



**Cover:** *Drosophila* larval epidermal cells undergo apoptosis during metamorphosis. Upon caspase activation, levels of E-cadherin (cyan) are diminished around the apoptotic cell, and cell-cell adhesions with neighboring non-dying cells are disengaged. The contraction of two actomyosin cables (myosin in red) formed in dying and neighboring cells drives apoptotic cell extrusion from a tissue. **See Research article by Teng et al. on p. 95.**

### EDITORIAL

- 1 The times they are a-changin'  
**Pourquie, O.**

### SPOTLIGHT

- 3 Towards a CRISPR view of early human development: applications, limitations and ethical concerns of genome editing in human embryos  
**Plaza Reyes, A. and Lanner, F.**

### CORRESPONDENCE

- 8 Defective *adgra2* (*gpr124*) splicing and function in zebrafish *ouchless* mutants  
**Bostaille, N., Gauquier, A., Stainier, D. Y. R., Raible, D. W. and Vanhollebeke, B.**

### MEETING REVIEW

- 12 From stem cells to human development: a distinctly human perspective on early embryology, cellular differentiation and translational research  
**Craft, A. M. and Johnson, M.**

### REVIEW

- 17 Understanding development and stem cells using single cell-based analyses of gene expression  
**Kumar, P., Tan, Y. and Cahan, P.**

### RESEARCH REPORTS

- 33 *Tfap2* and *Sox1/2/3* cooperatively specify ectodermal fates in ascidian embryos  
**Imai, K. S., Hikawa, H., Kobayashi, K. and Satou, Y.**
- 38 Differential temporal control of *Foxa.a* and *Zic-r.b* specifies brain versus notochord fate in the ascidian embryo  
**Ikeda, T. and Satou, Y.**

### RESEARCH ARTICLES

- 44 *Wt1* directs the lineage specification of sertoli and granulosa cells by repressing *Sf1* expression  
**Chen, M., Zhang, L., Cui, X., Lin, X., Li, Y., Wang, Y., Wang, Y., Qin, Y., Chen, D., Han, C., Zhou, B., Huff, V. and Gao, F.**
- 54 A set of simple cell processes is sufficient to model spiral cleavage  
**Brun-Usan, M., Marín-Riera, M., Grande, C., Truchado-Garcia, M. and Salazar-Ciudad, I.**
- 63 Rewiring of embryonic glucose metabolism via suppression of PFK-1 and aldolase during mouse chorioallantoic branching  
**Miyazawa, H., Yamaguchi, Y., Sugiura, Y., Honda, K., Kondo, K., Matsuda, F., Yamamoto, T., Suematsu, M. and Miura, M.**

- 74 Atypical chemokine receptor ACKR2 controls branching morphogenesis in the developing mammary gland  
**Wilson, G. J., Hewit, K. D., Pallas, K. J., Cairney, C. J., Lee, K. M., Hansell, C. A., Stein, T. and Graham, G. J.**

- 83 PDGFR $\alpha$  controls the balance of stromal and adipogenic cells during adipose tissue organogenesis  
**Sun, C., Berry, W. L. and Olson, L. E.**

- 95 Remodeling of adhesion and modulation of mechanical tensile forces during apoptosis in *Drosophila* epithelium  
**Teng, X., Qin, L., Le Borgne, R. and Toyama, Y.**

- 106 Conserved and novel functions of programmed cellular senescence during vertebrate development  
**Davaapil, H., Brockes, J. P. and Yun, M. H.**

- 115 Interactions between mural cells and endothelial cells stabilize the developing zebrafish dorsal aorta  
**Stratman, A. N., Pezoa, S. A., Farrelly, O. M., Castranova, D., Dye, L. E., III, Butler, M. G., Sidik, H., Talbot, W. S. and Weinstein, B. M.**

- 128 Translation repression by maternal RNA binding protein Zar1 is essential for early oogenesis in zebrafish  
**Miao, L., Yuan, Y., Cheng, F., Fang, J., Zhou, F., Ma, W., Jiang, Y., Huang, X., Wang, Y., Shan, L., Chen, D. and Zhang, J.**

- 139 The *Drosophila* Hox gene *Ultrabithorax* acts in both muscles and motoneurons to orchestrate formation of specific neuromuscular connections  
**Hessinger, C., Technau, G. M. and Rogulja-Ortmann, A.**

- 151 Modulation of apical constriction by Wnt signaling is required for lung epithelial shape transition  
**Fumoto, K., Takigawa-Imamura, H., Sumiyama, K., Kaneiwa, T. and Kikuchi, A.**

- 163 MS23, a master basic helix-loop-helix factor, regulates the specification and development of the tapetum in maize  
**Nan, G.-L., Zhai, J., Arikiti, S., Morrow, D., Fernandes, J., Mai, L., Nguyen, N., Meyers, B. C. and Walbot, V.**

### PUBLISHER'S NOTE

- 173 Publisher's Note: Modulation of dorsal root ganglion development by ErbB signaling and the scaffold protein Sorbs3 by Malmquist et al. Development doi:10.1242/dev.084640  
**Pourquie, O.**