# FRONT RUNNERS



A girl with Wolf-Hirschhorn syndrome (WHS) is holding a mouse, reflecting the significant biological relationship between the two species whereby mice can serve as a model system to study human disease. Mice that are homozygous for a null allele of the fibroblast growth factor receptor-like 1 (*Fgfrl*1) gene recapitulate multiple aspects of WHS, including skeletal malformations and cardiac valve defects. See research article by Catela et al. on page 283.

DMM PODCAST



dmm.biologists.org

#### IN THIS ISSUE

 197 Ethanol competes for important enzymes during development Mouse models of allergy Frog model for muscular dystrophy A mouse model for Wolf-Hirschhorn syndrome Psychiatric medication studied in

amoebae

A Drosophila model for Huntington's disease

# **RESEARCH HIGHLIGHTS**

198 Developmental disorders: microRNA helps fragile X protein control stem cells Neuroscience: HD protein clearance

> via acetylation Stem cells: G proteins promote marrow engraftment

Infectious disease: deadly flu strains manipulate the immune response

#### **JOURNAL CLUB**

**199 Hunting for the function of Huntingtin** Qi Zheng and Mark Joinnides

# **EDITORIALS**

- 201 This revolution will be digitized: online tools for radical collaboration Chris Patil and Vivian Siegel
- 206 Rats! Philip M. lannaccone and Howard J. Jacob

#### **COMMUNITY NEWS**

211 Unique training brings young scientists up to speed in translational research Curtis Pickering | Creative approaches in public science education Cynthia Wichelman | DMM support for collaborative science

# A MODEL FOR LIFE

214 Using zebrafish to understand the genome: an interview with Nancy Hopkins

Kristin Kain

#### **CLINICAL PUZZLE**

218 Development of animal models for the acute respiratory distress syndrome Julie A. Bastarache and Timothy S. Blackwell

# PRIMER

224 *Caenorhabditis elegans* as an emerging model for studying the basic biology of obesity Kevin T. Jones and Kaveh Ashrafi

#### **AT A GLANCE**

231 A comprehensive definition for metabolic syndrome Paul L. Huang

#### PERSPECTIVE

238 Reverse translational strategies for developing animal models of bipolar disorder Oz Malkesman, Daniel R. Austin, Guang Chen and Husseini K. Manji

# **RESEARCH ARTICLES**

- 247 Inactivation of Drosophila Huntingtin affects long-term adult functioning and the pathogenesis of a Huntington's disease model Sheng Zhang, Mel B. Feany, Sudipta Saraswati, J. Troy Littleton and Norbert Perrimon
- FSHD region gene 1 (FRG1) is crucial for angiogenesis linking FRG1 to 267 facioscapulohumeral muscular dystrophy-associated vasculopathy Ryan D. Wuebbles, Meredith L. Hanel and Peter L. Jones
- 275 Concurrent dual allergen exposure and its effects on airway hyperresponsiveness, inflammation and remodeling in mice Franco A. DiGiovanni, Russ Ellis, Jennifer Wattie, Jeremy A. Hirota, David S. Southam and Mark D. Inman
- 283 Multiple congenital malformations of Wolf-Hirschhorn syndrome are recapitulated in Fgfrl1 null mice Catarina Catela, Daniel Bilbao-Cortes, Esfir Slonimsky, Paschalis Kratsios, Nadia Rosenthal and Pascal te Welscher
- 295 Ethanol induces embryonic malformations by competing for retinaldehyde dehydrogenase activity during vertebrate gastrulation Hadas Kot-Leibovich and Abraham Fainsod

#### **RESEARCH REPORT**

306 The mood stabiliser lithium suppresses PIP<sub>3</sub> signalling in Dictyostelium and human cells

Jason S. King, Regina Teo, Jonathan Ryves, Jonathan V. Reddy, Owen Peters, Ben Orabi, Oliver Hoeller, Robin S. B. Williams and Adrian J. Harwood