



**Cover:** Scanning electron micrograph of the epidermal epithelium of adult zebrafish (*Danio rerio*). The distinctive labyrinth-like patterns seen on most of the cells are actin micro-ridges that are characteristic of superficial keratinocytes. In response to injury, directed migration of keratinocytes into the wound promotes healing. This process requires keratinocytes to sense and respond to chemical and physical cues in their external environment. In isolated zebrafish keratinocytes,  $Ca^{2+}$  influx is required for polarity and migration, and appears to occur through mechanically activated channels, including several transient receptor potential family members such as TRPV1. Moreover, cell motility and intracellular  $Ca^{2+}$  levels are affected by pharmacological agents that target TRPV1, indicating a new role for this channel during cell migration. See article by D. M. Graham et al. (pp 4602–4613).

### Cell Science at a Glance

- 4537  **Local cAMP signaling in disease at a glance.** Gold, M. G., Gonen, T. and Scott, J. D.

### Commentary

- 4545  **Is EM dead?** Knott, G. and Genoud, C.

### Short Report

- 4553 **Oncogenic K-ras segregates at spatially distinct plasma membrane signaling platforms according to its phosphorylation status.** Barceló, C., Paco, N., Beckett, A. J., Alvarez-Moya, B., Garrido, E., Gelabert, M., Tebar, F., Jaumot, M., Prior, I. and Agell, N.

### Research Articles

- 4560 **Bem3, a Cdc42 GTPase-activating protein, traffics to an intracellular compartment and recruits the secretory Rab GTPase Sec4 to endomembranes.** Mukherjee, D., Sen, A., Boettner, D. R., Fair, G. D., Schlam, D., Valentin, F. J. B., McCaffery, J. M., Hazbun, T., Staiger, C. J., Grinstein, S., Lemmon, S. K. and Aguilar, R. C.
- 4572 **Rac function is crucial for cell migration but is not required for spreading and focal adhesion formation.** Steffen, A., Ladwein, M., Dimchev, G. A., Hein, A., Schwenkmezger, L., Arens, S., Ladwein, K. I., Holleboom, J. M., Schur, F., Small, J. V., Schwarz, J., Gerhard, R., Faix, J., Stradal, T. E. B., Brakebusch, C. and Rottner, K.
- 4589 **Protein 4.1R binds to CLASP2 and regulates dynamics, organization and attachment of microtubules to the cell cortex.** Ruiz-Saenz, A., van Haren, J., Sayas, C. L., Rangel, L., Demmers, J., Millán, J., Alonso, M. A., Galjart, N. and Correas, I.
- 4602 **Epidermal keratinocyte polarity and motility require  $Ca^{2+}$  influx through TRPV1.** Graham, D. M., Huang, L., Robinson, K. R. and Messerli, M. A.
- 4614 **Phosphorylation of chemoattractant receptors regulates chemotaxis, actin reorganization and signal relay.** Brzostowski, J. A., Sawai, S., Rozov, O., Liao, X.-h., Imoto, D., Parent, C. A. and Kimmel, A. R.
- 4627  **$Ca^{2+}$  and calpain control membrane expansion during the rapid cell spreading of neutrophils.** Dewitt, S., Francis, R. J. and Hallett, M. B.
- 4636 **Promoter occupancy of MLL1 histone methyltransferase seems to specify the proliferative and apoptotic functions of E2F1 in a tumour microenvironment.** Swarnalatha, M., Singh, A. K. and Kumar, V.
- 4647 **Rab40b regulates trafficking of MMP2 and MMP9 during invadopodia formation and invasion of breast cancer cells.** Jacob, A., Jing, J., Lee, J., Schedin, P., Gilbert, S. M., Peden, A. A., Junutula, J. R. and Prekeris, R.
- 4659 **Membrane curvature generation by a C-terminal amphipathic helix in peripherin-2/rds, a tetraspanin required for photoreceptor sensory cilium morphogenesis.** Khattree, N., Ritter, L. M. and Goldberg, A. F. X.
- 4671 **The novel PAR-1-binding protein MTCL1 has crucial roles in organizing microtubules in polarizing epithelial cells.** Sato, Y., Akitsu, M., Amano, Y., Yamashita, K., Ide, M., Shimada, K., Yamashita, A., Hirano, H., Arakawa, N., Maki, T., Hayashi, I., Ohno, S. and Suzuki, A.
- 4684 **Phosphorylation of the Smo tail is controlled by membrane localisation and is dispensable for clustering.** Kupinski, A. P., Raabe, I., Michel, M., Ail, D., Brusch, L., Weidemann, T. and Bökel, C.
- 4698 **Dynein light chain interaction with the peroxisomal import docking complex modulates peroxisome biogenesis in yeast.** Chang, J., Tower, R. J., Lancaster, D. L. and Rachubinski, R. A.
- 4707 **ADAM12 redistributes and activates MMP-14, resulting in gelatin degradation, reduced apoptosis and increased tumor growth.** Albrechtsen, R., Kveiborg, M., Stautz, D., Vikeså, J., Noer, J. B., Kotzsh, A., Nielsen, F. C., Wewer, U. M. and Fröhlich, C.
- 4721 **A novel mechanism of keratin cytoskeleton organization through casein kinase  $\alpha$  and FAM83H in colorectal cancer.** Kuga, T., Kume, H., Kawasaki, N., Sato, M., Adachi, J., Shiromizu, T., Hoshino, I., Nishimori, T., Matsubara, H. and Tomonaga, T.
- 4732 **Cut, via CrebA, transcriptionally regulates the COPII secretory pathway to direct dendrite development in *Drosophila*.** Iyer, S. C., Iyer, E. P. R., Meduri, R., Rubaharan, M., Kuntimaddi, A., Karamsetty, M. and Cox, D. N.
- 4746 **Features of Ras activation by a mislocalized oncogenic tyrosine kinase: FLT3 ITD signals through K-Ras at the plasma membrane of acute myeloid leukemia cells.** Köthe, S., Müller, J. P., Böhmer, S.-A., Tschongov, T., Fricke, M., Koch, S., Thiede, C., Requardt, R. P., Rubio, I. and Böhmer, F. D.
- 4756 **Myosin X and its motorless isoform differentially modulate dendritic spine development by regulating trafficking and retention of vasodilator-stimulated phosphoprotein.** Lin, W.-H., Hurley, J. T., Raines, A. N., Cheney, R. E. and Webb, D. J.
- 4769 **Invadolysin, a conserved lipid-droplet-associated metalloproteinase, is required for mitochondrial function in *Drosophila*.** Di Cara, F., Duca, E., Dunbar, D. R., Cagnney, G. and Heck, M. M. S.
- 4782 **Distinct modes of centromere protein dynamics during cell cycle progression in *Drosophila* S2R+ cells.** Lidsky, P. V., Sprenger, F. and Lehner, C. F.
- 4794 **Targeting of the Arf-GEF GBF1 to lipid droplets and Golgi membranes.** Bouvet, S., Golinelli-Cohen, M.-P., Contremoulins, V. and Jackson, C. L.