Atypical human trypanosomoses: news and perspectives

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Network on **A**typical **H**uman **I**nfections by
Animal **T**rypanosomes

2nd International Conference NTTAT OIE Antwerp December 2017

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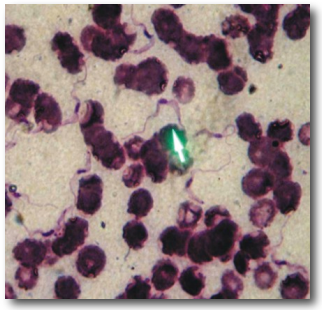
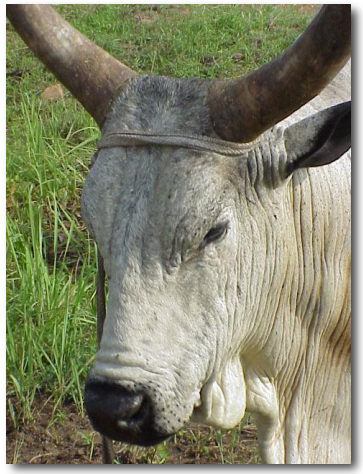
Several atypical cases of trypanosomoses were observed



Trypanosoma evansi
APOL1 DEFICIENCY



Trypanosoma lewisi

Other animal trypanosomes may infect human
ex: *T. b. brucei, T. congolense*, leading to a wrong diagnosis of HAT

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PLOS | NEGLECTED TROPICAL DISEASES

Review

Atypical Human Infections by Animal Trypanosomes

Philippe Truc[1]*, Philippe Büscher[2], Gérard Cuny[1], Mary Isabel Gonzatti[3], Jean Jannin[4], Prashant Joshi[5], Prayag Juyal[6], Zhao-Rong Lun[7], Raffaele Mattioli[8], Etienne Pays[9], Pere P. Simarro[4], Marta Maria Geraldes Teixeira[10], Louis Touratier[11], Philippe Vincendeau[12], Marc Desquesnes[13]

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Am. J. Trop. Med. Hyg., 73(3), 2005, pp. 491–495
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HUMAN TRYPANOSOMIASIS CAUSED BY *TRYPANOSOMA EVANSI* IN INDIA: THE FIRST CASE REPORT

PRASHANT P. JOSHI, VIJAY R. SHEGOKAR, RAJARAM M. POWAR, STEPHANE HERDER, RAHUL KATTI, HARSHA R. SALKAR, VIBHAWARI S. DANI, ARADHANA BHARGAVA, JEAN JANNIN, AND PHILIPPE TRUC*

Department of Medicine and Department of Microbiology, Government Medical College, Nagpur, India; Institut de Recherche pour le Développement, Unité de Recherche 117 Trypanosomoses Africaines, Montpellier, France; Directorate of Health Services, Mumbay, India; Communicable Diseases Control, Prevention and Eradication, World Health Organization, Geneva, Switzerland

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The NEW ENGLAND JOURNAL of MEDICINE

BRIEF REPORT

Human *Trypanosoma evansi* Infection Linked to a Lack of Apolipoprotein L-I

Benoit Vanhollebeke, Eng., Philippe Truc, Ph.D., Philippe Poelvoorde, M.Sc., Annette Pays, M.Sc., Prashant P. Joshi, M.D., Ravindra Katti, M.D., Jean G. Jannin, M.D., and Etienne Pays, Ph.D.

Clinical Infectious Diseases

MAJOR ARTICLE

IDSA Infectious Diseases Society of America · hivma hiv medicine association · OXFORD

A Clinical and Epidemiological Investigation of the First Reported Human Infection With the Zoonotic Parasite *Trypanosoma evansi* in Southeast Asia

Nguyen Van Vinh Chau,[1] Le Buu Chau,[1] Marc Desquesnes,[2,3] Stephane Herder,[3,4] Nguyen Phu Huong Lan,[1] James I. Campbell,[5,6] Nguyen Van Cuong,[5] Benjarat Yimming,[3] Piangjai Chalermwong,[3] Sathaporn Jittapalapong,[3] Jose Ramon Franco,[7] Ngo Tri Tue,[5] Maia A. Rabaa,[5,6] Juan Carrique-Mas,[5,6] Tam Pham Thi Thanh,[5] Nga Tran Vu Thieu,[5] Alessandra Berto,[5,6] Ngo Thi Hoa,[5,6] Nguyen Van Minh Hoang,[5] Nguyen Canh Tu,[8] Nguyen Khac Chuyen,[9] Bridget Wills,[5,6] Tran Tinh Hien,[5,6] Guy E. Thwaites,[5,6] Sophie Yacoub,[5,10] and Stephen Baker[5,6,11]

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Molecular & Biochemical Parasitology 199 (2015) 58–61

Contents lists available at ScienceDirect

Molecular & Biochemical Parasitology

Short communication

Resistance to normal human serum reveals *Trypanosoma lewisi* as an underestimated human pathogen

Zhao-Rong Lun[a,*], Yan-Zi Wen[a], Pierrick Uzureau[b], Laurence Lecordier[c], De-Hua Lai[a], You-Gen Lan[a], Marc Desquesnes[d], Guo-Qing Geng[a], Ting-Bao Yang[a], Wen-Liang Zhou[a], Jean G. Jannin[e], Pear P. Simarro[e], Philippe Truc[d], Philippe Vincendeau[f], Etienne Pays[c,**]

Experimental Parasitology 153 (2015) 105–110

Contents lists available at ScienceDirect

Experimental Parasitology

journal homepage: www.elsevier.com/locate/yexpr

Full length article

The innate resistance of *Trypanosoma copemani* to human serum

J.M. Austen[a], U. Ryan[a,*], W.G.F. Ditcham[a], J.A. Friend[b], S.A. Reid[c]

[a] School of Veterinary and Life Sciences, Murdoch University, South Street, Murdoch, Western Australia 6150, Australia
[b] Department of Parks and Wildlife, 120 Albany Highway, Albany, Western Australia 6330, Australia
[c] School of Population Health, Faculty of Medicine and Biomedical Sciences, University of Queensland, Herston Road, Herston, QLD 4006, Australia

Acta Tropica 151 (2015) 142–149

Contents lists available at ScienceDirect

Acta Tropica

journal homepage: www.elsevier.com/locate/actatropica

Epidemiological status of kissing-bugs in South East Asia: A preliminary assessment

Jean-Pierre Dujardin[a,*], Khoa Pham Thi[b], Lam Truong Xuan[c], Francisco Panzera[d], Sebastián Pita[d], Chris J. Schofield[e]

[a] Unité Mixte de Recherche 177- INTERTRYP (Interactions Hôte-Vecteur-Parasite-Environnement dans les Maladies Tropicales Négligées dues aux Trypanosomatidés), Unité Mixte de Recherches CIRAD (Centre International de Recherches Agronomiques pour le Développement) – IRD (Institut de Recherches pour le Développement), Campus International de Baillarguet, Montpellier, France
[b] National Institute of Malariology, Parasitology and Entomology (NIMPE), Hanoi, Viet Nam,
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[d] Sección Genética Evolutiva, Facultad de Ciencias, Universidad de la República (UDELAR), Calle Iguá 4225. 11400 Montevideo, Uruguay
[e] London School of Tropical Medicine and Hygiene (LSHTM, ITD), Keppel Street, London WC1 E7HT, UK

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DOI: 10.1051/parasite/2013038

PARASITE
Available online at:
www.parasite-journal.org

SHORT NOTE — OPEN ACCESS

Evaluation of trypanocidal drugs used for human African trypanosomosis against *Trypanosoma lewisi*

Mariette Dethoua[1,a], Romaric Nzoumbou-Boko[1,a], Philippe Truc[2], Sylvie Daulouède[1], Pierrette Courtois[1], Bruno Bucheton[2], Gérard Cuny[2], Silla Semballa[1], and Philippe Vincendeau[1,*]

Experimental Parasitology 165 (2016) 35–42

Contents lists available at ScienceDirect

Experimental Parasitology

journal homepage: www.elsevier.com/locate/yexpr

Full length article

Zoonotic trypanosomes in South East Asia: Attempts to control *Trypanosoma lewisi* using veterinary drugs

Marc Desquesnes [a, b], Sarawut Yangtara [b], Pawinee Kunphukhieo [b], Piangjai Chalermwong [b], Sathaporn Jittapalapong [b, *], Stéphane Herder [b, c]

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Infection, Genetics and Evolution 44 (2016) 514–521

Contents lists available at ScienceDirect

Infection, Genetics and Evolution

journal homepage: www.elsevier.com/locate/meegid

Research paper

Zoonotic trypanosomes in South East Asia: Attempts to control *Trypanosoma lewisi* using human and animal trypanocidal drugs

Marc Desquesnes [a,b], Sarawut Yangtara [b], Pawinee Kunphukhieo [b], Sathaporn Jittapalapong [b,*], Stéphane Herder [c,b]

[a] UMR InterTryp, Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD), Montpellier F-34000, France
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Integrative Zoology 2015; 10: 409–423 doi: 10.1111/1749-4877.12143

REVIEW

Global parasite and *Rattus* rodent invasions: The consequences for rodent-borne diseases

Serge MORAND,[1,2] Frédéric BORDES,[3] Hsuan-Wien CHEN,[4] Julien CLAUDE,[3] Jean-François COSSON,[5,6] Maxime GALAN,[5] Gábor Á CZIRJÁK,[7] Alex D GREENWOOD,[7] Alice LATINNE,[3,8] Johan MICHAUX[1,8] and Alexis RIBAS[9]

Acta Tropica 171 (2017) 151–158

Contents lists available at ScienceDirect

Acta Tropica

journal homepage: www.elsevier.com/locate/actatropica

Rodent-borne *Trypanosoma* from cities and villages of Niger and Nigeria: A special role for the invasive genus *Rattus*?

C. Tatard[a], M. Garba[b], P. Gauthier[c], K. Hima[d], E. Artige[a], D.K.H.J. Dossou[e], S. Gagaré[f], G. Genson[a], P. Truc[g], G. Dobigny[c,*]

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SCIENTIFIC OPINION

EFSA Journal

ADOPTED: 9 June 2017

doi: 10.2903/j.efsa.2017.4892

Assessment of listing and categorisation of animal diseases within the framework of the Animal Health Law (Regulation (EU) No 2016/429): *Trypanosoma evansi* infections (including Surra)

EFSA Panel on Animal Health and Welfare (AHAW),
Simon More, Anette Bøtner, Andrew Butterworth, Paolo Calistri, Klaus Depner, Sandra Edwards, Bruno Garin-Bastuji, Margaret Good, Christian Gortázar Schmidt, Virginie Michel, Miguel Angel Miranda, Søren Saxmose Nielsen, Mohan Raj, Liisa Sihvonen, Hans Spoolder, Jan Arend Stegeman, Hans-Hermann Thulke, Antonio Velarde, Preben Willeberg, Christoph Winckler, Francesca Baldinelli, Alessandro Broglia, Denise Candiani, Beatriz Beltrán Beck, Lisa Kohnle, Joana Morgado and Dominique Bicout

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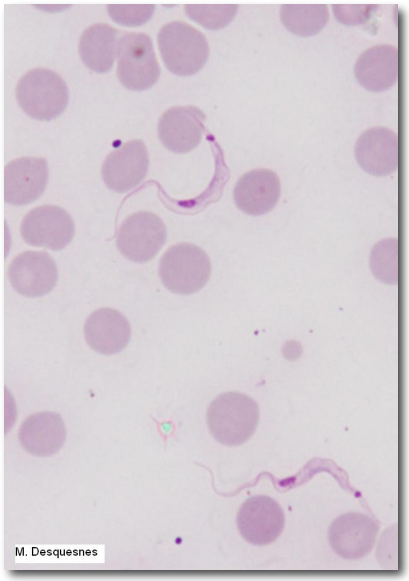
Research and training priorities

1. Improve diagnosis tools (eg ELISA lewisi)

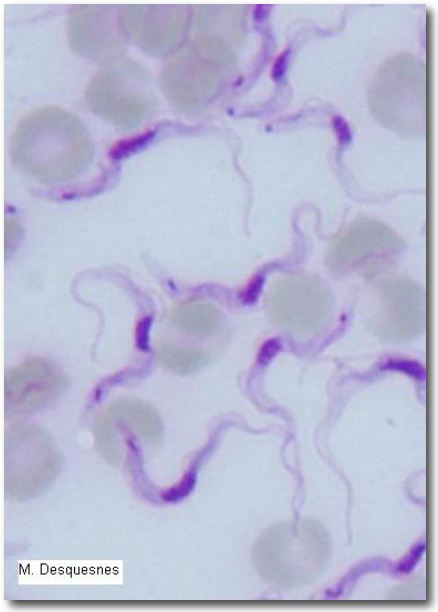
2. Diagnose more atypical human trypanosomoses cases

3. Training of teams in Asia and Africa



← Blood forms of *T. lewisi*

Blood forms of *T. evansi* →



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Field surveys and perspectives

T. evansi, T. lewisi

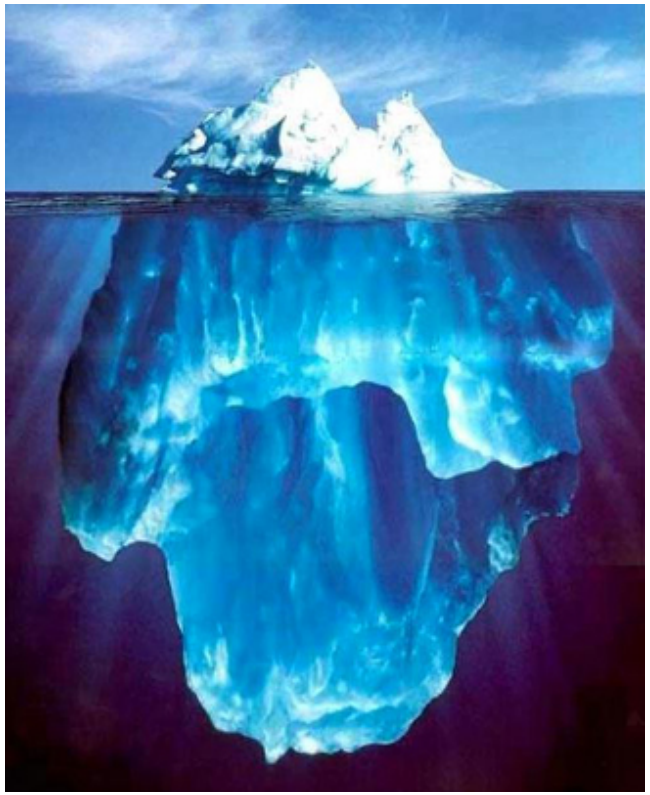
(animal and human surveys)

- China (done), submitted
  ELISA evansi and lewisi in human
- Invasive black rodents (1300) and lewisi, Niger and Nigeria, published 2017
- Mali, Niger (ongoing) donkeys
  CATT/evansi positive (about 100)
- Kenya (done): CATT/evansi sera and PCR of about 600 camels

Projects

- Benin: Gauthier Dobigny, invasive black rodents in Cotonou (not published yet), next step human population
- *T. copemani* ?
- *T. conorhini* ?
- Else ?

A risk of emergence of new zoonotic diseases ?



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Host-vector-parasite-environment
interactions in **neglected** tropical diseases
due to **trypanosomatids**