Establishment of cell fate in the female gametophyte follows a predictable pattern. Pagnussat et al. (pages 3578–3592) characterize the Arabidopsis eostre mutant, in which this pattern is perturbed and an additional egg cell is formed in place of a synergid. The authors show that the eostre phenotype is due to misexpression of BELL-LIKE HOMEODOMAIN1, resulting in ectopic activity of BELL-KNOX TALE protein complexes. They find that normal development of the embryo sac depends on suppression of BELL-KNOX TALE complex activity, which is likely mediated by OVATE family proteins. The cover shows a false-color image of an eostre mutant ovule, in which two zygotes (purple) have begun to develop after fertilization of the two egg cells within the embryo sac (pale yellow). The unfertilized central cell nucleus is positioned just above the zygotes but out of the focal plane.
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