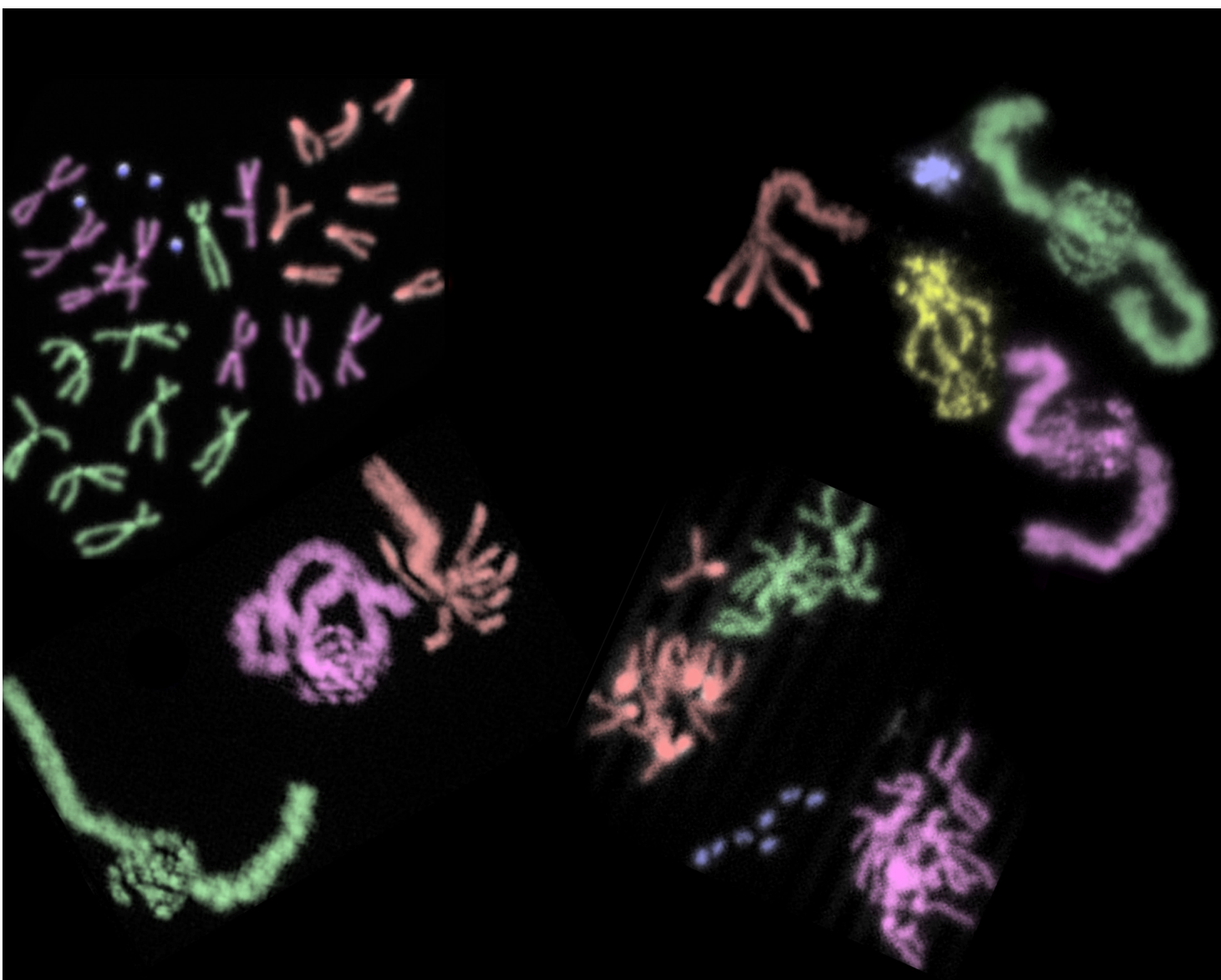


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MOLECULAR BIOLOGY OF THE CELL

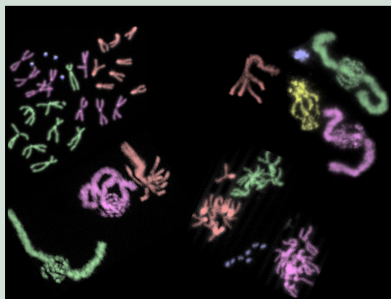


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MOLECULAR BIOLOGY OF THE CELL

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When cells undergo multiple genome duplications and then attempt cell division, chromosomes face a structural problem, as they are conjoined into more than chromatid pairs. To resolve this problem, *Drosophila* hindgut papillar cells undergo Separation Into Recent Sister pairs (SIRS), a process that separates reduplicated chromosomes. Shown here are four *Drosophila* hindgut papillar cells, all with an identical chromosome number and at different stages of SIRS (the higher the number of distinguishable chromosomes, the farther along the SIRS process). Each chromosome type has a distinct color. On page 219 of this issue of *MBoC*, Stormo and Fox report an important role for chromatid cohesin regulation during genome reduplication, which facilitates SIRS and prevents errors in mitosis. (Image: Benjamin Stormo, Duke University)

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