



Transmission de BMR par les animaux : mythe ou réalité ?

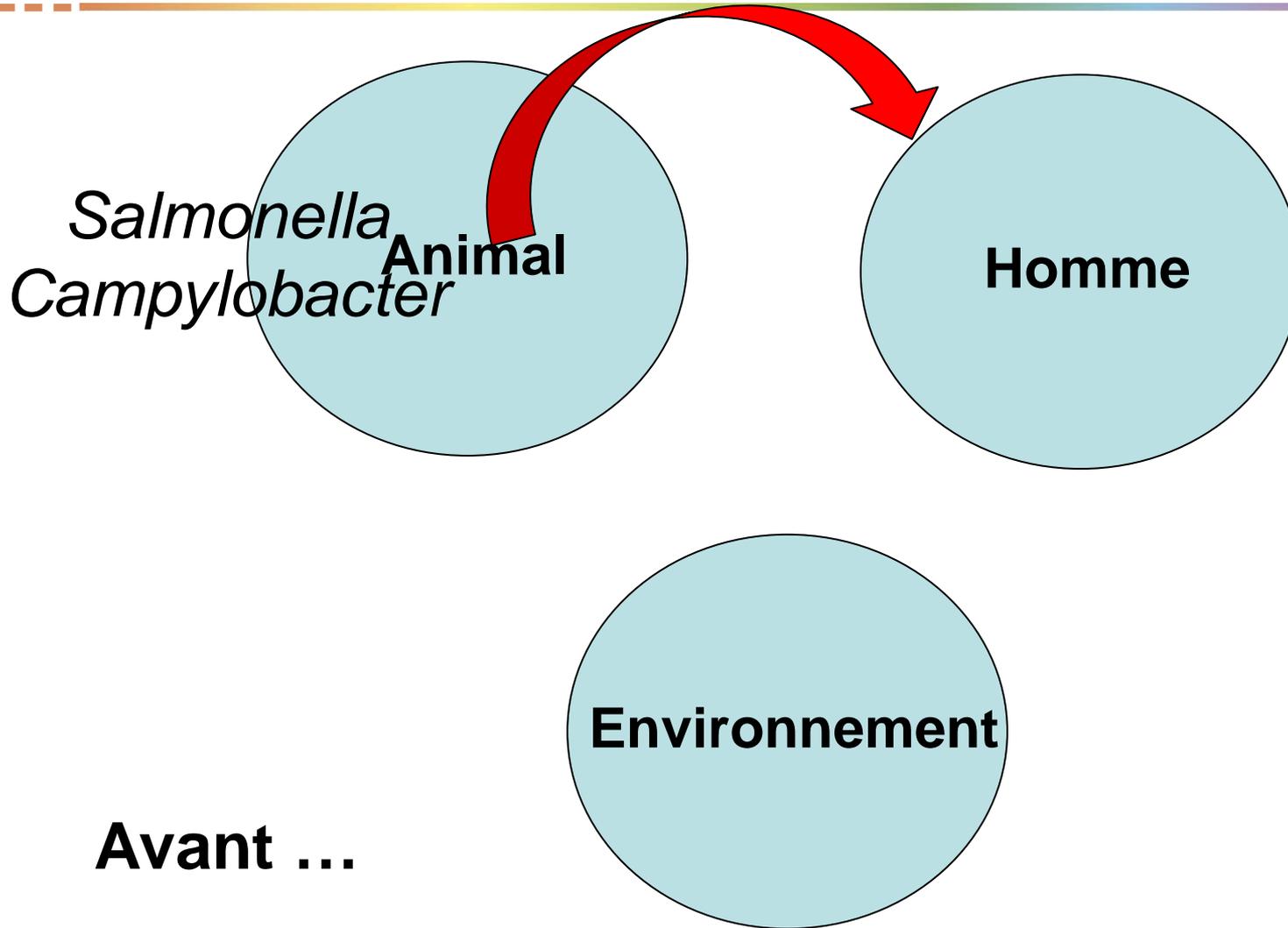
Jean-Yves MADEC

Directeur de Recherches

Chef de l'unité Antibiorésistance et Virulence Bactériennes

Anses Lyon

Alimentation



Occurrence of extended-spectrum β -lactamase-producing *Salmonella enterica* in northern Spain with evidence of CTX-M-9 clonal spread among animals and humans

I. Riaño¹, M. García-Campello², Y. Sáenz¹, P. Álvarez²,
L. Vinué¹, M. Lantero³, M. Á. Moreno⁴, M. Zarazaga¹ and
C. Torres¹

FOODBORNE PATHOGENS AND DISEASE
Volume 9, Number 9, 2012
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DOI: 10.1089/fpd.2012.1127

Antimicrobial-Resistant *Campylobacter* in the Food Chain in Mexico

Mussaret B. Zaidi,^{1,2} Patrick F. McDermott,³ Freddy D. Campos,^{1,2} Rodolfo Chim,^{1,2} Magda Leon,¹ Gabriela Vazquez,⁴ Gloria Figueroa,⁴ Estela Lopez,⁵ Jesus Contreras,⁶ and Teresa Estrada-Garcia⁷

JOURNAL OF CLINICAL MICROBIOLOGY, Dec. 2004, p. 5767-5773
0095-1137/04/\$08.00+0 DOI: 10.1128/JCM.42.12.5767-5773.2004
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Vol. 42, No. 12

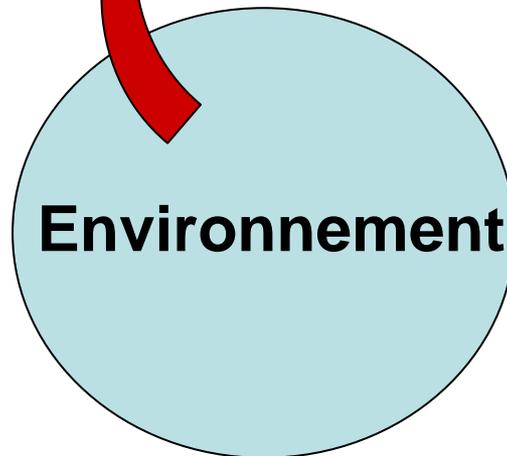
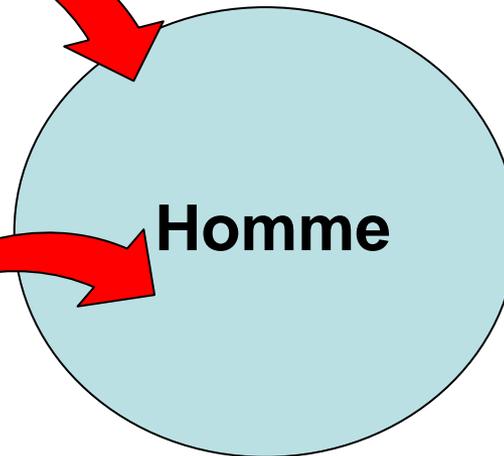
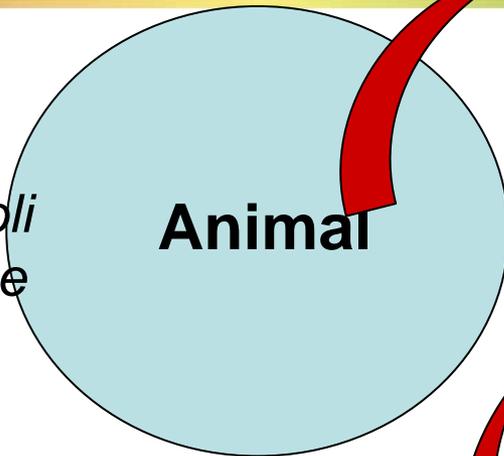
Emergence of Extended-Spectrum- β -Lactamase (CTX-M-9)-Producing Multiresistant Strains of *Salmonella enterica* Serotype Virchow in Poultry and Humans in France

François-Xavier Weill,^{1*} Renaud Lallier,² Karine Praud,³ Annaëlle Kérouanton,² Laëtitia Fabre,¹
Anne Brisabois,² Patrick A. D. Grimont,¹ and Axel Cloeckaert³

Escherichia coli
K. pneumoniae
S. aureus
...

Volaille
Porc
Vache
Poissons
Chien, chat
Cheval
...

Aujourd'hui ...



Fermes
Abattoirs
Oiseaux sauvages
Rivières
Graines germées
Effluents d'hôpitaux

2006 : une nouvelle BMR, ... le staphylocoque doré (!)



High prevalence of methicillin resistant *Staphylococcus aureus* in pigs

A.J. de Neeling^{a,*}, M.J.M. van den Broek^b, E.C. Spalburg^a,
M.G. van Santen-Verheuve^a, W.D.C. Dam-Deisz^a, H.C. Boshuizen^a,
A.W. van de Giessen^a, E. van Duijkeren^c, X.W. Huijsdens^a

JOURNAL OF CLINICAL MICROBIOLOGY, Aug. 2006, p. 2994–2996
0095-1137/06/\$08.00+0 doi:10.1128/JCM.00846-06
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Vol. 44, No. 8

Multiple Cases of Familial Transmission of Community-Acquired Methicillin-Resistant *Staphylococcus aureus*

X. W. Huijsdens,* M. G. van Santen-Verheuve, E. Spalburg, M. E. O. C. Heck,
G. N. Pluister, B. A. Eijkelkamp, A. J. de Neeling, and W. J. B. Wannet



ST398

REVIEW ARTICLE

Livestock veterinarians at high risk of acquiring methicillin-resistant *Staphylococcus aureus* ST398

C. GARCIA-GRAELLS^{1*}, J. ANTOINE², J. LARSEN³, B. CATRY²,
R. SKOV³ AND O. DENIS¹

High prevalence of nasal MRSA carriage in slaughterhouse workers in contact with live pigs in The Netherlands

B. A. G. L. VAN CLEEF, E. M. BROENS, A. VOSS, X. W. HUIJSDENS, L. ZÜCHNER, B. H. B. VAN BENTHEM, J. A. J. W. KLUYTMANS, M. N. MULDER and A. W. VAN DE GIESSEN

Epidemiol. Infect. (2010)
doi:10.1017/S09502688

Exposition professionnelle

Methicillin-resistant *Staphylococcus aureus* in people living and working in pig farms

Epidemiol. Infect. (2010), 138, 743–755. © Cambridge University Press 2010
doi:10.1017/S0950268810000075

Prevalence of livestock-associated MRSA in broiler flocks and risk factors for slaughterhouse personnel in The Netherlands

I. V. F. VAN DEN BROEK^{1*}, B. A. G. L. VAN CLEEF¹, A. I. E. M. BROENS^{2,3}, P. J. VAN DER WOLF⁴, M. J. M. VAN D. X. W. HUIJSDENS⁵, J. A. J. W. KLUYTMANS⁷, A. W. VAN AND E. W. TIEMERSMA¹

M. N. MULDER^{1*}, A. P. J. HAENEN¹, P. L. GEENEN¹, P. C. VESSEUR², E. S. POLDERVAART³, T. BOSCH¹, X. W. HUIJSDENS¹, P. D. HENGEVELD¹, W. D. C. DAM-DEISZ¹, E. A. M. GRAAT⁴, D. MEVIUS^{5,6}, A. VOSS⁷ AND A. W. VAN DE GIESSEN¹

2011 : après le cochon, la vache ...

theguardian

New strain of MRSA superbug spread from cattle to humans

Newly discovered MRSA strain found in cattle on 3% of dairy farms in the UK and caused 12 infections in people last year

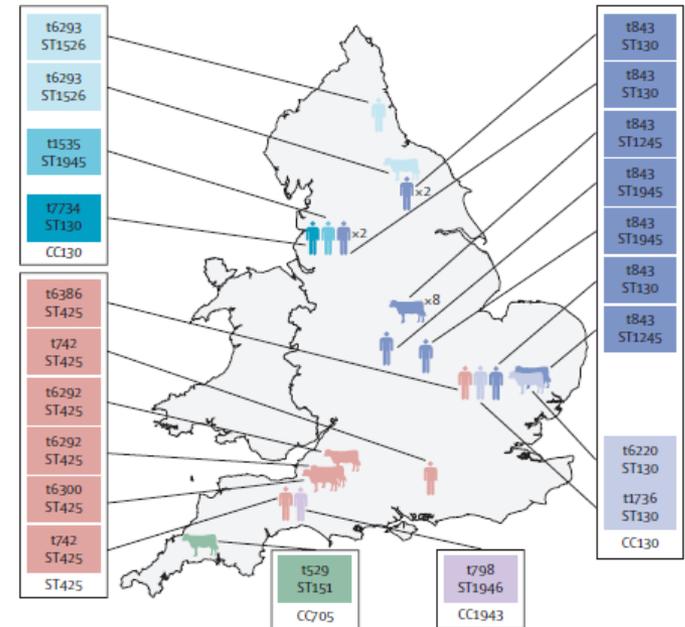
Ian Sample, science correspondent
The Guardian, Friday 3 June 2011



Un nouveau variant (*mecC*) du gène *mecA*

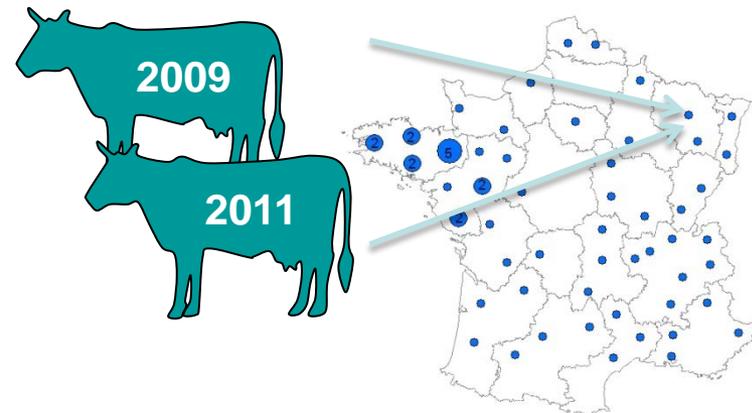
Meticillin-resistant *Staphylococcus aureus* with a novel *mecA* homologue in human and bovine populations in the UK and Denmark: a descriptive study

Laura García-Álvarez, Matthew T G Holden, Heather Lindsay, Cerian R Webb, Derek F J Brown, Martin D Curran, Enid Walpole, Karen Brooks, Derek J Pickard, Christopher Teale, Julian Parkhill, Stephen D Bentley, Giles F Edwards, E Kirsty Girvan, Angela M Kearns, Bruno Pichon, Robert L RHill, Anders Rhod Larsen, Robert L Skov, Sharon J Peacock, Duncan J Maskell, Mark A Holmes



MRSA Harboring *mecA* Variant Gene *mecC*, France

Frederic Laurent, Hubert Chardon, Marisa Haenni, Michele Bes, Marie-Elisabeth Reverdy, Jean-Yves Madec, Evelyne Lagier, François Vandenesch, and Anne Tristan



La BMR vient-elle vraiment de la vache ?

J Antimicrob Chemother 2012; **67**: 2809–2813
doi:10.1093/jac/dks329 Advance Access publication 31 August 2012

**Journal of
Antimicrobial
Chemotherapy**

The newly described *mecA* homologue, *mecA*_{LGA251}, is present in methicillin-resistant *Staphylococcus aureus* isolates from a diverse range of host species

G. K. Paterson¹, A. R. Larsen², A. Robb³, G. E. Edwards³, T. W. Pennycott⁴, G. Foster⁵, D. Mot⁶, K. Hermans⁶, K. Baert⁷,
S. J. Peacock^{8,9}, J. Parkhill⁹, R. N. Zadoks^{10,11} and M. A. Holmes^{1*}

J Antimicrob Chemother 2012; 65: 1093-1100
doi:10.1093/jac/dks329 Adv

The newly defined
in methicillin-resistant

G. K. Paterson¹, A. R. Larse
S

Table 1. Characteristics of *mecA*_{LGA251}-positive MRSA strains from this study

Strain name	Host species	Country of isolation	Year of isolation	ST
MRSA 1390	brown rat (<i>Rattus norvegicus</i>)	Belgium	2008–09	2273 (new)
MRSA 1410	brown rat (<i>Rattus norvegicus</i>)	Belgium	2008–09	2273 (new)
MRSA 1421	brown rat (<i>Rattus norvegicus</i>)	Belgium	2008–09	2273 (new)
MRSA 1467	brown rat (<i>Rattus norvegicus</i>)	Belgium	2008–09	2273 (new)
B307063	chaffinch (<i>Fringilla coelebs</i>)	Scotland	2011	130
PI 41/95	rabbit (<i>Oryctolagus cuniculus</i>)	Belgium	1995	425
M1472/93/01	common seal (<i>Phoca vitulina</i>)	Scotland	1993	1764
07.7672.A	domestic dog (<i>Canis lupus familiaris</i>)	Scotland	2007	1245
Får 2	sheep (<i>Ovis aries</i>)	Denmark	2011	130
Får 7	sheep (<i>Ovis aries</i>)	Denmark	2011	130
Får 9	sheep (<i>Ovis aries</i>)	Denmark	2011	130

Journal of
Antimicrobial
Chemotherapy

LGA251, is present
in *Staphylococcus aureus* isolates
from various species

Paterson⁵, D. Mot⁶, K. Hermans⁶, K. Baert⁷,
Holmes^{1*}



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



Letter to the Editor

Staphylococcus aureus carrying divergent *mecA* homologue (*mecA*_{IGA251}) isolated from a free-ranging wild bird

examination of bacteriology results from 800 finches, buntings and sparrows necropsied by Ayr DSC between 1995 and 2011 showed that staphylococci were isolated

J Antimicrob Chemother 2012; **0**: 1–2
doi:10.1093/jac/dks487

Methicillin-resistant *Staphylococcus aureus* with the novel *mecC* gene variant isolated from a cat suffering from chronic conjunctivitis

Agathe Medhus¹, Jannice Schau Slettemeås²,
Lillian Marstein³, Kjersti Wik Larssen³ and
Marianne Sunde^{2*}

Les BMR de l'Homme à l'animal



A USA300 variant and other human-related methicillin-resistant *Staphylococcus aureus* strains infecting cats and dogs in France

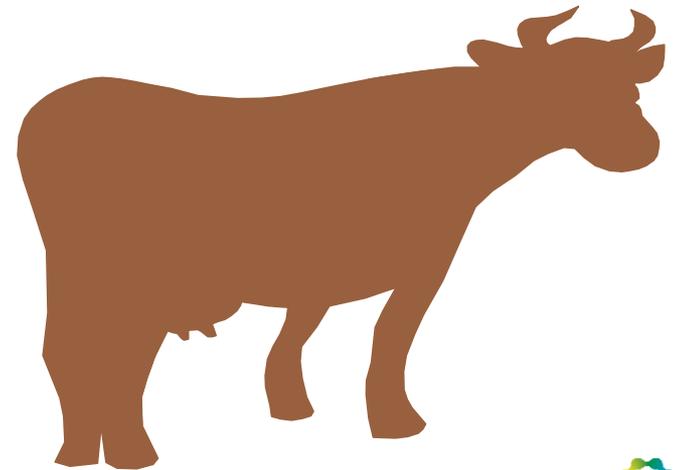
Marisa Haenni^{1*}, Estelle Saras¹, Pierre Châtre¹, Christine Médaille², Michèle Bes^{3,4}, Jean-Yves Madec¹ and Frédéric Laurent^{3,4}

JAC 2012

J Antimicrob Chemother 2011; **66**: 216–225
doi:10.1093/jac/dkq417
Advance Access publication 11 November 2010

Staphylococcal bovine mastitis in France: enterotoxins, resistance and the human Geraldine methicillin-resistant *Staphylococcus aureus* clone

Marisa Haenni^{1*}, Laure Galofaro¹, Cécile Ponsin¹, Michèle Bes^{2,3}, Frédéric Laurent^{2,3} and Jean-Yves Madec¹



Une infection nosocomiale vétérinaire : réservoir d'une BMR humaine ?

J Antimicrob Chemother
doi:10.1093/jac/dkr527

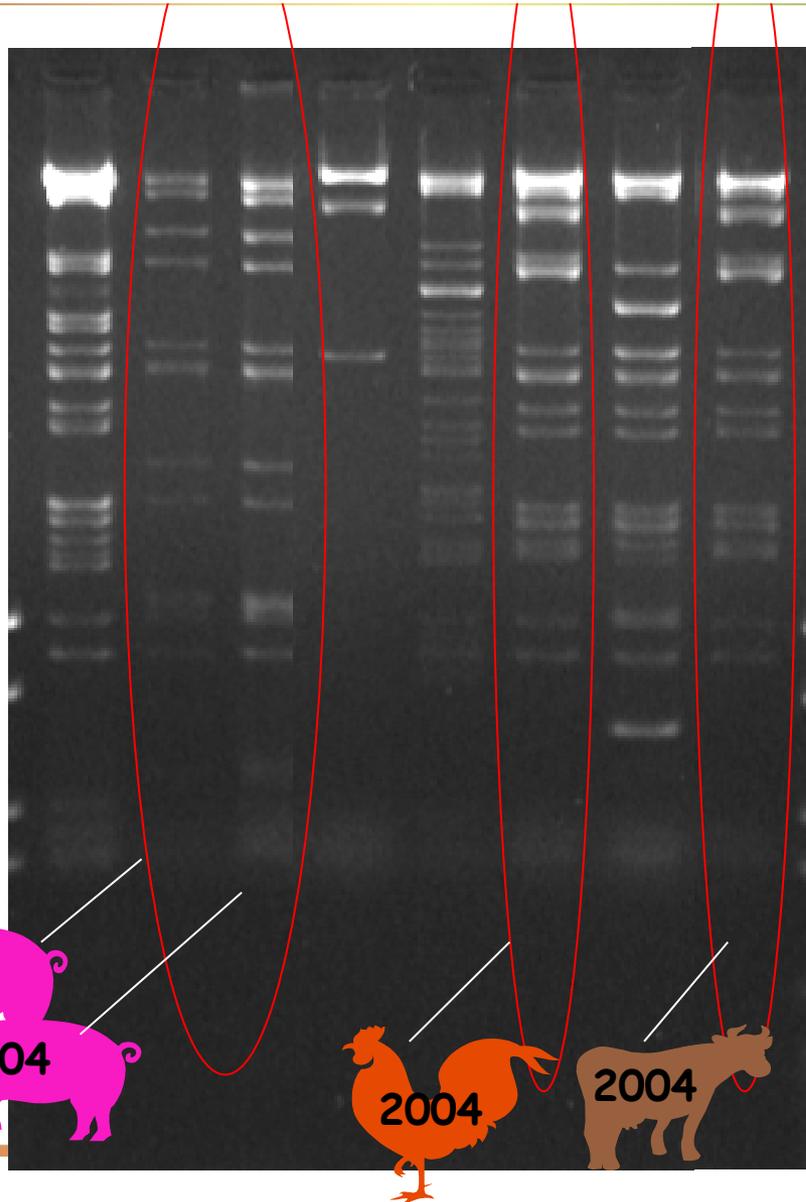
Veterinary hospital-acquired infections in pets with a ciprofloxacin-resistant CTX-M-15-producing *Klebsiella pneumoniae* ST15 clone

Marisa Haenni¹, Cécile Ponsin¹, Véronique Métayer¹,
Christine Médaille² and Jean-Yves Madec^{1*}

JAC 2012



Les plasmides BLSE diffusent



CTX-M-1- and CTX-M-15-type β -lactamases in clinical *Escherichia coli* isolates recovered from food-producing animals in France

Danièle Meunier^{a,*}, Eric Jouy^b, Corinne Lazizzera^a,
Marylène Kobisch^b, Jean-Yves Madec^a

International Journal of Antimicrobial Agents 28 (2006) 402–407

CTX-M-1 chez l'animal

CTX-M-1/IncI1/ST3

Salmonella volaille

ANTIMICROBIAL AGENTS AND CHEMOTHERAPY, Oct. 2010, p. 4484-4486
0066-4804/10/\$12.00 doi:10.1128/AAC.00460-10
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Vol. 54, No. 10

IncI1 Plasmid Carrying Extended-Spectrum- β -Lactamase Gene
*bla*_{CTX-M-1} in *Salmonella enterica* Isolates from Poultry
and Humans in France, 2003 to 2008⁷

Axel Cloeckaert,^{1*} Karine Praud,¹ Martine Lefevre,² Benoît Doublet,¹ Maria Pardos,²
Sophie A. Granier,³ Anne Brisabois,³ and François-Xavier Weill²

Journal of Antimicrobial Chemotherapy (2008) 61, 1229–1233
doi:10.1093/jac/dkn131
Advance Access publication 26 March 2008

JAC

Multilocus sequence typing of IncI1 plasmids carrying
extended-spectrum β -lactamases in *Escherichia coli* and *Salmonella*
of human and animal origin

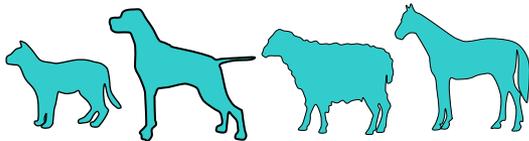
Aurora García-Fernández¹, Giuseppina Chiantotto², Alessia Bertini¹, Laura Villa¹, Daniela Fortini¹,
Antonia Ricci² and Alessandra Carattoli^{1*}

CTX-M-1/IncI1/ST3
Escherichia coli



Le même plasmide
CTX-M-1/IncI1/ST3

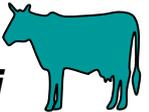
CTX-M-1/IncI1/ST3
Escherichia coli



J Antimicrob Chemother
doi:10.1093/jac/dks308

IncI1/ST3 plasmids contribute to the
dissemination of the *bla*_{CTX-M-1} gene in
Escherichia coli from several animal
species in France

CTX-M-1/IncI1/ST3
**Salmonella
Escherichia coli**



J Antimicrob Chemother
doi:10.1093/jac/dkr014

Extended-spectrum β -lactamase
*bla*_{CTX-M-1} gene carried on an IncI1
plasmid in multidrug-resistant
Salmonella enterica serovar
Typhimurium DT104 in cattle in France

Jean-Yves Madec^{1*}, Benoît Doublet², Cécile Ponsin¹,
Axel Cloeckaert² and Marisa Haenni¹

Le même plasmide CTX-M-15 chez l'Homme et les bovins

CTX-M-15/Incl1/ST31

Journal of Antimicrobial Chemotherapy Advance Access published December 29, 2011

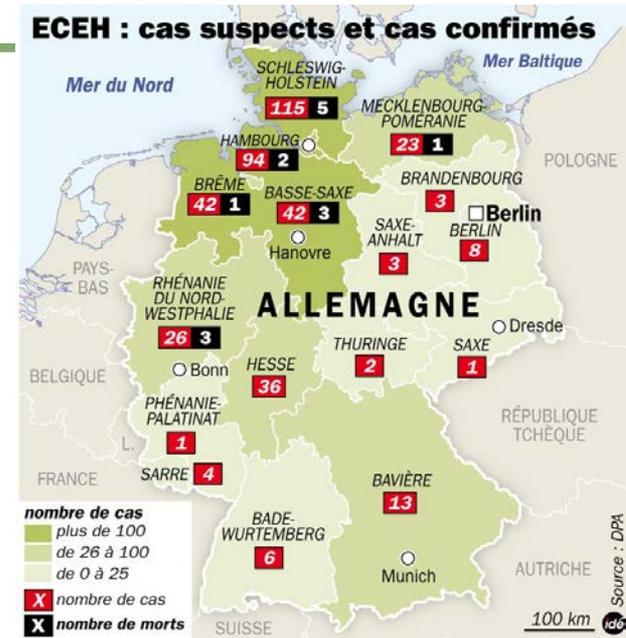
J Antimicrob Chemother
doi:10.1093/jac/dkr542

**Journal of
Antimicrobial
Chemotherapy**

Non-ST131 *Escherichia coli* from cattle harbouring human-like *bla*_{CTX-M-15}-carrying plasmids

Jean-Yves Madec^{1*}, Laurent Poirel², Estelle Saras¹, Aurore Gourguechon¹, Delphine Girlich², Patrice Nordmann²
and Marisa Haenni¹

CTX-M-15/IncI1/ST31



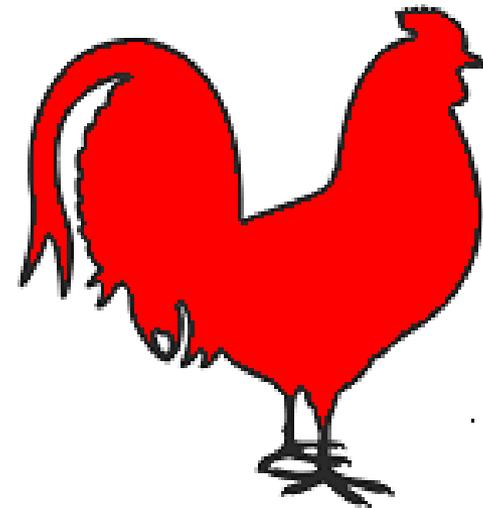
Genome sequence analyses of two isolates from the recent *Escherichia coli* outbreak in Germany reveal the emergence of a new pathotype: Entero-Aggregative-Haemorrhagic *Escherichia coli* (EAHEC)

Elzbieta Brzuszkiewicz · Andrea Thürmer · Jörg Schuldes · Andreas Leimbach · Heiko Liesegang · Frauke-Dorothee Meyer · Jürgen Boelter · Heiko Petersen · Gerhard Gottschalk · Rolf Daniel

E. coli
O104 : H4

Identification of New Delhi Metallo- β -lactamase 1 in *Acinetobacter Iwoffii* of Food Animal Origin

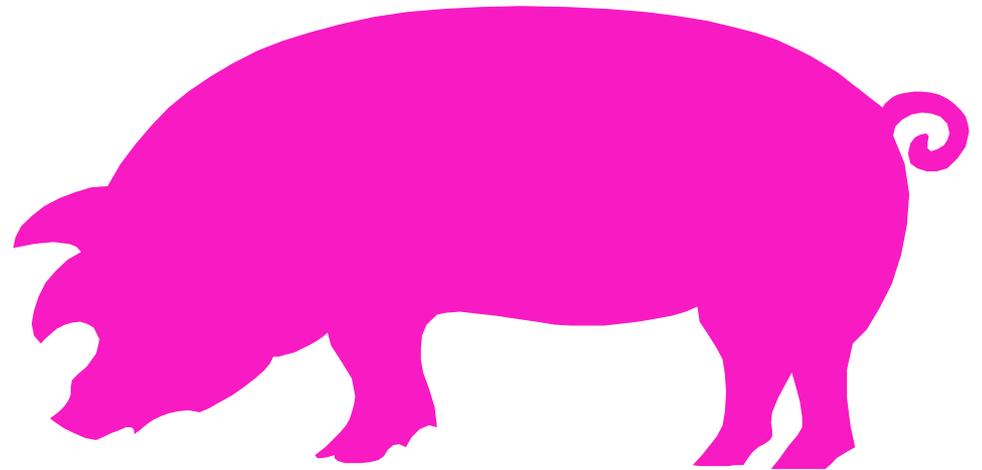
Yang Wang¹*, Congming Wu¹*, Qijing Zhang², Jing Qi³, Hebing Liu¹, Yu Wang¹, Tao He¹, Licai Ma¹, Jing Lai¹, Zhangqi Shen², Yuqing Liu³, Jianzhong Shen¹*



J Antimicrob Chemother
doi:10.1093/jac/dks108

***Escherichia coli* producing VIM-1 carbapenemase isolated on a pig farm**

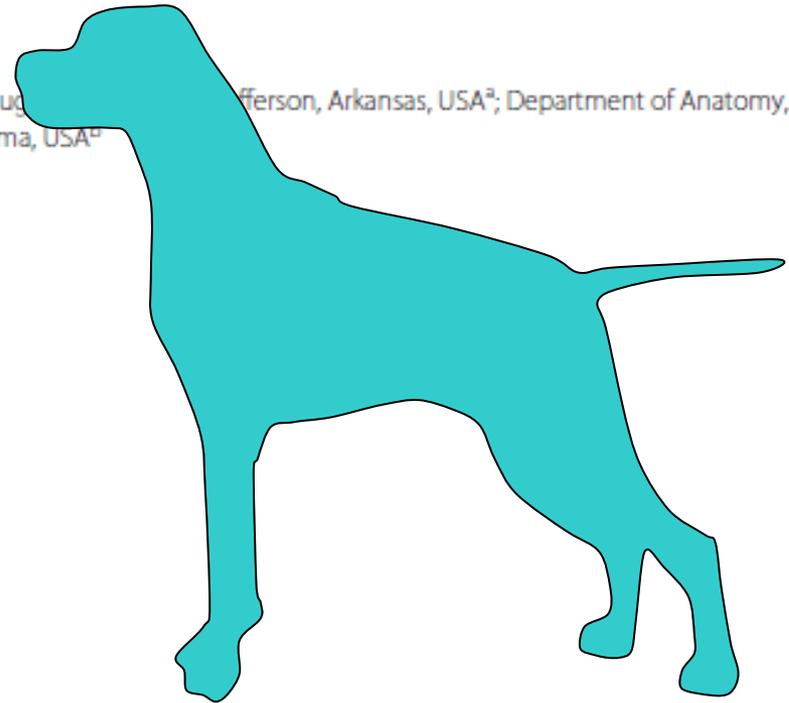
Jennie Fischer¹, Irene Rodríguez¹, Silvia Schmoger¹,
Anika Friese², Uwe Roesler², Reiner Helmuth¹
and Beatriz Guerra^{1*}



Emergence of a New Delhi Metallo- β -Lactamase (NDM-1)-Encoding Gene in Clinical *Escherichia coli* Isolates Recovered from Companion Animals in the United States

Bashar W. Shaheen,^{a*} Rajesh Nayak,^a Dawn M. Boothe^b

Division of Microbiology, National Center for Toxicological Research, U.S. Food and Drug Administration, Jefferson, Arkansas, USA^a; Department of Anatomy, Physiology and Pharmacology, College of Veterinary Medicine, Auburn University, Auburn, Alabama, USA^b



Conclusions

Des transmissions de BMR avérées

Transmission réciproque (Homme-animal) fréquente

Entérobactéries : transmission P(lasmides)MR

Donc des transmissions à des niveaux
plus fins et plus complexes