

CAMBRIDGE

JOURNALS

# Epidemiology and Infection

## Editor-in-Chief

Norman Noah, London School of Hygiene and Tropical Medicine, UK

*Epidemiology and Infection* publishes original reports and reviews on all aspects of infection in humans and animals. Particular emphasis is given to the epidemiology, prevention and control of infectious diseases. The field covered is broad and includes the zoonoses, tropical infections, food hygiene, vaccine studies, statistics and the clinical, social and public health aspects of infectious disease. Papers covering microbiology and immunology, which have an epidemiological relevance, are part of this broad field. Papers come from medical and veterinary scientists worldwide. It has become the key periodical in which to find the latest reports on recently discovered infections and new technology. For those concerned with policy and planning for the control of infections, the papers on mathematical modelling of epidemics caused by historical, current and emergent infections, will be of particular value.

## Price information

is available at: <http://journals.cambridge.org/hyg>

## Free email alerts

Keep up-to-date with new material – sign up at  
<http://journals.cambridge.org/alerts>



*Epidemiology and Infection*  
is available online at:  
<http://journals.cambridge.org/hyg>

## To subscribe contact Customer Services

### in Cambridge:

Phone +44 (0)1223 326070  
Fax +44 (0)1223 325150  
Email [journals@cambridge.org](mailto:journals@cambridge.org)

### in New York:

Phone +1 (845) 353 7500  
Fax +1 (845) 353 4141  
Email  
[subscriptions\\_newyork@cambridge.org](mailto:subscriptions_newyork@cambridge.org)

For free online content visit:  
<http://journals.cambridge.org/hyg>

 **CAMBRIDGE**  
UNIVERSITY PRESS



CAMBRIDGE

JOURNALS

# Journal of Helminthology

## Editor

John Lewis, Royal Holloway, University of London, UK

*Journal of Helminthology* publishes original papers and review articles on all aspects of pure and applied helminthology, particularly those helminth parasites of environmental health, medical or veterinary importance. Research papers on helminths in wildlife hosts, including plant and insect parasites, are also published along with taxonomic papers contributing to the systematics of a group. The journal will be of interest to academics and researchers involved in the fields of human and veterinary parasitology, public health, microbiology, ecology, epidemiology and biochemistry.

## Price information

is available at: <http://journals.cambridge.org/jhl>

## Free email alerts

Keep up-to-date with new material – sign up at  
<http://journals.cambridge.org/jhl-alerts>



*Journal of Helminthology* is available online at:  
<http://journals.cambridge.org/jhl>

## To subscribe contact Customer Services

### in Cambridge:

Phone +44 (0)1223 326070  
Fax +44 (0)1223 325150  
Email [journals@cambridge.org](mailto:journals@cambridge.org)

### in New York:

Phone +1 (845) 353 7500  
Fax +1 (845) 353 4141  
Email  
[subscriptions\\_newyork@cambridge.org](mailto:subscriptions_newyork@cambridge.org)

For free online content visit:  
<http://journals.cambridge.org/jhl>



CAMBRIDGE  
UNIVERSITY PRESS

## Parasitology

**Back volumes.** Vols. 1–71: Inquiries should be addressed to Wm. Dawson & Sons Ltd, Cannon House, Folkestone, Kent. Vols. 72 onwards: quotations for parts still in print may be obtained from Cambridge or the American Branch of Cambridge University Press.

**Copying.** This journal is registered with the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, USA. Organizations in the USA who are also registered with C.C.C. may therefore copy material (beyond the limits permitted by sections 107 and 108 of US copyright law) subject to payment to C.C.C. of the per-copy fee of \$16.00. This consent does not extend to multiple copying for promotional or commercial purposes. Code 0031–1820/2016 \$16.00.

Organizations authorized by the Copyright Licensing Agency may also copy material subject to the usual conditions.

**ISI Tear Sheet Service.** 3501 Market Street, Philadelphia, Pennsylvania 19104, USA, is authorized to supply single copies of separate articles for private use only.

**For all other use,** permission should be sought from Cambridge or the American Branch of Cambridge University Press.

**Claims** for missing issues can only be considered if made immediately after receipt of the subsequent issue.

**Advertising.** Details of advertising in *Parasitology* may be obtained from the publisher.

**Online submission.** Authors are encouraged to submit their manuscripts online. Go to <http://mc.manuscriptcentral.com/par/> to open an author's account for *Parasitology*. Manuscript Central is helping to improve the speed of the publication process for the journal.

**Front Cover illustration:** *Eimeria tenella*: early-stage immature schizonts at 72 h (A) and 2nd generation large immature and mature schizonts at 84 h (B) in the lamina propria; 3rd generation schizonts in the epithelium of the crypts at 96 h (E). From Matsubayashi *et al.* Vol.139(12) pp. 1553–1561.

© Cambridge University Press 2016

University Printing House, Cambridge CB2 8BS, United Kingdom  
32 Avenue of The Americas, New York, NY 10013-2473, USA  
477 Williamstown Road, Port Melbourne, VIC 3207, Australia  
C/ Orense, 4, Planta 13 28020 Madrid, Spain  
Lower Ground Floor, Nautica Building, The Water Club, Beach Road,  
Granger Bay, 8005 Cape Town, South Africa

Printed in the UK by Bell & Bain

# PARASITOLOGY

## CONTENTS

### REVIEW ARTICLE

#### Cancer and life-history traits: lessons from host–parasite interactions

Beata Ujvari, Christa Beckmann, Peter A. Biro, Audrey Arnal, Aurelie Tasiemski, Francois Massol, Michel Salzet, Frederic Mery, Celine Boidin-Wichlacz, Dorothee Misse, Francois Renaud, Marion Vittecoq, Tazzio Tissot, Benjamin Roche, Robert Poulin and Frederic Thomas

533

### RESEARCH ARTICLES

#### Population-specific toxicity of six insecticides to the trematode *Echinoparyphium* sp.

Jessica Hua, Nicholas Buss, Justin Kim, Sarah A. Orlofske and Jason T. Hoverman

542

#### Seric and hepatic NTPDase and 5' nucleotidase activities of rats experimentally infected by *Fasciola hepatica*

Pedro H. Doleski, Ricardo E. Mendes, Daniela B. R. Leal, Nathieli B. Bottari, Manoela M. Piva, Ester S. da Silva, Mateus E. Gabriel, Neuber J. Lucca, Claiton I. Schwertz, Patrícia Giacomim, Vera M. Morsch, Maria R.C. Schetinger, Matheus D. Baldissera and Aleksandro S. da Silva

551

#### *Toxoplasma gondii* infection in pork produced in France

V. Djokic, R. Blaga, D. Aubert, B. Durand, C. Perret, R. Geers, T. Ducry, I. Vallee, O. Djurkovic Djakovic, A. Mzabi, I. Villena and P. Boireau

557

#### Effect of *Toxoplasma gondii* infection on the junctional complex of retinal pigment epithelial cells

AlAnderson R. Nogueira, Fernanda Leve, José Morgado-Diaz, Roberto Carlos Tedesco and Mirian Claudia S. Pereira

568

#### Presence of an isoform of H<sup>+</sup>-pyrophosphatase located in the alveolar sacs of a scuticociliate parasite of turbot: physiological consequences

Natalia Mallo, Jesús Lamas, Ana-Paula Defelipe, Maria-Eugenia Decastro, Rosa-Ana Sueiro and José-Manuel Leiro

576

#### Geographical distribution of *Angiostrongylus vasorum* in foxes (*Vulpes vulpes*) in the Republic of Ireland

G. McCarthy, M. Ferrand, T. de Waal, A. Zintl, G. McGrath, W. Byrne and E. J. O'Neill

588

#### Comparative phylogeography of two monogenean species (Mazocraeidae) on the host of chub mackerel, *Scomber japonicus*, along the coast of China

Shuai Yan, Ming Wang, Chao-Pin Yang, Ting-Ting Zhi, Christopher L. Brown and Ting-Bao Yang

594

#### N-terminal fusion of a toll-like receptor 2-ligand to a *Neospora caninum* chimeric antigen efficiently modifies the properties of the specific immune response

Adriana Aguado-Martínez, Afonso P. Basto, Joachim Müller, Vreni Balmer, Vera Manser, Alexandre Leitão and Andrew Hemphill

606

#### *Sarcocystis masoni*, n. sp. (Apicomplexa: Sarcocystidae), and redescription of *Sarcocystis aucheniae* from llama (*Lama glama*), guanaco (*Lama guanicoe*) and alpaca (*Vicugna pacos*)

Gastón Moré, Cristian Regensburger, M. Laura Gos, Lais Pardini, Shiv K. Verma, Juliana Ctibor, Marcos Enrique Serrano-Martínez, Jitender P. Dubey and M. Cecilia Venturini

617

#### *In vitro* efficacy of essential oils and extracts of *Schinus molle* L. against *Ctenocephalides felis felis*.

Lilian C. de S. O. Batista, Yara P. Cid, Ana Paula de Almeida, Edlene R. Prudêncio, Cristiano J. Riger, Marco A.A. de Souza, Katherine Coumendouros and Douglas S. A. Chaves

627

#### Induction of Autophagy interferes the tachyzoite to bradyzoite transformation of *Toxoplasma gondii*

Xiangzhi Li, Di Chen, Qianqian Hua, Yujing Wan, Lina Zheng, Yangyang Liu, Jiaxin Lin, Changwang Pan, Xin Hu and Feng Tan

639

#### Purification of a chymotrypsin-like enzyme present on adult *Schistosoma mansoni* worms from infected mice and its characterization as a host carboxylesterase

Joseph E. Igetei, Susan Liddell, Marwa El-Faham and Michael J. Doenhoff

646