

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 0031–1820/2020 \$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: (A) The host *Anolis gundlachi* is infected by three malaria parasites. The figure shows examples of Giemsa-stained blood smears of (B) *Plasmodium azurophilum*, (C) *P. floridense* and (D) *P. leucocyctica*. From Luisa Otero et al., Vol. 146 (4), pp. 453–461.

© Cambridge University Press 2020

University Printing House, Cambridge CB2 8BS, United Kingdom
1 Liberty Plaza, Floor 20, New York, NY 10006, 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 Great Britain by Bell & Bain, Glasgow.

PARASITOLOGY

CONTENTS

REVIEW ARTICLES

The evolution of resistance and tolerance as cancer defences

Frédéric Thomas, Mathieu Giraudeau, Flora Gouzerh, Justine Boutry, François Renaud, Pascal Pujol, Aurélie Tasiemski, Florence Bernex, Antonio Maraver, Emilie Bousquet, Laurent Dormont, Jens Osterkamp, Benjamin Roche, Rodrigo Hamede and Beata Ujvari 255

Life cycle stages, specific organelles and invasion mechanisms of *Eimeria* species

Alana Burrell, Fiona M. Tomley, Sue Vaughan and Virginia Marugan-Hernandez 263

RESEARCH ARTICLES

Bacterial feeding nematodes ingest haemocytes in the haemocoel of the insect *Galleria mellonella*

Masaya Ono, Yoichi Hayakawa and Toyoshi Yoshiga 279

High prevalence of *Schistosoma haematobium* × *Schistosoma bovis* hybrids in schoolchildren in Côte d'Ivoire

Etienne K. Angora, Jean-François Allienne, Olivier Rey, Hervé Menan, André O. Touré, Jean T. Coulibaly, Giovanna Rasó, William Yavo, Eliézer K. N'Goran, Jürg Utzinger, Oliver Balmer and Jérôme Boissier 287

Genotyping of viable *Toxoplasma gondii* from the first national survey of feral swine revealed evidence for sylvatic transmission cycle, and presence of highly virulent parasite genotypes

J. P. Dubey, C. K. Cerqueira-Cézar, F. H. A. Murata, S. K. Verma, O. C. H. Kwok, K. Pedersen, B. M. Rosenthal and C. Su 295

Rosuvastatin reduced brain parasite burden in a chronic toxoplasmosis *in vivo* model and influenced the neuropathological pattern of ME-49 strain

L. Nishi, P. L. Santana, F. F. Evangelista, L. F. Beletini, A. H. Souza, F. M. Mantelo, A. M. Souza-Kaneshima, I. N. Costa and A. L. Falavigna-Guilherme 303

Trypanosoma cruzi: cell surface dynamics in trypomastigotes of different strains

Roberta Ferreira Cura das Neves, Camila Marques Adade, Anne Cristine Silva Fernandes, Angela Hampshire Lopes and Thaís Souto-Padrón 310

Genetic characterization of *Toxoplasma gondii* in Iranian HIV positive patients using multilocus nested-PCR-RFLP method

Seyed Abdollah Hosseini, Mehdi Sharif, Shahabeddin Sarvi, Saeid Abediankenari, Mohammad Bagher Hashemi-Soteh, Afsaneh Amouei, Mahboobeh Montazeri, Sargis A. Aghayan, Sara Gholami, Davoud Shaker, Azadeh Mizani, Shafiqeh Shabanzadeh and Ahmad Daryani 322

Identification of mixed and successive blood meals of mosquitoes using MALDI-TOF MS protein profiling

Fatalmoudou Tandina, Sirama Niare, Lionel Almeras, Bernard Davoust, Ogobara K. Doumbo, Didier Raoult, Philippe Parola and Maureen Laroche 329

In vitro activity of essential oils against adult and immature stages of *Ctenocephalides felis felis*

João Vitor Barbosa dos Santos, Douglas Siqueira de Almeida Chaves, Marco André Alves de Souza, Cristiano Jorge Riger, Monique Moraes Lambert, Diefrey Ribeiro Campos, Leandra Oliveira Moreira, Rosiane Conceição dos Santos Siqueira, Rodrigo de Paulo Osorio, Fabio Boylan, Thaís Ribeiro Correia, Katherina Coumendouros and Yara Peluso Cid 340

Strongylid infection varies with age, sex, movement and social factors in wild African elephants

Jenna M. Parker, Shifra Z. Goldenberg, David Letitiya and George Wittemyer 348

Characterization of *Dermotheca* sp. Infection in a midwestern state-endangered salamander (*Ambystoma platineum*) and a co-occurring common species (*Ambystoma texanum*)

Laura Adamovicz, Daniel B. Woodburn, Stephany Virrueta Herrera, Kelsey Low, Christopher A. Phillips, Andrew R. Kuhns, John A. Crawford and Matthew C. Allender 360

First report of pre-Hispanic *Fasciola hepatica* from South America revealed by ancient DNA

María Ornela Beltrame, Cesar Pruzzo, Rodrigo Sanabria, Alberto Pérez and Matías Sebastián Mora 371

A mathematical modelling approach for treatment and control of *Echinococcus multilocularis*

Aisha Khan, Haroon Ahmed, Ayesha Sohail, Fatima Alam and Sami Simsek 376