FRONT RUNNERS

IN THIS ISSUE
1  Summaries of selected research papers

JOURNAL CLUB
3  Modelling how initiating and transforming oncogenes cooperate to produce a leukaemic cell state
Simon E. Richardson

A MODEL FOR LIFE
6  Driving change in tuberculosis research: an interview with Anne O’Garra
Sarah E. Allan

CLINICAL PUZZLE
9  Genetic studies provide clues on the pathogenesis of idiopathic pulmonary fibrosis
Jonathan A. Kropski, William E. Lawson, Lisa R. Young and Timothy S. Blackwell

REVIEWS
19  The armadillo: a model for the neuropathy of leprosy and potentially other neurodegenerative diseases
Rahul Sharma, Ramanuj Lahiri, David M. Scollard, Maria Pena, Diana L. Williams, Linda B. Adams, John Figarola and Richard W. Truman

25  Cellular and molecular mechanisms of muscle atrophy
Paolo Bonaldo and Marco Sandri

40  Learning from a paradox: recent insights into Fanconi anaemia through studying mouse models
Sietske T. Bakker, Johan P. de Winter and Hein te Riele

Cover: Consistent left-right patterning of the heart and viscera is a crucial part of embryogenesis. The cover shows a ventral view of the Xenopus tadpole, with pseudocolouring that reveals the asymmetric positions and morphogenesis of the gut (yellow), heart (pink) and gall bladder (green); the embryo on the left is normal, whereas its mirror image on the right depicts one with situs inversus. Xenopus is an important model organism for the study of developmental asymmetries because work in this system has most clearly revealed the molecular pathways that align the left-right axis shortly after fertilisation. Because errors of laterality form a common class of birth defects, understanding the mechanisms and timing at which left-right asymmetry is initiated is essential for human health. See article by Vandenberg et al. on page 261.
RESEARCH ARTICLES

49 *Bmi1* overexpression in the cerebellar granule cell lineage of mice affects cell proliferation and survival without initiating medulloblastoma formation
Hourinaz Behesti, Heeta Bhagat, Adrian M. Dubuc, Michael D. Taylor and Silvia Marino

64 Closed-loop neural stimulation for pentylenetetrazole-induced seizures in zebrafish
Ricardo Pineda, Christine E. Beattie and Charles W. Hall

72 Microtubule-targeting drugs rescue axonal swellings in cortical neurons from spastin knockout mice
Coralie Fassier, Anne Tarrade, Leticia Peris, Sabrina Courageot, Philippe Mailly, Cécile Dalard, Stéphanie Delga, Natacha Roblot, Julien Lefèvre, Didier Job, Jamilé Hazan, Patrick A. Curmi and Judith Melki

84 Oxidative stress contributes to outcome severity in a *Drosophila melanogaster* model of classic galactosemia
Patricia P. Jumbo-Lucioni, Marquise L. Hopson, Darwin Hang, Yongliang Liang, Dean P. Jones and Judith L. Fridovich-Keil

95 A zebrafish model of congenital disorders of glycosylation with phosphomannose isomerase deficiency reveals an early opportunity for corrective mannose supplementation

106 Timing and expression of the angiopoietin-1–Tie-2 pathway in murine lung development and congenital diaphragmatic hernia
Adrienne Grzenda, John Shannon, Jason Fisher and Marc S. Arkowitz

115 Endogenous ribosomal protein L29 (RPL29): a newly identified regulator of angiogenesis in mice

125 Induction of oxazolone-mediated features of atopic dermatitis in NOD-scid IL2Rγcnull mice engrafted with human peripheral blood mononuclear cells
Thomas Nolte, Maryam Zadeh-Khorasani, Orkhan Safarov, Franziska Rueff, Rita Varga, Nadja Herbach, Rüdiger Wanke, Andreas Wollenberg, Thomas Mueller, Roswitha Gropp, Eckhard Wolf and Matthias Siebeck

135 Mutation of sec63 in zebrafish causes defects in myelinated axons and liver pathology
Kelly R. Monk, Matthew G. Voas, Clara Franzini-Armstrong, Ian S. Hakkinen and William S. Talbot

146 Glafenine-induced intestinal injury in zebrafish is ameliorated by μ-opioid signaling via enhancement of Atf6-dependent cellular stress responses
Jason R. Goldsmith, Jordan L. Cocchiaro, John F. Rawls and Christian Jobin

160 Age-related changes in core body temperature and activity in triple-transgenic Alzheimer’s disease (3xTgAD) mice
Elysse M. Knight, Timothy M. Brown, Sarah Gümüsgöz, Jennifer C. M. Smith, Elizabeth J. Waters, Stuart M. Allan and Catherine B. Lawrence
171 Cognitive effects of dopamine depletion in the context of diminished acetylcholine signaling capacity in mice
Lilia Zurkovsky, Evgeny Bychkov, Elviche L. Tsakem, Carley Siedlecki, Randy D. Blakely and Eugenia V. Gurevich

184 Muscleblind, BSF and TBPH are mislocalized in the muscle sarcomere of a Drosophila myotonic dystrophy model
Beatriz Llamusi, Ariadna Bargiela, Juan M. Fernandez-Costa, Amparo Garcia-Lopez, Raffaella Klima, Fabian Feiguin and Ruben Artero

197 Osteopontin deficiency delays inflammatory infiltration and the onset of muscle regeneration in a mouse model of muscle injury
Kitipong Uaesoontrachoon, Dimuthu K. Wasgewatte Wijesinghe, Eleanor J. Mackie and Charles N. Pagel

206 A yeast model for amyloid-β aggregation exemplifies the role of membrane trafficking and PICALM in cytotoxicity
Fabien D'Angelo, Hélène Vignaud, Julie Di Martino, Bénédicte Salin, Anne Devin, Christophe Cullin and Christelle Marchal

217 A cell-based fascin bioassay identifies compounds with potential anti-metastasis or cognition-enhancing functions
Robert Kraft, Allon Kahn, José L. Medina-Franco, Mikayla L. Orlowski, Cayla Baynes, Fabian López-Vallejo, Kobus Barnard, Gerald M. Maggiora and Linda L. Restifo

236 A mathematical model of weight loss under total starvation: evidence against the thrifty-gene hypothesis
John R. Speakman and Klaas R. Westerterp

252 Characterising the tumour morphological response to therapeutic intervention: an ex vivo model
Anne Savage, Elad Katz, Alistair Eberst, Ruth E. Falconer, Alasdair Houston, David J. Harrison and James Bown

RESEARCH REPORT

261 Serotonin has early, cilia-independent roles in Xenopus left-right patterning
Laura N. Vandenberg, Joan M. Lemire and Michael Levin

RESOURCE ARTICLE

269 Creation and preliminary characterization of a Tp53 knockout rat
Aaron McCoy, Cynthia L. Besch-Williford, Craig L. Franklin, Edward J. Weinstein and Xiaoxia Cui