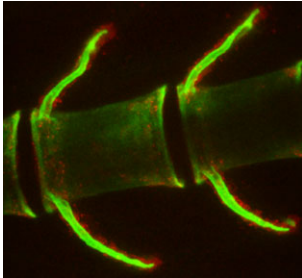
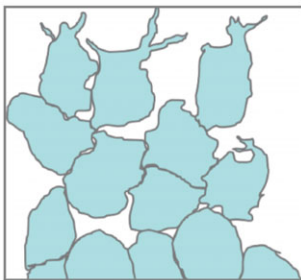


Development



Cover: In zebrafish, osteoblasts are positioned distal to the mineralized matrix, allowing the simultaneous *in vivo* visualization of osteoblasts (red, *osterix:mCherry*) and calcified tissue (green, calcein staining). In this example, adjacent centra of a 20-day-old zebrafish axial skeleton are shown, with osteoblasts covering the neural and hemal arches. See research article by Sporendonk et al. on p. 3765.



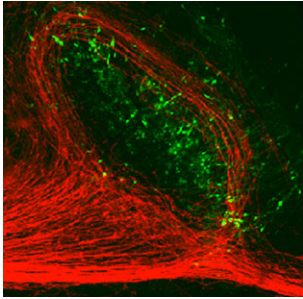
Although different organisms undergo diverse cell movements during gastrulation, studies of the mechanisms and regulation of cell adhesion, as reviewed here by Matthias Hammerschmidt and Doris Wedlich, reveal that different modes of gastrulation cell movements employ the same principles to regulate adhesion. See review on p. 3625.

REVIEW

- 3625** Regulated adhesion as a driving force of gastrulation movements
Hammerschmidt, M. and Wedlich, D.

RESEARCH ARTICLES

- 3643** Pioneer longitudinal axons navigate using floor plate and Slit/Robo signals
Farmer, W. T., Altick, A. L., Nural, H. F., Dugan, J. P., Kidd, T., Charron, F. and Mastick, G. S.
- 3655** The Wnt signaling regulator R-spondin 3 promotes angioblast and vascular development
Kazanskaya, O., Ohkawara, B., Heroult, M., Wu, W., Maltry, N., Augustin, H. G. and Niehrs, C.
- 3665** MEX-5 asymmetry in one-cell *C. elegans* embryos requires PAR-4- and PAR-1-dependent phosphorylation
Tenlen, J. R., Molk, J. N., London, N., Page, B. D. and Priess, J. R.
- 3677** Mobilisation of Ca²⁺ stores and flagellar regulation in human sperm by S-nitrosylation: a role for NO synthesised in the female reproductive tract
Machado-Oliveira, G., Lefièvre, L., Ford, C., Herrero, M. B., Barratt, C., Connolly, T. J., Nash, K., Morales-Garcia, A., Kirkman-Brown, J. and Publicover, S.
- 3687** Wnt signaling determines ventral spinal cord cell fates in a time-dependent manner
Yu, W., McDonnell, K., Taketo, M. M. and Bai, C. B.
- 3697** α -Endosulfine is a conserved protein required for oocyte meiotic maturation in *Drosophila*
Von Stetina, J. R., Tranguch, S., Dey, S. K., Lee, L. A., Cha, B. and Drummond-Barbosa, D.
- 3707** The development of motor coordination in *Drosophila* embryos
Crisp, S., Evers, J. F., Fiala, A. and Bate, M.
- 3719** Wnt5a and Wnt11 interact in a maternal Dkk1-regulated fashion to activate both canonical and non-canonical signaling in *Xenopus* axis formation
Cha, S.-W., Tadjuidje, E., Tao, Q., Wylie, C. and Heasman, J.
- 3731** Ovarian development in mice requires the GATA4-FOG2 transcription complex
Manuylov, N. L., Smagulova, F. O., Leach, L. and Tevosian, S. G.
- 3745** Notch signaling maintains Leydig progenitor cells in the mouse testis
Tang, H., Brennan, J., Karl, J., Hamada, Y., Raetzman, L. and Capel, B.
- 3755** Artery and vein size is balanced by Notch and ephrin B2/EphB4 during angiogenesis
Kim, Y. H., Hu, H., Guevara-Gallardo, S., Lam, M. T. Y., Fong, S.-Y. and Wang, R. A.
- 3765** Retinoic acid and Cyp26b1 are critical regulators of osteogenesis in the axial skeleton
Sporendonk, K. M., Peterson-Maduro, J., Renn, J., Trowe, T., Kranenbarg, S., Winkler, C. and Schulte-Merker, S.
- ## DEVELOPMENT AND DISEASE
- 3775** Restriction of retinoic acid activity by Cyp26b1 is required for proper timing and patterning of osteogenesis during zebrafish development
Laue, K., Jänicke, M., Plaster, N., Sonntag, C. and Hammerschmidt, M.



Longitudinal axons (red) of a chick embryonic hindbrain co-transfected with Shh and GFP (green) expression plasmids prior to axon outgrowth, from a study by Farmer et al. that analyses how longitudinal axon tracts are guided towards posterior regions of the developing central nervous system. **See research article on p. 3643.**

3789 Hedgehog signaling plays a cell-autonomous role in maximizing cardiac developmental potential

Thomas, N. A., Koudijs, M., van Eeden, F. J. M., Joyner, A. L. and Yelon, D.

3801 BMP signaling negatively regulates bone mass through sclerostin by inhibiting the canonical Wnt pathway

Kamiya, N., Ye, L., Kobayashi, T., Mochida, Y., Yamauchi, M., Kronenberg, H. M., Feng, J. Q. and Mishina, Y.