In the first of our new Evolutionary crossroads in developmental biology series, Prigge and Bezanilla introduce Physcomitrella patens, a moss from this ancient, non-vascular plant lineage, studies of which are distinguishing ancestral developmental mechanisms from those that are novel innovations in flowering plants. See Primer on p. 3535.

Cover: A transgenic Arabidopsis thaliana flower. Ectopic activation of the microRNA-regulated APETALA2 transcription factor has led to the formation of many extra petals and carpel-like organs. See Research article by Wollmann et al. on p. 3633.

**PRIMER**

3535 Evolutionary crossroads in developmental biology: *Physcomitrella patens*
Prigge, M. J. and Bezanilla, M.

**DEVELOPMENT AND STEM CELLS**

3545 Identification of putative dental epithelial stem cells in a lizard with life-long tooth replacement
Handrigan, G. R., Leung, K. J. and Richman, J. M.

3551 Oct1 regulates trophoblast development during early mouse embryogenesis

3561 Serpent, Suppressor of Hairless and U-shaped are crucial regulators of hedgehog niche expression and prohemocyte maintenance during *Drosophila* larval hematopoiesis
Tokusumi, Y., Tokusumi, T., Stoller-Conrad, J. and Schulz, R. A.

3569 Adult epidermal Notch activity induces dermal accumulation of T cells and neural crest derivatives through upregulation of jagged 1
Ambler, C. A. and Watt, F. M.

3581 WUSCHEL mediates stem cell homeostasis by regulating stem cell number and patterns of cell division and differentiation of stem cell progenitors
Yadav, R. K., Tavakkoli, M. and Reddy, G. V.

**RESEARCH ARTICLES**

3591 Cell-autonomous integrin control of Wnt and Notch signalling during somitogenesis
Rallis, C., Pinchin, S. M. and Ish-Horowicz, D.

3603 The *C. elegans* peroxidasin PXN-2 is essential for embryonic morphogenesis and inhibits adult axon regeneration

3615 Embryonic multipotent progenitors remodel the *Drosophila* airways during metamorphosis
Pitsouli, C. and Perrimon, N.

3625 Notch signalling regulates left-right asymmetry through ciliary length control
Lopes, S. S., Lourenço, R., Pacheco, L., Moreno, N., Kreiling, J. and Saúde, L.

3633 On reconciling the interactions between APETALA2, miR172 and AGAMOUS with the ABC model of flower development
Wollmann, H., Mica, E., Todesco, M., Long, J. A. and Weigel, D.

3643 Schwann cells reposition a peripheral nerve to isolate it from postembryonic remodeling of its targets
Raphael, A. R., Perlin, J. R. and Talbot, W. S.

3651 Three-dimensional cartography of hematopoietic clusters in the vasculature of whole mouse embryos
Yokomizo, T. and Dzierzak, E.

3663 The Flamingo ortholog FMI-1 controls pioneer-dependent navigation of follower axons in *C. elegans*
Steimel, A., Wong, L., Huarcaya Najarro, E., Ackley, B. D., Garriga, G. and Hutter, H.
3675 Survival strategies of a sterol auxotroph
Carvalho, M., Schwudke, D., Sampaio, J. L., Palm, W., Riezman, I., Dey, G., Gupta, G. D., Mayor, S., Riezman, H., Schevchenko, A., Kurzchalia, T. V. and Eaton, S.

3687 Expression and function of the empty spiracles gene in olfactory sense organ development of Drosophila melanogaster
Sen, S., Hartmann, B., Reichert, H. and Rodrigues, V.

3697 An anteroposterior wave of vascular inhibitor downregulation signals aortae fusion along the embryonic midline axis
Garriock, R. J., Czeisler, C., Ishii, Y., Navetta, A. M. and Mikawa, T.

3707 Frizzled 1 and frizzled 2 genes function in palate, ventricular septum and neural tube closure: general implications for tissue fusion processes
Yu, H., Smallwood, P. M., Wang, Y., Vidalatamayo, R., Reed, R. and Nathans, J.

3719 Disabled is a bona fide component of the Abl signaling network
Song, J. K., Kannan, R., Merdes, G., Singh, J., Mlodzik, M. and Giniger, E.