

CHAPTER 9

REFERENCES

- Abeyrathne PD, Daniels C, Poon KK, Matewish MJ and Lam JS** (2005). Functional characterization of WaaL, a ligase associated with linking O-antigen polysaccharide to the core of *Pseudomonas aeruginosa* lipopolysaccharide. *J Bacteriol*, **187**, 3002-3012.
- Abouseoud M, Yataghene A, Amrane A and Maachi R** (2010). Effect of pH and salinity on the emulsifying capacity and naphthalene solubility of a biosurfactant produced by *Pseudomonas fluorescens*. *J Hazard Mater*, **180**, 131-136.
- Adams MD, Chan ER, Molyneaux ND and Bonomo RA** (2010). Genomewide analysis of divergence of antibiotic resistance determinants in closely related isolates of *Acinetobacter baumannii*. *Antimicrob Agents Chemother*, **54**, 3569-3577.
- Adams MD, Goglin K, Molyneaux N, Hujer KM, Lavender H, Jamison JJ, MacDonald IJ, Martin KM, Russo T, Campagnari AA, Hujer AM, Bonomo RA and Gill SR** (2008). Comparative genome sequence analysis of multidrug-resistant *Acinetobacter baumannii*. *J Bacteriol*, **190**, 8053-8064.
- Adams MD, Nickel GC, Bajaksouzian S, Lavender H, Murthy AR, Jacobs MR and Bonomo RA** (2009). Resistance to colistin in *Acinetobacter baumannii* associated with mutations in the PmrAB two-component system. *Antimicrob Agents Chemother*, **53**, 3628-3634.
- Agusti C, Pujol M, Argerich MJ, Ayats J, Badia M, Dominguez MA, Corbella X and Ariza J** (2002). Short-term effect of the application of selective decontamination of the digestive tract on different body site reservoir ICU patients colonized by multi-resistant *Acinetobacter baumannii*. *J Antimicrob Chemother*, **49**, 205-208.
- Al-Sweih NA, Al-Hubail MA and Rotimi VO** (2011). Emergence of tigecycline and colistin resistance in *Acinetobacter* species isolated from patients in kuwait hospitals. *J Chemother*, **23**, 13-16.
- Alarcon I, Evans DJ and Fleiszig SM** (2009). The role of twitching motility in *Pseudomonas aeruginosa* exit from and translocation of corneal epithelial cells. *Invest Ophthalmol Vis Sci*, **50**, 2237-2244.
- Allsopp LP, Beloin C, Ulett GC, Valle J, Totsika M, Sherlock O, Ghigo JM and Schembri MA** (2011). Molecular characterization of UpaB and UpaC - two new autotransporter proteins of uropathogenic *Escherichia coli* CFT073. *Infect Immun*, **80**, 321-332.
- Alting-Mees MA and Short JM** (1989). pBluescript II: gene mapping vectors. *Nucleic Acids Res*, **17**, 9494.
- Anstey NM, Currie BJ, Hassell M, Palmer D, Dwyer B and Seifert H** (2002). Community-acquired bacteremic *Acinetobacter* pneumonia in tropical

Australia is caused by diverse strains of *Acinetobacter baumannii*, with carriage in the throat in at-risk groups. *J Clin Microbiol*, **40**, 685-686.

Anstey NM, Currie BJ and Withnall KM (1992). Community-acquired *Acinetobacter* pneumonia in the Northern Territory of Australia. *Clin Infect Dis*, **14**, 83-91.

Antunes LC, Ferreira RB, Lostroh CP and Greenberg EP (2008). A mutational analysis defines *Vibrio fischeri* LuxR binding sites. *J Bacteriol*, **190**, 4392-4397.

Antunes LC, Imperi F, Towner KJ and Visca P (2011). Genome-assisted identification of putative iron-utilization genes in *Acinetobacter baumannii* and their distribution among a genotypically diverse collection of clinical isolates. *Res Microb*, **162**, 279-284.

Arora K, Whiteford DC, Lau-Bonilla D, Davitt CM and Dahl JL (2008). Inactivation of *lsr2* results in a hypermotile phenotype in *Mycobacterium smegmatis*. *J Bacteriol*, **190**, 4291-4300.

Arroyo LA, Herrera CM, Fernandez L, Hankins JV, Trent MS and Hancock RE (2011). The *pmrCAB* operon mediates polymyxin resistance in *Acinetobacter baumannii* ATCC 17978 and clinical isolates through phosphoethanolamine modification of lipid A. *Antimicrob Agents Chemother*, **55**, 3743-3751.

Bacher JM, Metzgar D and de Crecy-Lagard V (2006). Rapid evolution of diminished transformability in *Acinetobacter baylyi*. *J Bacteriol*, **188**, 8534-8542.

Bahar O, De La Fuente L and Burdman S (2010). Assessing adhesion, biofilm formation and motility of *Acidovorax citrulli* using microfluidic flow chambers. *FEMS Microbiol Lett*, **312**, 33-39.

Bahar O, Goffer T and Burdman S (2009). Type IV Pili are required for virulence, twitching motility, and biofilm formation of *Acidovorax avenae* subsp. *citrulli*. *Mol Plant Microbe Interact*, **22**, 909-920.

Bailey TL and Elkan C (1994). Fitting a mixture model by expectation maximization to discover motifs in biopolymers. *Proc Int Conf Intell Syst Mol Biol*, **2**, 28-36.

Bailey TL and Gribskov M (1998). Combining evidence using p-values: application to sequence homology searches. *Bioinformatics*, **14**, 48-54.

Barbe V, Vallenet D, Fonknechten N, Kreimeyer A, Oztas S, Labarre L, Cruveiller S, Robert C, Duprat S, Wincker P, Ornston LN, Weissenbach J, Marliere P, Cohen GN and Medigue C (2004). Unique features revealed by the genome sequence of *Acinetobacter* sp. ADP1, a versatile and naturally transformation competent bacterium. *Nucleic Acids Res*, **32**, 5766-5779.

- Barker J and Maxted H** (1975). Observations on the growth and movement of *Acinetobacter* on semi-solid media. *J Med Microbiol*, **8**, 443-446.
- Barnes DJ, Naraqi S and Igo JD** (1988). Community-acquired *Acinetobacter* pneumonia in adults in Papua New Guinea. *Rev Infect Dis*, **10**, 636-639.
- Baumann P, Doudoroff M and Stanier RY** (1968). A study of the *Moraxella* group. II. Oxidative-negative species (genus *Acinetobacter*). *J Bacteriol*, **95**, 1520-1541.
- Bay DC, Rommens KL and Turner RJ** (2008). Small multidrug resistance proteins: a multidrug transporter family that continues to grow. *Biochim Biophys Acta*, **1778**, 1814-1838.
- Bay DC and Turner RJ** (2009). Diversity and evolution of the small multidrug resistance protein family. *BMC Evol Biol*, **9**, 140.
- Bazire A, Diab F, Jebbar M and Haras D** (2007). Influence of high salinity on biofilm formation and benzoate assimilation by *Pseudomonas aeruginosa*. *J Ind Microbiol Biotechnol*, **34**, 5-8.
- Beceiro A, Llobet E, Aranda J, Bengoechea JA, Doumith M, Hornsey M, Dhanji H, Chart H, Bou G, Livermore DM and Woodford N** (2011). Phosphoethanolamine modification of lipid A in colistin-resistant variants of *Acinetobacter baumannii* mediated by the *pmrAB* two-component regulatory system. *Antimicrob Agents Chemother*, **55**, 3370-3379.
- Begum A, Rahman MM, Ogawa W, Mizushima T, Kuroda T and Tsuchiya T** (2005). Gene cloning and characterization of four MATE family multidrug efflux pumps from *Vibrio cholerae* non-O1. *Microbiol Immunol*, **49**, 949-957.
- Bergogne-Berezin E** (1997). Treatment of *Acinetobacter* infections. *Expert Opin Investig Drugs*, **6**, 119-127.
- Bergogne-Berezin E, Decre D and Joly-Guillou ML** (1993). Opportunistic nosocomial multiply resistant bacterial infections-their treatment and prevention. *J Antimicrob Chemother*, **32 Suppl A**, 39-47.
- Bergogne-Berezin E and Towner KJ** (1996). *Acinetobacter* spp. as nosocomial pathogens: microbiological, clinical, and epidemiological features. *Clin Microbiol Rev*, **9**, 148-165.
- Berlau J, Aucken H, Malnick H and Pitt T** (1999). Distribution of *Acinetobacter* species on skin of healthy humans. *Eur J Clin Microbiol Infect Dis*, **18**, 179-183.
- Bernard CS, Brunet YR, Gueguen E and Cascales E** (2010). Nooks and crannies in type VI secretion regulation. *J Bacteriol*, **192**, 3850-3860.

- Bertani I, Rampioni G, Leoni L and Venturi V** (2007). The *Pseudomonas putida* Lon protease is involved in N-acyl homoserine lactone quorum sensing regulation. *BMC Microbiol*, **7**, 71.
- Bertini A, Poirel L, Mugnier PD, Villa L, Nordmann P and Carattoli A** (2010). Characterization and PCR-based replicon typing of resistance plasmids in *Acinetobacter baumannii*. *Antimicrob Agents Chemother*, **54**, 4168-4177.
- Bhargava N, Sharma P and Capalash N** (2010). Quorum sensing in *Acinetobacter*: an emerging pathogen. *Crit Rev Microbiol*, **36**, 349-360.
- Bogaerts P, Naas T, El Garch F, Cuzon G, Deplano A, Delaire T, Huang TD, Lissoir B, Nordmann P and Glupezynski Y** (2010). GES extended-spectrum beta-lactamases in *Acinetobacter baumannii* isolates in Belgium. *Antimicrob Agents Chemother*, **54**, 4872-4878.
- Bonnin RA, Nordmann P, Potron A, Lecuyer H, Zahar JR and Poirel L** (2011a). Carbapenem-hydrolyzing GES-type extended-spectrum beta-lactamase in *Acinetobacter baumannii*. *Antimicrob Agents Chemother*, **55**, 349-354.
- Bonnin RA, Potron A, Poirel L, Lecuyer H, Neri R and Nordmann P** (2011b). PER-7, an extended-spectrum beta-lactamase with increased activity toward broad-spectrum cephalosporins in *Acinetobacter baumannii*. *Antimicrob Agents Chemother*, **55**, 2424-2427.
- Bonomo RA and Szabo D** (2006). Mechanisms of multidrug resistance in *Acinetobacter species* and *Pseudomonas aeruginosa*. *Clin Infect Dis*, **43 Suppl 2**, S49-56.
- Bou G, Cervero G, Dominguez MA, Quereda C and Martinez-Beltran J** (2000). Characterization of a nosocomial outbreak caused by a multiresistant *Acinetobacter baumannii* strain with a carbapenem-hydrolyzing enzyme: high-level carbapenem resistance in *A. baumannii* is not due solely to the presence of beta-lactamases. *J Clin Microbiol*, **38**, 3299-3305.
- Bouvet PJ and Grimont PA** (1987). Identification and biotyping of clinical isolates of *Acinetobacter*. *Ann Inst Pasteur Microbiol*, **138**, 569-578.
- Bouvet PJ and Jeanjean S** (1989). Delineation of new proteolytic genomic species in the genus *Acinetobacter*. *Res Microb*, **140**, 291-299.
- Bouvet PJM and Grimont PAD** (1986). Taxonomy of the genus *Acinetobacter* with the recognition of *Acinetobacter baumannii* sp. nov., *Acinetobacter haemolyticus* sp. nov., *Acinetobacter johnsonii* sp. nov., and *Acinetobacter junii* sp. nov. and emended descriptions of *Acinetobacter calcoaceticus* and *Acinetobacter lwoffii*. *Intern J System Bact*, **36**, 228-240.
- Bratu S, Landman D, Martin DA, Georgescu C and Quale J** (2008). Correlation of antimicrobial resistance with beta-lactamases, the OmpA-like porin, and efflux pumps in clinical isolates of *Acinetobacter baumannii* endemic to New York City. *Antimicrob Agents Chemother*, **52**, 2999-3005.

- Braun G and Vidotto MC** (2004). Evaluation of adherence, hemagglutination, and presence of genes codifying for virulence factors of *Acinetobacter baumannii* causing urinary tract infection. *Mem Inst Oswaldo Cruz*, **99**, 839-844.
- Braun V** (1995). Energy-coupled transport and signal transduction through the gram-negative outer membrane via TonB-ExxB-ExbD-dependent receptor proteins. *FEMS Microbiol Rev*, **16**, 295-307.
- Braun V** (2003). Iron uptake by *Escherichia coli*. *Front Biosci*, **8**, s1409-1421.
- Braun V and Braun M** (2002). Iron transport and signaling in *Escherichia coli*. *FEBS Lett*, **529**, 78-85.
- Brazma A and Vilo J** (2001). Gene expression data analysis. *Microbes Infect*, **3**, 823-829.
- Brill JA, Quinlan-Walshe C and Gottesman S** (1988). Fine-structure mapping and identification of two regulators of capsule synthesis in *Escherichia coli* K-12. *J Bacteriol*, **170**, 2599-2611.
- Brown MH, Paulsen IT and Skurray RA** (1999). The multidrug efflux protein NorM is a prototype of a new family of transporters. *Mol Microbiol*, **31**, 394-395.
- Budavari S** (1996). The Merck index : an encyclopedia of chemicals, drugs, and biologicals, Whitehouse Station, NJ, Merck.
- Burch AY, Shimada BK, Browne PJ and Lindow SE** (2010). Novel high-throughput detection method to assess bacterial surfactant production. *Appl Environ Microbiol*, **76**, 5363-5372.
- Bureau-Chalot F, Drieux L, Pierrat-Solans C, Forte D, de Champs C and Bajolet O** (2004). Blood pressure cuffs as potential reservoirs of extended-spectrum beta-lactamase VEB-1-producing isolates of *Acinetobacter baumannii*. *J Hosp Infect*, **58**, 91-92.
- Busch S, Rosenplanter C and Averhoff B** (1999). Identification and characterization of ComE and ComF, two novel pilin-like competence factors involved in natural transformation of *Acinetobacter* sp. strain BD413. *Appl Environ Microbiol*, **65**, 4568-4574.
- Camarena L, Bruno V, Euskirchen G, Poggio S and Snyder M** (2010). Molecular mechanisms of ethanol-induced pathogenesis revealed by RNA-sequencing. *PLoS Pathog*, **6**, e1000834.
- Carr EL, Kampfer P, Patel BK, Gurtler V and Seviour RJ** (2003). Seven novel species of *Acinetobacter* isolated from activated sludge. *Int J Syst Evol Microbiol*, **53**, 953-963.
- Cefai C, Richards J, Gould FK and McPeake P** (1990). An outbreak of *Acinetobacter* respiratory tract infection resulting from incomplete disinfection of ventilatory equipment. *J Hosp Infect*, **15**, 177-182.

- Cescau S, Cberman H, Letoffe S, Deleplaire P, Wandersman C and Biville F** (2007). Heme acquisition by hemophores. *Biometals*, **20**, 603-613.
- Cevahir N, Demir M, Kaleli I, Gurbuz M and Tikvesli S** (2008). Evaluation of biofilm production, gelatinase activity, and mannose-resistant hemagglutination in *Acinetobacter baumannii* strains. *J Microbiol Immunol Infect*, **41**, 513-518.
- Chan PC, Huang LM, Lin HC, Chang LY, Chen ML, Lu CY, Lee PI, Chen JM, Lee CY, Pan HJ, Wang JT, Chang SC and Chen YC** (2007). Control of an outbreak of pandrug-resistant *Acinetobacter baumannii* colonization and infection in a neonatal intensive care unit. *Infect Control Hosp Epidemiol*, **28**, 423-429.
- Chau SL, Chu YW and Houang ET** (2004). Novel resistance-nodulation-cell division efflux system AdeDE in *Acinetobacter* genomic DNA group 3. *Antimicrob Agents Chemother*, **48**, 4054-4055.
- Chen J, Morita Y, Huda MN, Kuroda T, Mizushima T and Tsuchiya T** (2002). VmrA, a member of a novel class of Na⁽⁺⁾-coupled multidrug efflux pumps from *Vibrio parahaemolyticus*. *J Bacteriol*, **184**, 572-576.
- Chen MZ, Hsueh PR, Lee LN, Yu CJ, Yang PC and Luh KT** (2001). Severe community-acquired pneumonia due to *Acinetobacter baumannii*. *Chest*, **120**, 1072-1077.
- Chen TL, Lee YT, Kuo SC, Hsueh PR, Chang FY, Siu LK, Ko WC and Fung CP** (2010). Emergence and Distribution of Plasmids Bearing the blaOXA-51-like gene with an upstream ISAbal in carbapenem-resistant *Acinetobacter baumannii* isolates in Taiwan. *Antimicrob Agents Chemother*, **54**, 4575-4581.
- Chenier D, Beriault R, Mailloux R, Baquie M, Abramia G, Lemire J and Appanna V** (2008). Involvement of fumarase C and NADH oxidase in metabolic adaptation of *Pseudomonas fluorescens* cells evoked by aluminum and gallium toxicity. *Appl Environ Microbiol*, **74**, 3977-3984.
- Choi AH, Slamti L, Avci FY, Pier GB and Maira-Litran T** (2009). The pgaABCD locus of *Acinetobacter baumannii* encodes the production of poly-beta-1-6-N-acetylglucosamine, which is critical for biofilm formation. *J Bacteriol*, **191**, 5953-5963.
- Choi CH, Lee EY, Lee YC, Park TI, Kim HJ, Hyun SH, Kim SA, Lee SK and Lee JC** (2005). Outer membrane protein 38 of *Acinetobacter baumannii* localizes to the mitochondria and induces apoptosis of epithelial cells. *Cell Microbiol*, **7**, 1127-1138.
- Choi CH, Lee JS, Lee YC, Park TI and Lee JC** (2008). *Acinetobacter baumannii* invades epithelial cells and outer membrane protein A mediates interactions with epithelial cells. *BMC Microbiol*, **8**, 216.

- Chuang YC, Sheng WH, Li SY, Lin YC, Wang JT, Chen YC and Chang SC** (2011). Influence of genospecies of *Acinetobacter baumannii* complex on clinical outcomes of patients with *Acinetobacter* bacteremia. *Clin Infect Dis*, **52**, 352-360.
- Chung YJ and Saier MH, Jr.** (2001). SMR-type multidrug resistance pumps. *Curr Opin Drug Discov Devel*, **4**, 237-245.
- Clark RB** (1996). Imipenem resistance among *Acinetobacter baumannii*: association with reduced expression of a 33-36 kDa outer membrane protein. *J Antimicrob Chemother*, **38**, 245-251.
- Clarke TE, Tari LW and Vogel HJ** (2001). Structural biology of bacterial iron uptake systems. *Curr Top Med Chem*, **1**, 7-30.
- Clemmer KM, Bonomo RA and Rather PN** (2011). Analysis of surface motility in *Acinetobacter baumannii*. *Microbiology*, **157**, 2534-2544.
- Cong Y, Wang J, Chen Z, Xiong K, Xu Q and Hu F** (2011). Characterization of swarming motility in *Citrobacter freundii*. *FEMS Microbiol Lett*, **317**, 160-171.
- Conlon JM, Mechkarska M, Ahmed E, Leprince J, Vaudry H, King JD and Takada K** (2011). Purification and properties of antimicrobial peptides from skin secretions of the Eritrea clawed frog *Xenopus clivii* (Pipidae). *Comp Biochem Physiol C Toxicol Pharmacol*, **153**, 350-354.
- Cornelis P, Matthijs S and Van Oeffelen L** (2009). Iron uptake regulation in *Pseudomonas aeruginosa*. *Biometals*, **22**, 15-22.
- Costa GF, Tognim MC, Cardoso CL, Carrara-Marrone FE and Garcia LB** (2006). Preliminary evaluation of adherence on abiotic and cellular surfaces of *Acinetobacter baumannii* strains isolated from catheter tips. *Braz J Infect Dis*, **10**, 346-351.
- Coulon C, Vinogradov E, Filloux A and Sadovskaya I** (2010). Chemical analysis of cellular and extracellular carbohydrates of a biofilm-forming strain *Pseudomonas aeruginosa* PA14. *PLoS One*, **5**, e14220.
- Coyne S, Courvalin P and Perichon B** (2011). Efflux-mediated antibiotic resistance in *Acinetobacter* spp. *Antimicrob Agents Chemother*, **55**, 947-953.
- Coyne S, Guigon G, Courvalin P and Perichon B** (2010a). Screening and quantification of the expression of antibiotic resistance genes in *Acinetobacter baumannii* with a microarray. *Antimicrob Agents Chemother*, **54**, 333-340.
- Coyne S, Rosenfeld N, Lambert T, Courvalin P and Perichon B** (2010b). Overexpression of resistance-nodulation-cell division pump AdeFGH confers multidrug resistance in *Acinetobacter baumannii*. *Antimicrob Agents Chemother*, **54**, 4389-4393.

- Crooks GE, Hon G, Chandonia JM and Brenner SE** (2004). WebLogo: a sequence logo generator. *Genome Res*, **14**, 1188-1190.
- Crowley E and Callaghan R** (2010). Multidrug efflux pumps: drug binding-gates or cavity? *Febs J*, **277**, 530-539.
- Cunha BA, Klimek JJ, Gracewski J, McLaughlin JC and Quintiliani R** (1980). A common source outbreak of *Acinetobacter* pulmonary infections traced to Wright respirometers. *Postgrad Med J*, **56**, 169-172.
- Da Silva G, Dijkshoorn L, van der Reijden T, van Strijen B and Duarte A** (2007). Identification of widespread, closely related *Acinetobacter baumannii* isolates in Portugal as a subgroup of European clone II. *Clin Microbiol Infect*, **13**, 190-195.
- Dai T, Tegos GP, Lu Z, Huang L, Zhiyentayev T, Franklin MJ, Baer DG and Hamblin MR** (2009). Photodynamic therapy for *Acinetobacter baumannii* burn infections in mice. *Antimicrob Agents Chemother*, **53**, 3929-3934.
- Dallas PB, Gottardo NG, Firth MJ, Beesley AH, Hoffmann K, Terry PA, Freitas JR, Boag JM, Cummings AJ and Kees UR** (2005). Gene expression levels assessed by oligonucleotide microarray analysis and quantitative real-time RT-PCR -- how well do they correlate? *BMC Genomics*, **6**, 59.
- Damier-Piolle L, Magnet S, Bremont S, Lambert T and Courvalin P** (2008). AdelJK, a resistance-nodulation-cell division pump effluxing multiple antibiotics in *Acinetobacter baumannii*. *Antimicrob Agents Chemother*, **52**, 557-562.
- Daniel C, Haentjens S, Bissinger MC and Courcol RJ** (1999). Characterization of the *Acinetobacter baumannii* Fur regulator: cloning and sequencing of the fur homolog gene. *FEMS Microbiol Lett*, **170**, 199-209.
- Daniels R, Vanderleyden J and Michiels J** (2004). Quorum sensing and swarming migration in bacteria. *FEMS Microbiol Rev*, **28**, 261-289.
- Darling AC, Mau B, Blattner FR and Perna NT** (2004). Mauve: multiple alignment of conserved genomic sequence with rearrangements. *Genome Res*, **14**, 1394-1403.
- Darvishi P, Ayatollahi S, Mowla D and Niazi A** (2011). Biosurfactant production under extreme environmental conditions by an efficient microbial consortium, ERCPPI-2. *Colloids Surf B Biointerfaces*, **84**, 292-300.
- Davis KA, Moran KA, McAllister CK and Gray PJ** (2005). Multidrug-resistant *Acinetobacter* extremity infections in soldiers. *Emerg Infect Dis*, **11**, 1218-1224.
- Dawson RJ and Locher KP** (2006). Structure of a bacterial multidrug ABC transporter. *Nature*, **443**, 180-185.

- de Breij A, Dijkshoorn L, Lagendijk E, van der Meer J, Koster A, Bloemberg G, Wolterbeek R, van den Broek P and Nibbering P** (2010). Do biofilm formation and interactions with human cells explain the clinical success of *Acinetobacter baumannii*? *PLoS One*, **5**, e10732.
- de Breij A, Gaddy J, van der Meer J, Koning R, Koster A, van den Broek P, Actis L, Nibbering P and Dijkshoorn L** (2009). CsuA/BABCDE-dependent pili are not involved in the adherence of *Acinetobacter baumannii* ATCC19606(T) to human airway epithelial cells and their inflammatory response. *Res Microb*, **160**, 213-218.
- de Kievit TR** (2009). Quorum sensing in *Pseudomonas aeruginosa* biofilms. *Environ Microbiol*, **11**, 279-288.
- De La Fuente L, Burr TJ and Hoch HC** (2007). Mutations in type I and type IV pilus biosynthetic genes affect twitching motility rates in *Xylella fastidiosa*. *J Bacteriol*, **189**, 7507-7510.
- de Pace F, Nakazato G, Pacheco A, de Paiva JB, Sperandio V and da Silveira WD** (2010). The type VI secretion system plays a role in type 1 fimbria expression and pathogenesis of an avian pathogenic *Escherichia coli* strain. *Infect Immun*, **78**, 4990-4998.
- del Mar Tomas M, Beceiro A, Perez A, Velasco D, Moure R, Villanueva R, Martinez-Beltran J and Bou G** (2005). Cloning and functional analysis of the gene encoding the 33- to 36-kilodalton outer membrane protein associated with carbapenem resistance in *Acinetobacter baumannii*. *Antimicrob Agents Chemother*, **49**, 5172-5175.
- Delcher AL, Harmon D, Kasif S, White O and Salzberg SL** (1999). Improved microbial gene identification with GLIMMER. *Nucleic Acids Res*, **27**, 4636-4641.
- Delcour AH** (2009). Outer membrane permeability and antibiotic resistance. *Biochim Biophys Acta*, **1794**, 808-816.
- Denys GA, Davis JC, O'Hanley PD and Stephens JT, Jr.** (2011). In vitro and in vivo activities of E-101 solution against *Acinetobacter baumannii* isolates from U.S. military personnel. *Antimicrob Agents Chemother*, **55**, 3603-3608.
- Diancourt L, Passet V, Nemec A, Dijkshoorn L and Brisse S** (2010). The population structure of *Acinetobacter baumannii*: expanding multiresistant clones from an ancestral susceptible genetic pool. *PLoS One*, **5**, e10034.
- Dijkshoorn L, Aucken H, Gerner-Smith P, Janssen P, Kaufmann ME, Garaizar J, Ursing J and Pitt TL** (1996). Comparison of outbreak and nonoutbreak *Acinetobacter baumannii* strains by genotypic and phenotypic methods. *J Clin Microbiol*, **34**, 1519-1525.
- Dijkshoorn L, Brouwer CP, Bogaards SJ, Nemec A, van den Broek PJ and Nibbering PH** (2004). The synthetic N-terminal peptide of human

lactoferrin, hLF(1-11), is highly effective against experimental infection caused by multidrug-resistant *Acinetobacter baumannii*. *Antimicrob Agents Chemother*, **48**, 4919-4921.

Dijkshoorn L, Nemec A and Seifert H (2007). An increasing threat in hospitals: multidrug-resistant *Acinetobacter baumannii*. *Nat Rev Microbiol*, **5**, 939-951.

Dijkshoorn L, van Aken E, Shunburne L, van der Reijden TJ, Bernards AT, Nemec A and Towner KJ (2005). Prevalence of *Acinetobacter baumannii* and other *Acinetobacter* spp. in faecal samples from non-hospitalised individuals. *Clin Microbiol Infect*, **11**, 329-332.

Dorsey CW, Beglin MS and Actis LA (2003a). Detection and analysis of iron uptake components expressed by *Acinetobacter baumannii* clinical isolates. *J Clin Microbiol*, **41**, 4188-4193.

Dorsey CW, Tolmasky ME, Crosa JH and Actis LA (2003b). Genetic organization of an *Acinetobacter baumannii* chromosomal region harbouring genes related to siderophore biosynthesis and transport. *Microbiology*, **149**, 1227-1238.

Dorsey CW, Tomaras AP, Connerly PL, Tolmasky ME, Crosa JH and Actis LA (2004). The siderophore-mediated iron acquisition systems of *Acinetobacter baumannii* ATCC 19606 and *Vibrio anguillarum* 775 are structurally and functionally related. *Microbiology*, **150**, 3657-3667.

Dubendorff JW and Studier FW (1991). Controlling basal expression in an inducible T7 expression system by blocking the target T7 promoter with lac repressor. *J Mol Biol*, **219**, 45-59.

Dupont M, Pages JM, Lafitte D, Sirov A and Bollet C (2005). Identification of an OprD homologue in *Acinetobacter baumannii*. *J Proteome Res*, **4**, 2386-2390.

Elston JW, Bannan CL, Chih DT and Boutlis CS (2008). *Acinetobacter* spp. in gunshot injuries. *Emerg Infect Dis*, **14**, 178-180.

Fagon JY, Chastre J, Domart Y, Trouillet JL and Gibert C (1996). Mortality due to ventilator-associated pneumonia or colonization with *Pseudomonas* or *Acinetobacter* species: assessment by quantitative culture of samples obtained by a protected specimen brush. *Clin Infect Dis*, **23**, 538-542.

Falagas ME and Karageorgopoulos DE (2009). Extended-spectrum beta-lactamase-producing organisms. *J Hosp Infect*, **73**, 345-354.

Falagas ME, Karveli EA, Kelesidis I and Kelesidis T (2007). Community-acquired *Acinetobacter* infections. *Eur J Clin Microbiol Infect Dis*, **26**, 857-868.

Falagas ME, Koletsi PK and Bliziotis IA (2006). The diversity of definitions of multidrug-resistant (MDR) and pandrug-resistant (PDR) *Acinetobacter baumannii* and *Pseudomonas aeruginosa*. *J Med Microbiol*, **55**, 1619-1629.

- Figueiredo S, Poirel L, Croize J, Recule C and Nordmann P** (2009a). In vivo selection of reduced susceptibility to carbapenems in *Acinetobacter baumannii* related to ISAbal-mediated overexpression of the natural bla(OXA-66) oxacillinase gene. *Antimicrob Agents Chemother*, **53**, 2657-2659.
- Figueiredo S, Poirel L, Papa A, Koulourida V and Nordmann P** (2009b). Overexpression of the naturally occurring blaOXA-51 gene in *Acinetobacter baumannii* mediated by novel insertion sequence ISAbal. *Antimicrob Agents Chemother*, **53**, 4045-4047.
- Fischer R, Bleichrodt FS and Gerischer UC** (2008). Aromatic degradative pathways in *Acinetobacter baylyi* underlie carbon catabolite repression. *Microbiology*, **154**, 3095-3103.
- Fleishman SJ, Harrington SE, Enosh A, Halperin D, Tate CG and Ben-Tal N** (2006). Quasi-symmetry in the cryo-EM structure of EmrE provides the key to modeling its transmembrane domain. *J Mol Biol*, **364**, 54-67.
- Fournier PE, Vallenet D, Barbe V, Audic S, Ogata H, Poirel L, Richet H, Robert C, Mangenot S, Abergel C, Nordmann P, Weissenbach J, Raoult D and Claverie JM** (2006). Comparative genomics of multidrug resistance in *Acinetobacter baumannii*. *PLoS Genet*, **2**, e7.
- French CE, Bell JM and Ward FB** (2008). Diversity and distribution of hemerythrin-like proteins in prokaryotes. *FEMS Microbiol Lett*, **279**, 131-145.
- Friedman A, Blecher K, Sanchez D, Tuckman-Vernon C, Galianella P, Friedman JM, Martinez LR and Nosanchuk JD** (2011). Susceptibility of Gram-positive and -negative bacteria to novel nitric oxide-releasing nanoparticle technology. *Virulence*, **2**, 217-221.
- Furrer JL, Sanders DN, Hook-Barnard IG and McIntosh MA** (2002). Export of the siderophore enterobactin in *Escherichia coli*: involvement of a 43 kDa membrane exporter. *Mol Microbiol*, **44**, 1225-1234.
- Gaddy JA and Actis LA** (2009). Regulation of *Acinetobacter baumannii* biofilm formation. *Future Microbiol*, **4**, 273-278.
- Gaddy JA, Tomaras AP and Actis LA** (2009). The *Acinetobacter baumannii* 19606 OmpA protein plays a role in biofilm formation on abiotic surfaces and in the interaction of this pathogen with eukaryotic cells. *Infect Immun*, **77**, 3150-3160.
- Garlanzezec R, Bourigault C, Boles JM, Prat G, Baron R, Tonnelier JM, Cosse M, Lefevre M, Jourdain S, Lelay G, Daniel L, Virmaux M, Le Du I, Tande D, Renault A and Lejeune B** (2011). Cost-analysis of an intensive care unit closure due to an imipenem-resistant oxa-23 *Acinetobacter baumannii* outbreak. *J Hosp Infect*, **77**, 174-175.

- Garnacho-Montero J and Amaya-Villar R** (2010). Multiresistant *Acinetobacter baumannii* infections: epidemiology and management. *Curr Opin Infect Dis*, **23**, 332-339.
- Garzoni C, Emonet S, Legout L, Benedict R, Hoffmeyer P, Bernard L and Garbino J** (2005). Atypical infections in tsunami survivors. *Emerg Infect Dis*, **11**, 1591-1593.
- Giard DJ, Aaronson SA, Todaro GJ, Arnstein P, Kersey JH, Dosik H and Parks WP** (1973). In vitro cultivation of human tumors: establishment of cell lines derived from a series of solid tumors. *J Natl Cancer Inst*, **51**, 1417-1423.
- Glick R, Gilmour C, Tremblay J, Satanower S, Avidan O, Deziel E, Greenberg EP, Poole K and Banin E** (2010). Increase in rhamnolipid synthesis under iron-limiting conditions influences surface motility and biofilm formation in *Pseudomonas aeruginosa*. *J Bacteriol*, **192**, 2973-2980.
- Goel N, Wattal C, Oberoi JK, Raveendran R, Datta S and Prasad KJ** (2011). Trend analysis of antimicrobial consumption and development of resistance in non-fermenters in a tertiary care hospital in Delhi, India. *J Antimicrob Chemother*, **66**, 1625-1630.
- Gohl O, Friedrich A, Hoppert M and Averhoff B** (2006). The thin pili of *Acinetobacter* sp. strain BD413 mediate adhesion to biotic and abiotic surfaces. *Appl Environ Microbiol*, **72**, 1394-1401.
- Golanbar GD, Lam CK, Chu YM, Cueva C, Tan SW, Silva I and Xu HH** (2011). Phenotypic and molecular characterization of *Acinetobacter* clinical isolates obtained from inmates of California correctional facilities. *J Clin Microbiol*, **49**, 2121-2131.
- Gonzalez RH, Dijkshoorn L, Van den Barselaar M and Nudel C** (2009). Quorum sensing signal profile of *Acinetobacter* strains from nosocomial and environmental sources. *Rev Argent Microbiol*, **41**, 73-78.
- Gonzalez RH, Nusblat A and Nudel BC** (2001). Detection and characterization of quorum sensing signal molecules in *Acinetobacter* strains. *Microbiol Res*, **155**, 271-277.
- Gooderham WJ, Bains M, McPhee JB, Wiegand I and Hancock RE** (2008). Induction by cationic antimicrobial peptides and involvement in intrinsic polymyxin and antimicrobial peptide resistance, biofilm formation, and swarming motility of PsrA in *Pseudomonas aeruginosa*. *J Bacteriol*, **190**, 5624-5634.
- Gordon NC, Png K and Wareham DW** (2010). Potent synergy and sustained bactericidal activity of a vancomycin-colistin combination versus multidrug-resistant strains of *Acinetobacter baumannii*. *Antimicrob Agents Chemother*, **54**, 5316-5322.

- Gordon NC and Wareham DW** (2009). Evaluation of CHROMagar *Acinetobacter* for detection of enteric carriage of multidrug-resistant *Acinetobacter baumannii* in samples from critically ill patients. *J Clin Microbiol*, **47**, 2249-2251.
- Gordon NC and Wareham DW** (2010). Multidrug-resistant *Acinetobacter baumannii*: mechanisms of virulence and resistance. *Int J Antimicrob Agents*, **35**, 219-226.
- Gottesman S** (2004). The small RNA regulators of *Escherichia coli*: roles and mechanisms. *Annu Rev Microbiol*, **58**, 303-328.
- Gottesman S and Stout V** (1991). Regulation of capsular polysaccharide synthesis in *Escherichia coli* K12. *Mol Microbiol*, **5**, 1599-1606.
- Grant JR and Stothard P** (2008). The CGView Server: a comparative genomics tool for circular genomes. *Nucleic Acids Res*, **36**, W181-184.
- Greener T, Govezensky D and Zamir A** (1993). A novel multicopy suppressor of a *groEL* mutation includes two nested open reading frames transcribed from different promoters. *EMBO J*, **12**, 889-896.
- Griffith ME, Lazarus DR, Mann PB, Boger JA, Hospenthal DR and Murray CK** (2007). *Acinetobacter* skin carriage among US army soldiers deployed in Iraq. *Infect Control Hosp Epidemiol*, **28**, 720-722.
- Guardabassi L, Dijkshoorn L, Collard JM, Olsen JE and Dalgaard A** (2000). Distribution and in-vitro transfer of tetracycline resistance determinants in clinical and aquatic *Acinetobacter* strains. *J Med Microbiol*, **49**, 929-936.
- Guay GG and Rothstein DM** (1993). Expression of the *tetK* gene from *Staphylococcus aureus* in *Escherichia coli*: comparison of substrate specificities of TetA(B), TetA(C), and TetK efflux proteins. *Antimicrob Agents Chemother*, **37**, 191-198.
- Guerry P** (2007). *Campylobacter* flagella: not just for motility. *Trends Microbiol*, **15**, 456-461.
- Guzman LM, Belin D, Carson MJ and Beckwith J** (1995). Tight regulation, modulation, and high-level expression by vectors containing the arabinose PBAD promoter. *J Bacteriol*, **177**, 4121-4130.
- Gwinn ML, Ramanathan R, Smith HO and Tomb JF** (1998). A new transformation-deficient mutant of *Haemophilus influenzae* Rd with normal DNA uptake. *J Bacteriol*, **180**, 746-748.
- Han X, Kennan RM, Davies JK, Reddacliff LA, Dhungyel OP, Whittington RJ, Turnbull L, Whitchurch CB and Rood JI** (2008). Twitching motility is essential for virulence in *Dichelobacter nodosus*. *J Bacteriol*, **190**, 3323-3335.

- Hanahan D** (1983). Studies on transformation of *Escherichia coli* with plasmids. *J Mol Biol*, **166**, 557-580.
- Hantke K** (2001). Bacterial zinc transporters and regulators. *Biometals*, **14**, 239-249.
- Haseley SR, Holst O and Brade H** (1998). Structural studies of the O-antigen isolated from the phenol-soluble lipopolysaccharide of *Acinetobacter baumannii* (DNA group 2) strain 9. *Eur J Biochem*, **251**, 189-194.
- Haseley SR and Wilkinson SG** (1996). Structural studies of the putative O-specific polysaccharide of *Acinetobacter baumannii* O11. *Eur J Biochem*, **237**, 266-271.
- Hassan KA, Brzoska AJ, Wilson NL, Eijkelkamp BA, Brown MH and Paulsen IT** (2011). Roles of DHA2 family transporters in drug resistance and iron homeostasis in *Acinetobacter* spp. *J Mol Microbiol Biotechnol*, **20**, 116-124.
- Hassan KA, Galea M, Wu J, Mitchell BA, Skurray RA and Brown MH** (2006). Functional effects of intramembranous proline substitutions in the staphylococcal multidrug transporter QacA. *FEMS Microbiol Lett*, **263**, 76-85.
- Hassan KA, Johnson A, Shaffer BT, Ren Q, Kidarsa TA, Elbourne LD, Hartney S, Duboy R, Goebel NC, Zabriskie TM, Paulsen IT and Loper JE** (2010). Inactivation of the GacA response regulator in *Pseudomonas fluorescens* Pf-5 has far-reaching transcriptomic consequences. *Environ Microbiol*, **12**, 899-915.
- Hassan KA, Skurray RA and Brown MH** (2007). Active export proteins mediating drug resistance in staphylococci. *J Mol Microbiol Biotechnol*, **12**, 180-196.
- Hassan KA, Xu Z, Watkins RE, Brennan RG, Skurray RA and Brown MH** (2009). Optimized production and analysis of the staphylococcal multidrug efflux protein QacA. *Protein Expr Purif*, **64**, 118-124.
- Haussler S** (2004). Biofilm formation by the small colony variant phenotype of *Pseudomonas aeruginosa*. *Environ Microbiol*, **6**, 546-551.
- Hazan R, He J, Xiao G, Dekimpe V, Apidianakis Y, Lesic B, Astrakas C, Deziel E, Lepine F and Rahme LG** (2010). Homeostatic interplay between bacterial cell-cell signaling and iron in virulence. *PLoS Pathog*, **6**, e1000810.
- He GX, Kuroda T, Mima T, Morita Y, Mizushima T and Tsuchiya T** (2004). An H(⁺)-coupled multidrug efflux pump, PmpM, a member of the MATE family of transporters, from *Pseudomonas aeruginosa*. *J Bacteriol*, **186**, 262-265.
- He X, Szewczyk P, Karyakin A, Evin M, Hong WX, Zhang Q and Chang G** (2010). Structure of a cation-bound multidrug and toxic compound extrusion transporter. *Nature*, **467**, 991-994.
- Helmann JD** (2002). The extracytoplasmic function (ECF) sigma factors. *Adv Microb Physiol*, **46**, 47-110.

- Henderson IR, Owen P and Nataro JP** (1999). Molecular switches-the ON and OFF of bacterial phase variation. *Mol Microbiol*, **33**, 919-932.
- Henrichsen J** (1972). Bacterial surface translocation: a survey and a classification. *Bacteriol Rev*, **36**, 478-503.
- Henrichsen J** (1975). The influence of changes in the environment on twitching motility. *Acta Pathol Microbiol Scand B*, **83**, 179-186.
- Henrichsen J** (1984). Not gliding but twitching motility of *Acinetobacter calcoaceticus*. *J Clin Pathol*, **37**, 102-103.
- Henrichsen J and Blom J** (1975). Correlation between twitching motility and possession of polar fimbriae in *Acinetobacter calcoaceticus*. *Acta Pathol Microbiol Scand B*, **83**, 103-115.
- Henrichsen J, Froholm LO and Bovre K** (1972). Studies on bacterial surface translocation. 2. Correlation of twitching motility and fimbriation in colony variants of *Moraxella nonliquefaciens*, *M. bovis*, and *M. kingii*. *Acta Pathol Microbiol Scand B*, **80**, 445-452.
- Herzberg C, Friedrich A and Averhoff B** (2000). *comB*, a novel competence gene required for natural transformation of *Acinetobacter* sp. BD413: identification, characterization, and analysis of growth-phase-dependent regulation. *Arch Microbiol*, **173**, 220-228.
- Higgins PG, Stubbings W, Wisplinghoff H and Seifert H** (2010). Activity of the investigational fluoroquinolone finafloxacin against ciprofloxacin-sensitive and -resistant *Acinetobacter baumannii* isolates. *Antimicrob Agents Chemother*, **54**, 1613-1615.
- Higgins PG, Wisplinghoff H, Stefanik D and Seifert H** (2004). Selection of topoisomerase mutations and overexpression of *adeB* mRNA transcripts during an outbreak of *Acinetobacter baumannii*. *J Antimicrob Chemother*, **54**, 821-823.
- Hoang TT, Karkhoff-Schweizer RR, Kutchma AJ and Schweizer HP** (1998). A broad-host-range Flp-FRT recombination system for site-specific excision of chromosomally-located DNA sequences: application for isolation of unmarked *Pseudomonas aeruginosa* mutants. *Gene*, **212**, 77-86.
- Hoboth C, Hoffmann R, Eichner A, Henke C, Schmoldt S, Imhof A, Heesemann J and Hogardt M** (2009). Dynamics of adaptive microevolution of hypermutable *Pseudomonas aeruginosa* during chronic pulmonary infection in patients with cystic fibrosis. *J Infect Dis*, **200**, 118-130.
- Hoiby N, Bjarnsholt T, Givskov M, Molin S and Ciofu O** (2010). Antibiotic resistance of bacterial biofilms. *Int J Antimicrob Agents*, **35**, 322-332.
- Hood MI, Jacobs AC, Sayood K, Dunman PM and Skaar EP** (2010). *Acinetobacter baumannii* increases tolerance to antibiotics in response to monovalent cations. *Antimicrob Agents Chemother*, **54**, 1029-1041.

- Hornsey M and Wareham DW** (2011). In vivo efficacy of glycopeptide-colistin combination therapies in a *Galleria mellonella* model of *Acinetobacter baumannii* infection. *Antimicrob Agents Chemother*, **55**, 3534-3537.
- Hu WS, Yao SM, Fung CP, Hsieh YP, Liu CP and Lin JF** (2007). An OXA-66/OXA-51-like carbapenemase and possibly an efflux pump are associated with resistance to imipenem in *Acinetobacter baumannii*. *Antimicrob Agents Chemother*, **51**, 3844-3852.
- Huda MN, Chen J, Morita Y, Kuroda T, Mizushima T and Tsuchiya T** (2003). Gene cloning and characterization of VcrM, a Na⁺-coupled multidrug efflux pump, from *Vibrio cholerae* non-O1. *Microbiol Immunol*, **47**, 419-427.
- Huda MN, Morita Y, Kuroda T, Mizushima T and Tsuchiya T** (2001). Na⁺-driven multidrug efflux pump VcmA from *Vibrio cholerae* non-O1, a non-halophilic bacterium. *FEMS Microbiol Lett*, **203**, 235-239.
- Hujer KM, Hujer AM, Hulten EA, Bajaksouzian S, Adams JM, Donskey CJ, Ecker DJ, Massire C, Eshoo MW, Sampath R, Thomson JM, Rather PN, Craft DW, Fishbain JT, Ewell AJ, Jacobs MR, Paterson DL and Bonomo RA** (2006). Analysis of antibiotic resistance genes in multidrug-resistant *Acinetobacter* sp. isolates from military and civilian patients treated at the Walter Reed Army Medical Center. *Antimicrob Agents Chemother*, **50**, 4114-4123.
- Hunger M, Schmucker R, Kishan V and Hillen W** (1990). Analysis and nucleotide sequence of an origin of DNA replication in *Acinetobacter calcoaceticus* and its use for *Escherichia coli* shuttle plasmids. *Gene*, **87**, 45-51.
- Huys G, Cnockaert M, Vaneechoutte M, Woodford N, Nemec A, Dijkshoorn L and Swings J** (2005). Distribution of tetracycline resistance genes in genotypically related and unrelated multiresistant *Acinetobacter baumannii* strains from different European hospitals. *Res Microbiol*, **156**, 348-355.
- Iacono M, Villa L, Fortini D, Bordoni R, Imperi F, Bonnal RJ, Sicheritz-Ponten T, De Bellis G, Visca P, Cassone A and Carattoli A** (2008). Whole-genome pyrosequencing of an epidemic multidrug-resistant *Acinetobacter baumannii* strain belonging to the European clone II group. *Antimicrob Agents Chemother*, **52**, 2616-2625.
- Jacobs AC, Hood I, Boyd KL, Olson PD, Morrison JM, Carson S, Sayood K, Iwen PC, Skaar EP and Dunman PM** (2010). Inactivation of phospholipase D diminishes *Acinetobacter baumannii* pathogenesis. *Infect Immun*, **78**, 1952-1962.
- Jacobs MR, Bajaksouzian S, Good CE, Butler MM, Williams JD, Peet NP, Bowlin TL, Endimiani A and Bonomo RA** (2011). Novel bis-indole agents active against multidrug-resistant *Acinetobacter baumannii*. *Diagn Microbiol Infect Dis*, **69**, 114-116.

- Jamal W, Salama M, Dehrab N, Al Hashem G, Shahin M and Rotimi VO** (2009). Role of tigecycline in the control of a carbapenem-resistant *Acinetobacter baumannii* outbreak in an intensive care unit. *J Hosp Infect*, **72**, 234-242.
- Jang TN, Lee SH, Huang CH, Lee CL and Chen WY** (2009). Risk factors and impact of nosocomial *Acinetobacter baumannii* bloodstream infections in the adult intensive care unit: a case-control study. *J Hosp Infect*, **73**, 143-150.
- Jani AJ and Cotter PA** (2010). Type VI secretion: not just for pathogenesis anymore. *Cell Host Microbe*, **8**, 2-6.
- Janssen P, Maquelin K, Coopman R, Tjernberg I, Bouvet P, Kersters K and Dijkshoorn L** (1997). Discrimination of *Acinetobacter* genomic species by AFLP fingerprinting. *Int J Syst Bact*, **47**, 1179-1187.
- Johnson JL, Anderson RS and Ordal EJ** (1970). Nucleic acid homologies among oxidase-negative *Moraxella* species. *J Bacteriol*, **101**, 568-573.
- Joly-Guillou ML** (2005). Clinical impact and pathogenicity of *Acinetobacter*. *Clin Microbiol Infect*, **11**, 868-873.
- Josenhans C and Suerbaum S** (2002). The role of motility as a virulence factor in bacteria. *Int J Med Microbiol*, **291**, 605-614.
- Jung J, Noh J and Park W** (2011). Physiological and metabolic responses for hexadecane degradation in *Acinetobacter oleivorans* DR1. *J Microbiol*, **49**, 208-215.
- Kaiser D** (2007). Bacterial swarming: a re-examination of cell-movement patterns. *Curr Biol*, **17**, R561-570.
- Kang M, Xie Y, Mintao C, Chen Z, Chen H, Fan H, Chen W and Guo X** (2009). Antimicrobial susceptibility of clinical isolates from earthquake victims in Wenchuan. *Clin Microbiol Infect*, **15**, 87-92.
- Kang YS and Park W** (2010). Trade-off between antibiotic resistance and biological fitness in *Acinetobacter* sp. strain DR1. *Environ Microbiol*, **12**, 1304-1318.
- Kearns DB** (2010). A field guide to bacterial swarming motility. *Nat Rev Microbiol*, **8**, 634-644.
- Kiani QH, Amir M, Ghazanfar MA and Iqbal M** (2009). Microbiology of wound infections among hospitalised patients following the 2005 Pakistan earthquake. *J Hosp Infect*, **73**, 71-78.
- King LB, Swiatlo E, Swiatlo A and McDaniel LS** (2009). Serum resistance and biofilm formation in clinical isolates of *Acinetobacter baumannii*. *FEMS Immunol Med Microbiol*, **55**, 414-421.
- Klausen M, Aaes-Jorgensen A, Molin S and Tolker-Nielsen T** (2003). Involvement of bacterial migration in the development of complex

- multicellular structures in *Pseudomonas aeruginosa* biofilms. *Mol Microbiol*, **50**, 61-68.
- Kohler T, Perron GG, Buckling A and van Delden C** (2010). Quorum sensing inhibition selects for virulence and cooperation in *Pseudomonas aeruginosa*. *PLoS Pathog*, **6**, e1000883.
- Korkhov VM and Tate CG** (2008). Electron crystallography reveals plasticity within the drug binding site of the small multidrug transporter EmrE. *J Mol Biol*, **377**, 1094-1103.
- Koster W** (2005). Cytoplasmic membrane iron permease systems in the bacterial cell envelope. *Front Biosci*, **10**, 462-477.
- Krizova L, Dijkshoorn L and Nemec A** (2011). Diversity and evolution of AbaR genomic resistance islands in *Acinetobacter baumannii* strains of European clone I. *Antimicrob Agents Chemother*, **55**, 3201-3206.
- Krizova L and Nemec A** (2010). A 63 kb genomic resistance island found in a multidrug-resistant *Acinetobacter baumannii* isolate of European clone I from 1977. *J Antimicrob Chemother*, **65**, 1915-1918.
- Krogh A, Larsson B, von Heijne G and Sonnhammer EL** (2001). Predicting transmembrane protein topology with a hidden Markov model: application to complete genomes. *J Mol Biol*, **305**, 567-580.
- Kulah C, Celebi G, Aktas E, Mengeloglu Z, Comert F and Ankarali H** (2009). Unexpected tigecycline resistance among *Acinetobacter baumannii* Isolates: high minor error rate by Etest. *J Chemother*, **21**, 390-395.
- Kuroda T and Tsuchiya T** (2009). Multidrug efflux transporters in the MATE family. *Biochim Biophys Acta*, **1794**, 763-768.
- Lang B, Blot N, Bouffartigues E, Buckle M, Geertz M, Gualerzi CO, Mavathur R, Muskhelishvili G, Pon CL, Rimsky S, Stella S, Babu MM and Travers A** (2007). High-affinity DNA binding sites for H-NS provide a molecular basis for selective silencing within proteobacterial genomes. *Nucleic Acids Res*, **35**, 6330-6337.
- Lasa I and Penades JR** (2006). Bap: a family of surface proteins involved in biofilm formation. *Res Microb*, **157**, 99-107.
- Laskowska E, Kuczynska-Wisnik D, Skorko-Glonek J and Taylor A** (1996). Degradation by proteases Lon, Clp and HtrA, of *Escherichia coli* proteins aggregated in vivo by heat shock; HtrA protease action in vivo and in vitro. *Mol Microbiol*, **22**, 555-571.
- Law RJ, Hamlin JN, Sivro A, McCorrister SJ, Cardama GA and Cardona ST** (2008). A functional phenylacetic acid catabolic pathway is required for full pathogenicity of *Burkholderia cenocepacia* in the *Caenorhabditis elegans* host model. *J Bacteriol*, **190**, 7209-7218.

- Lee HW, Koh YM, Kim J, Lee JC, Lee YC, Seol SY and Cho DT** (2008). Capacity of multidrug-resistant clinical isolates of *Acinetobacter baumannii* to form biofilm and adhere to epithelial cell surfaces. *Clin Microbiol Infect*, **14**, 49-54.
- Lee KH, Kim KW and Rhee KH** (2010a). Identification of *Streptomyces* sp. KH29, which produces an antibiotic substance processing an inhibitory activity against multidrug-resistant *Acinetobacter baumannii*. *J Microbiol Biotechnol*, **20**, 1672-1676.
- Lee NY, Lee HC, Ko NY, Chang CM, Shih HI, Wu CJ and Ko WC** (2007). Clinical and economic impact of multidrug resistance in nosocomial *Acinetobacter baumannii* bacteremia. *Infect Control Hosp Epidemiol*, **28**, 713-719.
- Lee Y, Kim CK, Lee H, Jeong SH, Yong D and Lee K** (2010b). A novel insertion sequence, ISAbal0, inserted into ISAbal adjacent to the blaOXA-23 gene and disrupting the outer membrane protein carO gene in *Acinetobacter baumannii*. *Antimicrob Agents Chemother*, **55**, 361-363.
- Lewinson O, Adler J, Sigal N and Bibi E** (2006). Promiscuity in multidrug recognition and transport: the bacterial MFS Mdr transporters. *Mol Microbiol*, **61**, 277-284.
- Lewis T, Loman NJ, Bingle L, Jumaa P, Weinstock GM, Mortiboy D and Pallen MJ** (2010). High-throughput whole-genome sequencing to dissect the epidemiology of *Acinetobacter baumannii* isolates from a hospital outbreak. *J Hosp Infect*, **75**, 37-41.
- Liang W, Liu XF, Huang J, Zhu DM, Li J and Zhang J** (2011). Activities of colistin- and minocycline-based combinations against extensive drug resistant *Acinetobacter baumannii* isolates from intensive care unit patients. *BMC Infect Dis*, **11**, 109.
- Liang Y, Gao H, Chen J, Dong Y, Wu L, He Z, Liu X, Qiu G and Zhou J** (2010). Pellicle formation in *Shewanella oneidensis*. *BMC Microbiol*, **10**, 291.
- Lim LM, Ly N, Anderson D, Yang JC, Macander L, Jarkowski A, 3rd, Forrest A, Bulitta JB and Tsuji BT** (2010). Resurgence of colistin: a review of resistance, toxicity, pharmacodynamics, and dosing. *Pharmacotherapy*, **30**, 1279-1291.
- Lim TP, Tan TY, Lee W, Sasikala S, Tan TT, Hsu LY and Kwa AL** (2011). In-vitro activity of polymyxin B, rifampicin, tigecycline alone and in combination against carbapenem-resistant *Acinetobacter baumannii* in Singapore. *PLoS One*, **6**, e18485.
- Limansky AS, Mussi MA and Viale AM** (2002). Loss of a 29-kilodalton outer membrane protein in *Acinetobacter baumannii* is associated with imipenem resistance. *J Clin Microbiol*, **40**, 4776-4778.

- Lin L, Ling BD and Li XZ** (2009). Distribution of the multidrug efflux pump genes, *adeABC*, *adeDE* and *adeIJK*, and class 1 integron genes in multiple-antimicrobial-resistant clinical isolates of *Acinetobacter baumannii*-*Acinetobacter calcoaceticus* complex. *Int J Antimicrob Agents*, **33**, 27-32.
- Livak KJ and Schmittgen TD** (2001). Analysis of relative gene expression data using real-time quantitative PCR and the 2(-Delta Delta C(T)) method. *Methods*, **25**, 402-408.
- Livorsi DJ, Stenehjem E and Stephens DS** (2011). Virulence factors of Gram-negative bacteria in sepsis with a focus on *Neisseria meningitidis*. *Contrib Microbiol*, **17**, 31-47.
- Loehfelm TW, Luke NR and Campagnari AA** (2008). Identification and characterization of an *Acinetobacter baumannii* biofilm-associated protein. *J Bacteriol*, **190**, 1036-1044.
- Lopez-Rojas R, Dominguez-Herrera J, McConnell MJ, Docobo-Perez F, Smani Y, Fernandez-Reyes M, Rivas L and Pachon J** (2011). Impaired virulence and in vivo fitness of colistin-resistant *Acinetobacter baumannii*. *J Infect Dis*, **203**, 545-548.
- Lowman W, Kalk T, Menezes CN, John MA and Grobusch MP** (2008). A case of community-acquired *Acinetobacter baumannii* meningitis - has the threat moved beyond the hospital? *J Med Microbiol*, **57**, 676-678.
- Lu PL, Doumith M, Livermore DM, Chen TP and Woodford N** (2009). Diversity of carbapenem resistance mechanisms in *Acinetobacter baumannii* from a Taiwan hospital: spread of plasmid-borne OXA-72 carbapenemase. *J Antimicrob Chemother*, **63**, 641-647.
- Luke NR, Howlett AJ, Shao J and Campagnari AA** (2004). Expression of type IV pili by *Moraxella catarrhalis* is essential for natural competence and is affected by iron limitation. *Infect Immun*, **72**, 6262-6270.
- Luke NR, Sauberan SL, Russo TA, Beanan JM, Olson R, Loehfelm TW, Cox AD, St Michael F, Vinogradov EV and Campagnari AA** (2010). Identification and characterization of a glycosyltransferase involved in *Acinetobacter baumannii* lipopolysaccharide core biosynthesis. *Infect Immun*, **78**, 2017-2023.
- Ma D, Cook DN, Alberti M, Pon NG, Nikaido H and Hearst JE** (1993). Molecular cloning and characterization of *acrA* and *acrE* genes of *Escherichia coli*. *J Bacteriol*, **175**, 6299-6313.
- MacLean LL, Perry MB, Chen W and Vinogradov E** (2009). The structure of the polysaccharide O-chain of the LPS from *Acinetobacter baumannii* strain ATCC 17961. *Carbohydr Res*, **344**, 474-478.

- Madsen ML, Nettleton D, Thacker EL and Minion FC** (2006). Transcriptional profiling of *Mycoplasma hyopneumoniae* during iron depletion using microarrays. *Microbiology*, **152**, 937-944.
- Magnet S, Courvalin P and Lambert T** (2001). Resistance-nodulation-cell division-type efflux pump involved in aminoglycoside resistance in *Acinetobacter baumannii* strain BM4454. *Antimicrob Agents Chemother*, **45**, 3375-3380.
- March C, Regueiro V, Llobet E, Moranta D, Morey P, Garmendia J and Bengoechea JA** (2010). Dissection of host cell signal transduction during *Acinetobacter baumannii*-triggered inflammatory response. *PLoS One*, **5**, e10033.
- Marchaim D, Navon-Venezia S, Schwartz D, Tarabeia J, Fefer I, Schwaber MJ and Carmeli Y** (2007). Surveillance cultures and duration of carriage of multidrug-resistant *Acinetobacter baumannii*. *J Clin Microbiol*, **45**, 1551-1555.
- Marchler-Bauer A, Lu S, Anderson JB, Chitsaz F, Derbyshire MK, DeWeese-Scott C, Fong JH, Geer LY, Geer RC, Gonzales NR, Gwadz M, Hurwitz DI, Jackson JD, Ke Z, Lanczycki CJ, Lu F, Marchler GH, Mullokandov M, Omelchenko MV, Robertson CL, Song JS, Thanki N, Yamashita RA, Zhang D, Zhang N, Zheng C and Bryant SH** (2011). CDD: a Conserved Domain Database for the functional annotation of proteins. *Nucleic Acids Res*, **39**, D225-229.
- Markogiannakis A, Fildisis G, Tsiplakou S, Ikonomidis A, Koutsoukou A, Pournaras S, Manolis EN, Baltopoulos G and Tsakris A** (2008). Cross-transmission of multidrug-resistant *Acinetobacter baumannii* clonal strains causing episodes of sepsis in a trauma intensive care unit. *Infect Control Hosp Epidemiol*, **29**, 410-417.
- Marr AK, Overhage J, Bains M and Hancock RE** (2007). The Lon protease of *Pseudomonas aeruginosa* is induced by aminoglycosides and is involved in biofilm formation and motility. *Microbiology*, **153**, 474-482.
- Marti S, Rodriguez-Bano J, Catel-Ferreira M, Jouenne T, Vila J, Seifert H and De E** (2011). Biofilm formation at the solid-liquid and air-liquid interfaces by *Acinetobacter* species. *BMC Res Notes*, **4**, 5.
- Martin JF, Casqueiro J and Liras P** (2005). Secretion systems for secondary metabolites: how producer cells send out messages of intercellular communication. *Curr Opin Microbiol*, **8**, 282-293.
- Masse E, Majdalani N and Gottesman S** (2003). Regulatory roles for small RNAs in bacteria. *Curr Opin Microbiol*, **6**, 120-124.
- Mattick JS** (2002). Type IV pili and twitching motility. *Annu Rev Microbiol*, **56**, 289-314.

- Mauriello EM, Mignot T, Yang Z and Zusman DR** (2010). Gliding motility revisited: how do the myxobacteria move without flagella? *Microbiol Mol Biol Rev*, **74**, 229-249.
- McConnell MJ and Pachon J** (2011). Expression, purification, and refolding of biologically active *Acinetobacter baumannii* OmpA from *Escherichia coli* inclusion bodies. *Protein Expr Purif*, **77**, 98-103.
- McQueary CN and Actis LA** (2011). *Acinetobacter baumannii* biofilms: Variations among strains and correlations with other cell properties. *J Microbiol*, **49**, 243-250.
- Meng Y, Li Y, Galvani CD, Hao G, Turner JN, Burr TJ and Hoch HC** (2005). Upstream migration of *Xylella fastidiosa* via pilus-driven twitching motility. *J Bacteriol*, **187**, 5560-5567.
- Michalopoulos A and Falagas ME** (2010). Treatment of *Acinetobacter* infections. *Expert Opin Pharmacother*, **11**, 779-788.
- Mignot T** (2007). The elusive engine in *Myxococcus xanthus* gliding motility. *Cell Mol Life Sci*, **64**, 2733-2745.
- Mihara K, Tanabe T, Yamakawa Y, Funahashi T, Nakao H, Narimatsu S and Yamamoto S** (2004). Identification and transcriptional organization of a gene cluster involved in biosynthesis and transport of acinetobactin, a siderophore produced by *Acinetobacter baumannii* ATCC 19606T. *Microbiology*, **150**, 2587-2597.
- Mihu MR, Sandkovsky U, Han G, Friedman JM, Nosanchuk JD and Martinez LR** (2010). The use of nitric oxide releasing nanoparticles as a treatment against *Acinetobacter baumannii* in wound infections. *Virulence*, **1**, 62-67.
- Mishra S, Sarma PM and Lal B** (2004). Crude oil degradation efficiency of a recombinant *Acinetobacter baumannii* strain and its survival in crude oil-contaminated soil microcosm. *FEMS Microbiol Lett*, **235**, 323-331.
- Misra R and Bavro VN** (2009). Assembly and transport mechanism of tripartite drug efflux systems. *Biochim Biophys Acta*, **1794**, 817-825.
- Moffatt JH, Harper M, Adler B, Nation RL, Li J and Boyce JD** (2011). Insertion sequence ISAbal1 is involved in colistin resistance and loss of lipopolysaccharide in *Acinetobacter baumannii*. *Antimicrob Agents Chemother*, **55**, 3022-3024.
- Mollmann U, Heinisch L, Bauernfeind A, Kohler T and Ankel-Fuchs D** (2009). Siderophores as drug delivery agents: application of the "Trojan Horse" strategy. *Biometals*, **22**, 615-624.
- Montigny C, Penin F, Lethias C and Falson P** (2004). Overcoming the toxicity of membrane peptide expression in bacteria by upstream insertion of Asp-Pro sequence. *Biochim Biophys Acta*, **1660**, 53-65.

- Morita Y, Kataoka A, Shiota S, Mizushima T and Tsuchiya T** (2000). NorM of *Vibrio parahaemolyticus* is an Na⁽⁺⁾-driven multidrug efflux pump. *J Bacteriol*, **182**, 6694-6697.
- Morita Y, Kodama K, Shiota S, Mine T, Kataoka A, Mizushima T and Tsuchiya T** (1998). NorM, a putative multidrug efflux protein, of *Vibrio parahaemolyticus* and its homolog in *Escherichia coli*. *Antimicrob Agents Chemother*, **42**, 1778-1782.
- Motaouakkil S, Charra B, Hachimi A, Nejmi H, Benslama A, Elmdaghri N, Belabbes H and Benbachir M** (2006). Colistin and rifampicin in the treatment of nosocomial infections from multiresistant *Acinetobacter baumannii*. *J Infect*, **53**, 274-278.
- Moubareck C, Bremont S, Conroy MC, Courvalin P and Lambert T** (2009). GES-11, a novel integron-associated GES variant in *Acinetobacter baumannii*. *Antimicrob Agents Chemother*, **53**, 3579-3581.
- Mougous JD, Cuff ME, Raunser S, Shen A, Zhou M, Gifford CA, Goodman AL, Joachimiak G, Ordonez CL, Lory S, Walz T, Joachimiak A and Mekalanos JJ** (2006). A virulence locus of *Pseudomonas aeruginosa* encodes a protein secretion apparatus. *Science*, **312**, 1526-1530.
- Mukerji S and Bhopale N** (1983). Gliding motility of *Acinetobacter anitratus*. *J Clin Pathol*, **36**, 484.
- Murakami S** (2008). Multidrug efflux transporter, AcrB-the pumping mechanism. *Curr Opin Struct Biol*, **18**, 459-465.
- Murakami S, Nakashima R, Yamashita E and Yamaguchi A** (2002). Crystal structure of bacterial multidrug efflux transporter AcrB. *Nature*, **419**, 587-593.
- Mushtaq S, Warner M and Livermore D** (2010). Activity of the siderophore monobactam BAL30072 against multiresistant non-fermenters. *J Antimicrob Chemother*, **65**, 266-270.
- Mussi MA, Gaddy JA, Cabruja M, Arivett BA, Viale AM, Rasia R and Actis LA** (2010). The opportunistic human pathogen *Acinetobacter baumannii* senses and responds to light. *J Bacteriol*, **192**, 6336-6345.
- Mussi MA, Limansky AS and Viale AM** (2005). Acquisition of resistance to carbapenems in multidrug-resistant clinical strains of *Acinetobacter baumannii*: natural insertional inactivation of a gene encoding a member of a novel family of beta-barrel outer membrane proteins. *Antimicrob Agents Chemother*, **49**, 1432-1440.
- Nalca Y, Jansch L, Bredenbruch F, Geffers R, Buer J and Haussler S** (2006). Quorum-sensing antagonistic activities of azithromycin in *Pseudomonas aeruginosa* PAO1: a global approach. *Antimicrob Agents Chemother*, **50**, 1680-1688.

- Nara T, Kouyama T, Kurata Y, Kikukawa T, Miyauchi S and Kamo N** (2007). Anti-parallel membrane topology of a homo-dimeric multidrug transporter, EmrE. *J Biochem*, **142**, 621-625.
- Naughton S, Parker D, Seemann T, Thomas T, Turnbull L, Rose B, Bye P, Cordwell S, Whitchurch C and Manos J** (2011). *Pseudomonas aeruginosa* AES-1 exhibits increased virulence gene expression during chronic infection of cystic fibrosis lung. *PLoS One*, **6**, e24526.
- Neely AN** (2000). A survey of gram-negative bacteria survival on hospital fabrics and plastics. *J Burn Care Rehabil*, **21**, 523-527.
- Nemec A, De Baere T, Tjernberg I, Vaneechoutte M, van der Reijden TJ and Dijkshoorn L** (2001). *Acinetobacter ursingii* sp. nov. and *Acinetobacter schindleri* sp. nov., isolated from human clinical specimens. *Int J Syst Evol Microbiol*, **51**, 1891-1899.
- Nemec A and Dijkshoorn L** (2010). Variations in colistin susceptibility among different species of the genus *Acinetobacter*. *J Antimicrob Chemother*, **65**, 367-369.
- Nemec A, Dijkshoorn L, Cleenwerck I, De Baere T, Janssens D, Van Der Reijden TJ, Jezek P and Vaneechoutte M** (2003). *Acinetobacter parvus* sp. nov., a small-colony-forming species isolated from human clinical specimens. *Int J Syst Evol Microbiol*, **53**, 1563-1567.
- Nemec A, Dijkshoorn L and van der Reijden TJ** (2004a). Long-term predominance of two pan-European clones among multi-resistant *Acinetobacter baumannii* strains in the Czech Republic. *J Med Microbiol*, **53**, 147-153.
- Nemec A, Dolzani L, Brisse S, van den Broek P and Dijkshoorn L** (2004b). Diversity of aminoglycoside-resistance genes and their association with class 1 integrons among strains of pan-European *Acinetobacter baumannii* clones. *J Med Microbiol*, **53**, 1233-1240.
- Nemec A, Janda L, Melter O and Dijkshoorn L** (1999). Genotypic and phenotypic similarity of multiresistant *Acinetobacter baumannii* isolates in the Czech Republic. *J Med Microbiol*, **48**, 287-296.
- Nemec A, Krizova L, Maixnerova M, Diancourt L, van der Reijden TJ, Brisse S, van den Broek P and Dijkshoorn L** (2008). Emergence of carbapenem resistance in *Acinetobacter baumannii* in the Czech Republic is associated with the spread of multidrug-resistant strains of European clone II. *J Antimicrob Chemother*, **62**, 484-489.
- Nemec A, Krizova L, Maixnerova M, van der Reijden TJ, Deschaght P, Passet V, Vaneechoutte M, Brisse S and Dijkshoorn L** (2011). Genotypic and phenotypic characterization of the *Acinetobacter calcoaceticus*-*Acinetobacter baumannii* complex with the proposal of *Acinetobacter pittii* sp. nov.

(formerly *Acinetobacter* genomic species 3) and *Acinetobacter nosocomialis* sp. nov. (formerly *Acinetobacter* genomic species 13TU). *Res Microb*, **162**, 393-404.

- Nemec A, Musilek M, Sedo O, De Baere T, Maixnerova M, van der Reijden TJ, Zdrahal Z, Vaneechoutte M and Dijkshoorn L** (2010). *Acinetobacter bereziniae* sp. nov. and *Acinetobacter guillouiae* sp. nov., to accommodate *Acinetobacter* genomic species 10 and 11, respectively. *Int J Syst Evol Microbiol*, **60**, 896-903.
- Neonakis IK, Spandidos DA and Petinaki E** (2011). Confronting multidrug-resistant *Acinetobacter baumannii*: a review. *Int J Antimicrob Agents*, **37**, 102-109.
- Nikaido H and Takatsuka Y** (2009). Mechanisms of RND multidrug efflux pumps. *Biochim Biophys Acta*, **1794**, 769-781.
- Nishimura Y, Kanzaki H and Iizuka H** (1988). Taxonomic studies of *Acinetobacter* species based on the electrophoretic analysis of enzymes. *J Basic Microbiol*, **28**, 363-370.
- Niu C, Clemmer KM, Bonomo RA and Rather PN** (2008). Isolation and characterization of an autoinducer synthase from *Acinetobacter baumannii*. *J Bacteriol*, **190**, 3386-3392.
- Noirclerc-Savoye M, Morlot C, Gerard P, Vernet T and Zapun A** (2003). Expression and purification of FtsW and RodA from *Streptococcus pneumoniae*, two membrane proteins involved in cell division and cell growth, respectively. *Protein Expr Purif*, **30**, 18-25.
- Nordmann P and Poirel L** (2002). Emerging carbapenemases in Gram-negative aerobes. *Clin Microbiol Infect*, **8**, 321-331.
- Norman RS, Frontera-Suau R and Morris PJ** (2002). Variability in *Pseudomonas aeruginosa* lipopolysaccharide expression during crude oil degradation. *Appl Environ Microbiol*, **68**, 5096-5103.
- Nucleo E, Steffanoni L, Fugazza G, Migliavacca R, Giacobone E, Navarra A, Pagani L and Landini P** (2009). Growth in glucose-based medium and exposure to subinhibitory concentrations of imipenem induce biofilm formation in a multidrug-resistant clinical isolate of *Acinetobacter baumannii*. *BMC Microbiol*, **9**, 270.
- Nudleman E and Kaiser D** (2004). Pulling together with type IV pili. *J Mol Microbiol Biotechnol*, **7**, 52-62.
- Nwugo CC, Gaddy JA, Zimbler DL and Actis LA** (2011). Deciphering the iron response in *Acinetobacter baumannii*: A proteomics approach. *J Proteomics*, **74**, 44-58.

- O'Toole GA, Pratt LA, Watnick PI, Newman DK, Weaver VB and Kolter R** (1999). Genetic approaches to study of biofilms. *Methods Enzymol*, **310**, 91-109.
- Obaro S, Lawson L, Essen U, Ibrahim K, Brooks K, Otuneye A, Shatima D, Ahmed P, Ajose T, Olugbile M, Idiong D, Ogundesi D, Ochigbo C, Olanipekun G, Khalife W and Adegbola R** (2011). Community acquired bacteremia in young children from central Nigeria - a pilot study. *BMC Infect Dis*, **11**, 137.
- Ochsner UA, Wilderman PJ, Vasil AI and Vasil ML** (2002). GeneChip expression analysis of the iron starvation response in *Pseudomonas aeruginosa*: identification of novel pyoverdine biosynthesis genes. *Mol Microbiol*, **45**, 1277-1287.
- Ofori-Darko E, Zavros Y, Rieder G, Tarle SA, Van Antwerp M and Merchant JL** (2000). An OmpA-like protein from *Acinetobacter* spp. stimulates gastrin and interleukin-8 promoters. *Infect Immun*, **68**, 3657-3666.
- Ohta KY, Imamura Y, Okudaira N, Atsumi R, Inoue K and Yuasa H** (2009). Functional characterization of multidrug and toxin extrusion protein 1 as a facilitative transporter for fluoroquinolones. *J Pharmacol Exp Ther*, **328**, 628-634.
- Okusu H, Ma D and Nikaido H** (1996). AcrAB efflux pump plays a major role in the antibiotic resistance phenotype of *Escherichia coli* multiple-antibiotic-resistance (Mar) mutants. *J Bacteriol*, **178**, 306-308.
- Oliver A, Canton R, Campo P, Baquero F and Blazquez J** (2000). High frequency of hypermutable *Pseudomonas aeruginosa* in cystic fibrosis lung infection. *Science*, **288**, 1251-1254.
- Omote H, Hiasa M, Matsumoto T, Otsuka M and Moriyama Y** (2006). The MATE proteins as fundamental transporters of metabolic and xenobiotic organic cations. *Trends Pharmacol Sci*, **27**, 587-593.
- Ophir T and Gutnick DL** (1994). A role for exopolysaccharides in the protection of microorganisms from desiccation. *Appl Environ Microbiol*, **60**, 740-745.
- Overhage J, Lewenza S, Marr AK and Hancock RE** (2007). Identification of genes involved in swarming motility using a *Pseudomonas aeruginosa* PAO1 mini-Tn5-lux mutant library. *J Bacteriol*, **189**, 2164-2169.
- Pachon-Ibanez ME, Docobo-Perez F, Lopez-Rojas R, Dominguez-Herrera J, Jimenez-Mejias ME, Garcia-Curiel A, Pichardo C, Jimenez L and Pachon J** (2010). Efficacy of rifampin and its combinations with imipenem, sulbactam, and colistin in experimental models of infection caused by imipenem-resistant *Acinetobacter baumannii*. *Antimicrob Agents Chemother*, **54**, 1165-1172.

- Page MG, Dantier C and Desarbre E** (2010). In vitro properties of BAL30072, a novel siderophore sulfactam with activity against multiresistant gram-negative bacilli. *Antimicrob Agents Chemother*, **54**, 2291-2302.
- Palmen R, Vosman B, Buijsman P, Breek CK and Hellingwerf KJ** (1993). Physiological characterization of natural transformation in *Acinetobacter calcoaceticus*. *J Gen Microbiol*, **139**, 295-305.
- Palyada K, Threadgill D and Stintzi A** (2004). Iron acquisition and regulation in *Campylobacter jejuni*. *J Bacteriol*, **186**, 4714-4729.
- Pannek S, Higgins PG, Steinke P, Jonas D, Akova M, Bohnert JA, Seifert H and Kern WV** (2006). Multidrug efflux inhibition in *Acinetobacter baumannii*: comparison between 1-(1-naphthylmethyl)-piperazine and phenyl-arginine-beta-naphthylamide. *J Antimicrob Chemother*, **57**, 970-974.
- Pantophlet R, Nemec A, Brade L, Brade H and Dijkshoorn L** (2001). O-antigen diversity among *Acinetobacter baumannii* strains from the Czech Republic and Northwestern Europe, as determined by lipopolysaccharide-specific monoclonal antibodies. *J Clin Microbiol*, **39**, 2576-2580.
- Park YK, Choi JY, Shin D and Ko KS** (2011). Correlation between overexpression and amino acid substitution of the PmrAB locus and colistin resistance in *Acinetobacter baumannii*. *Int J Antimicrob Agents*, **37**, 525-530.
- Patriquin GM, Banin E, Gilmour C, Tuchman R, Greenberg EP and Poole K** (2008). Influence of quorum sensing and iron on twitching motility and biofilm formation in *Pseudomonas aeruginosa*. *J Bacteriol*, **190**, 662-671.
- Patterson JE, Vecchio J, Pantelick EL, Farrel P, Mazon D, Zervos MJ and Hierholzer WJ, Jr.** (1991). Association of contaminated gloves with transmission of *Acinetobacter calcoaceticus* var. *anitratus* in an intensive care unit. *Am J Med*, **91**, 479-483.
- Paulsen IT** (2003). Multidrug efflux pumps and resistance: regulation and evolution. *Curr Opin Microbiol*, **6**, 446-451.
- Paulsen IT, Brown MH and Skurray RA** (1996). Proton-dependent multidrug efflux systems. *Microbiol Rev*, **60**, 575-608.
- Paustian ML, May BJ and Kapur V** (2001). *Pasteurella multocida* gene expression in response to iron limitation. *Infect Immun*, **69**, 4109-4115.
- Peleg AY, Adams J and Paterson DL** (2007). Tigecycline efflux as a mechanism for nonsusceptibility in *Acinetobacter baumannii*. *Antimicrob Agents Chemother*, **51**, 2065-2069.
- Peleg AY, Seifert H and Paterson DL** (2008). *Acinetobacter baumannii*: emergence of a successful pathogen. *Clin Microbiol Rev*, **21**, 538-582.
- Perez-tomas R** (2006). Multidrug resistance: retrospect and prospects in anti-cancer drug treatment. *Curr Med Chem*, **13**, 1859-1876.

- Peterson WD, Jr., Stulberg CS, Swanborg NK and Robinson AR** (1968). Glucose-6-phosphate dehydrogenase isoenzymes in human cell cultures determined by sucrose-agar gel and cellulose acetate zymograms. *Proc Soc Exp Biol Med*, **128**, 772-776.
- Plessner O, Klapatch T and Guerinot ML** (1993). Siderophore utilization by *Bradyrhizobium japonicum*. *Appl Environ Microbiol*, **59**, 1688-1690.
- Poirel L, Naas T and Nordmann P** (2010). Diversity, epidemiology, and genetics of class D beta-lactamases. *Antimicrob Agents Chemother*, **54**, 24-38.
- Poirel L and Nordmann P** (2006). Carbapenem resistance in *Acinetobacter baumannii*: mechanisms and epidemiology. *Clin Microbiol Infect*, **12**, 826-836.
- Pool K** (2004). Efflux-mediated multiresistance in Gram-negative bacteria. *Clin Microbiol Infect*, **10**, 12-26.
- Pool K and McKay GA** (2003). Iron acquisition and its control in *Pseudomonas aeruginosa*: many roads lead to Rome. *Front Biosci*, **8**, d661-686.
- Porstendorfer D, Drotzschmann U and Averhoff B** (1997). A novel competence gene, *comP*, is essential for natural transformation of *Acinetobacter* sp. strain BD413. *Appl Environ Microbiol*, **63**, 4150-4157.
- Pos KM** (2009a). Drug transport mechanism of the AcrB efflux pump. *Biochim Biophys Acta*, **1794**, 782-793.
- Pos KM** (2009b). Trinity revealed: Stoichiometric complex assembly of a bacterial multidrug efflux pump. *Proc Natl Acad Sci U S A*, **106**, 6893-6894.
- Post V and Hall RM** (2009). AbaR5, a large multiple-antibiotic resistance region found in *Acinetobacter baumannii*. *Antimicrob Agents Chemother*, **53**, 2667-2671.
- Post V, White PA and Hall RM** (2010). Evolution of AbaR-type genomic resistance islands in multiply antibiotic-resistant *Acinetobacter baumannii*. *J Antimicrob Chemother*, **65**, 1162-1170.
- Potvin E, Sanschagrin F and Levesque RC** (2008). Sigma factors in *Pseudomonas aeruginosa*. *FEMS Microbiol Rev*, **32**, 38-55.
- Poulsen BE, Rath A and Deber CM** (2009). The assembly motif of a bacterial small multidrug resistance protein. *J Biol Chem*, **284**, 9870-9875.
- Pour NK, Dusane DH, Dhakephalkar PK, Zamin FR, Zinjarde SS and Chopade BA** (2011). Biofilm formation by *Acinetobacter baumannii* strains isolated from urinary tract infection and urinary catheters. *FEMS Immunol Med Microbiol*, **62**, 328-338.
- Pourcel C, Minandri F, Hauck Y, D'Arezzo S, Imperi F, Vergnaud G and Visca P** (2011). Identification of variable-number tandem-repeat (VNTR) sequences in *Acinetobacter baumannii* and interlaboratory validation of an

- optimized multiple-locus VNTR analysis typing scheme. *J Clin Microbiol*, **49**, 539-548.
- Prabhu Y and Phale PS** (2003). Biodegradation of phenanthrene by *Pseudomonas* sp. strain PP2: novel metabolic pathway, role of biosurfactant and cell surface hydrophobicity in hydrocarbon assimilation. *Appl Microbiol Biotechnol*, **61**, 342-351.
- Principe L, D'Arezzo S, Capone A, Petrosillo N and Visca P** (2009). In vitro activity of tigecycline in combination with various antimicrobials against multidrug resistant *Acinetobacter baumannii*. *Ann Clin Microbiol Antimicrob*, **8**, 18.
- Proft T and Baker EN** (2009). Pili in Gram-negative and Gram-positive bacteria - structure, assembly and their role in disease. *Cell Mol Life Sci*, **66**, 613-635.
- Quale J, Bratu S, Landman D and Heddurshetti R** (2003). Molecular epidemiology and mechanisms of carbapenem resistance in *Acinetobacter baumannii* endemic in New York City. *Clin Infect Dis*, **37**, 214-220.
- Raad I, Mohamed JA, Reitzel RA, Jiang Y, Dvorak TL, Ghannoum MA, Hachem RY and Chaftari AM** (2011). The prevention of biofilm colonization by multidrug-resistant pathogens that cause ventilator-associated pneumonia with antimicrobial-coated endotracheal tubes. *Biomaterials*, **32**, 2689-2694.
- Raad I, Reitzel R, Jiang Y, Chemaly RF, Dvorak T and Hachem R** (2008). Anti-adherence activity and antimicrobial durability of anti-infective-coated catheters against multidrug-resistant bacteria. *J Antimicrob Chemother*, **62**, 746-750.
- Rahbar MR, Rasooli I, Mousavi Gargari SL, Amani J and Fattahian Y** (2010). In silico analysis of antibody triggering biofilm associated protein in *Acinetobacter baumannii*. *J Theor Biol*, **266**, 275-290.
- Rajamohan G, Srinivasan VB and Gebreyes WA** (2009). Biocide-tolerant multidrug-resistant *Acinetobacter baumannii* clinical strains are associated with higher biofilm formation. *J Hosp Infect*, **73**, 287-289.
- Rajamohan G, Srinivasan VB and Gebreyes WA** (2010). Molecular and functional characterization of a novel efflux pump, AmvA, mediating antimicrobial and disinfectant resistance in *Acinetobacter baumannii*. *J Antimicrob Chemother*, **65**, 1919-1925.
- Ramirez MS, Adams MD, Bonomo RA, Centron D and Tolmasky ME** (2011). Genomic analysis of *Acinetobacter baumannii* A118 by comparison of optical maps: identification of structures related to its susceptibility phenotype. *Antimicrob Agents Chemother*, **55**, 1520-1526.
- Ramirez MS, Don M, Merkier AK, Bistue AJ, Zorreguieta A, Centron D and Tolmasky ME** (2010). Naturally competent *Acinetobacter baumannii*

clinical isolate as a convenient model for genetic studies. *J Clin Microbiol*, **48**, 1488-1490.

- Rao RS, Karthika RU, Singh SP, Shashikala P, Kanungo R, Jayachandran S and Prashanth K** (2008). Correlation between biofilm production and multiple drug resistance in imipenem resistant clinical isolates of *Acinetobacter baumannii*. *Indian J Med Microbiol*, **26**, 333-337.
- Ravasi P, Limansky AS, Rodriguez RE, Viale AM and Mussi MA** (2011). ISAbeta825, a functional insertion sequence modulating genomic plasticity and *bla(OXA-58)* expression in *Acinetobacter baumannii*. *Antimicrob Agents Chemother*, **55**, 917-920.
- Reed JL, Patel TR, Chen KH, Joyce AR, Applebee MK, Herring CD, Bui OT, Knight EM, Fong SS and Palsson BO** (2006). Systems approach to refining genome annotation. *Proc Natl Acad Sci U S A*, **103**, 17480-17484.
- Reitzel RA, Dvorak TL, Hachem RY, Fang X, Jiang Y and Raad I** (2009). Efficacy of novel antimicrobial gloves impregnated with antiseptic dyes in preventing the adherence of multidrug-resistant nosocomial pathogens. *Am J Infect Control*, **37**, 294-300.
- Ribera A, Roca I, Ruiz J, Gibert I and Vila J** (2003). Partial characterization of a transposon containing the *tet(A)* determinant in a clinical isolate of *Acinetobacter baumannii*. *J Antimicrob Chemother*, **52**, 477-480.
- Rimsky S** (2004). Structure of the histone-like protein H-NS and its role in regulation and genome superstructure. *Curr Opin Microbiol*, **7**, 109-114.
- Roca I, Marti S, Espinal P, Martinez P, Gibert I and Vila J** (2009). CraA, a major facilitator superfamily efflux pump associated with chloramphenicol resistance in *Acinetobacter baumannii*. *Antimicrob Agents Chemother*, **53**, 4013-4014.
- Rodriguez-Bano J, Marti S, Soto S, Fernandez-Cuenca F, Cisneros JM, Pachon J, Pascual A, Martinez-Martinez L, McQueary C, Actis LA and Vila J** (2008). Biofilm formation in *Acinetobacter baumannii*: associated features and clinical implications. *Clin Microbiol Infect*, **14**, 276-278.
- Rosenberg E, Gottlieb A and Rosenberg M** (1983). Inhibition of bacterial adherence to hydrocarbons and epithelial cells by emulsan. *Infect Immun*, **39**, 1024-1028.
- Rosenberg M, Gutnick D and Rosenberg E** (1980). Adherence of bacteria to hydrocarbons: a simple method for measuring cell-surface hydrophobicity. *FEMS Microbiol Lett*, **9**, 29-33.
- Rosenberg M, Perry A, Bayer EA, Gutnick DL, Rosenberg E and Ofek I** (1981). Adherence of *Acinetobacter calcoaceticus* RAG-1 to human epithelial cells and to hexadecane. *Infect Immun*, **33**, 29-33.

- Rozen S and Skaletsky H** (2000). Primer3 on the WWW for general users and for biologist programmers. *Methods Mol Biol*, **132**, 365-386.
- Rumbo C, Fernandez-Moreira E, Merino M, Poza M, Mendez JA, Soares NC, Mosquera A, Chaves F and Bou G** (2011). Horizontal transfer of the OXA-24 carbapenemase gene via outer membrane vesicles: a new mechanism of dissemination of carbapenem resistance genes in *Acinetobacter baumannii*. *Antimicrob Agents Chemother*, **55**, 3084-3090.
- Runnegar N, Sidjabat H, Goh HM, Nimmo GR, Schembri MA and Paterson DL** (2010). Molecular epidemiology of multidrug-resistant *Acinetobacter baumannii* in a single institution over a 10-year period. *J Clin Microbiol*, **48**, 4051-4056.
- Russo TA, Beanan JM, Olson R, MacDonald U, Luke NR, Gill SR and Campagnari AA** (2008). Rat pneumonia and soft-tissue infection models for the study of *Acinetobacter baumannii* biology. *Infect Immun*, **76**, 3577-3586.
- Russo TA, Luke NR, Beanan JM, Olson R, Sauberan SL, MacDonald U, Schultz LW, Umland TC and Campagnari AA** (2010). The K1 capsular polysaccharide of *Acinetobacter baumannii* strain 307-0294 is a major virulence factor. *Infect Immun*, **78**, 3993-4000.
- Russo TA, MacDonald U, Beanan JM, Olson R, MacDonald IJ, Sauberan SL, Luke NR, Schultz LW and Umland TC** (2009). Penicillin-binding protein 7/8 contributes to the survival of *Acinetobacter baumannii* in vitro and in vivo. *J Infect Dis*, **199**, 513-521.
- Russo TA, Page MG, Beanan JM, Olson R, Hujer AM, Hujer KM, Jacobs M, Bajaksouzian S, Endimiani A and Bonomo RA** (2011). In vivo and in vitro activity of the siderophore monosulfactam BAL30072 against *Acinetobacter baumannii*. *J Antimicrob Chemother*, **66**, 867-873.
- Ruzin A, Keeney D and Bradford PA** (2007). AdeABC multidrug efflux pump is associated with decreased susceptibility to tigecycline in *Acinetobacter calcoaceticus-Acinetobacter baumannii* complex. *J Antimicrob Chemother*, **59**, 1001-1004.
- Saballs M, Pujol M, Tubau F, Pena C, Montero A, Dominguez MA, Gudiol F and Ariza J** (2006). Rifampicin/imipenem combination in the treatment of carbapenem-resistant *Acinetobacter baumannii* infections. *J Antimicrob Chemother*, **58**, 697-700.
- Saier MH, Jr. and Paulsen IT** (2001). Phylogeny of multidrug transporters. *Semin Cell Dev Biol*, **12**, 205-213.
- Saitou N and Nei M** (1987). The neighbor-joining method: a new method for reconstructing phylogenetic trees. *Mol Biol Evol*, **4**, 406-425.
- Sambrook J and Russell DW** (2001). Molecular cloning: a laboratory manual, Cold Spring Harbor, N.Y., Cold Spring Harbor Laboratory Press.

- Schwarz S, Hood RD and Mougous JD** (2010a). What is type VI secretion doing in all those bugs? *Trends Microbiol*, **18**, 531-537.
- Schwarz S, West TE, Boyer F, Chiang WC, Carl MA, Hood RD, Rohmer L, Tolker-Nielsen T, Skerrett SJ and Mougous JD** (2010b). *Burkholderia* type VI secretion systems have distinct roles in eukaryotic and bacterial cell interactions. *PLoS Pathog*, **6**,
- Schweizer HP and Hoang TT** (1995). An improved system for gene replacement and *xylE* fusion analysis in *Pseudomonas aeruginosa*. *Gene*, **158**, 15-22.
- Seeger MA, Schiefner A, Eicher T, Verrey F, Diederichs K and Pos KM** (2006). Structural asymmetry of AcrB trimer suggests a peristaltic pump mechanism. *Science*, **313**, 1295-1298.
- Segal H and Elisha BG** (1999). Characterization of the *Acinetobacter* plasmid, pRAY, and the identification of regulatory sequences upstream of an *aadB* gene cassette on this plasmid. *Plasmid*, **42**, 60-66.
- Seifert H** (1999). *Acinetobacter* bacteremia in the tropics. *Clin Infect Dis*, **28**, 31-32.
- Seifert H, Dijkshoorn L, Gerner-Smidt P, Pelzer N, Tjernberg I and Vaneechoutte M** (1997). Distribution of *Acinetobacter* species on human skin: comparison of phenotypic and genotypic identification methods. *J Clin Microbiol*, **35**, 2819-2825.
- Seifert H, Stefanik D and Wisplinghoff H** (2006). Comparative in vitro activities of tigecycline and 11 other antimicrobial agents against 215 epidemiologically defined multidrug-resistant *Acinetobacter baumannii* isolates. *J Antimicrob Chemother*, **58**, 1099-1100.
- Seifert H, Strate A and Pulverer G** (1995). Nosocomial bateremia due to *Acinetobacter baumannii*. Clinical features, epidemiology, and predictors of mortality. *Medicine*, **74**, 340-349.
- Seifert HS** (1996). Questions about gonococcal pilus phase- and antigenic variation. *Mol Microbiol*, **21**, 433-440.
- Semmler AB, Whitchurch CB and Mattick JS** (1999). A re-examination of twitching motility in *Pseudomonas aeruginosa*. *Microbiology*, **145**, 2863-2873.
- Sennhauser G, Amstutz P, Briand C, Storchenegger O and Grutter MG** (2007). Drug export pathway of multidrug exporter AcrB revealed by DARPin inhibitors. *PLoS Biol*, **5**, e7.
- Shaikh F, Spence RP, Levi K, Ou HY, Deng Z, Towner KJ and Rajakumar K** (2009). ATPase genes of diverse multidrug-resistant *Acinetobacter baumannii* isolates frequently harbour integrated DNA. *J Antimicrob Chemother*, **63**, 260-264.

- Shao CP, Lo HR, Lin JH and Hor LI** (2011). Regulation of cytotoxicity by quorum-sensing signaling in *Vibrio vulnificus* is mediated by SmcR, a repressor of *hlyU*. *J Bacteriol*, **193**, 2557-2565.
- Sheng WH, Lin YC, Wang JT, Chen YC, Chang SC, Hsia KC, Wu RJ and Li SY** (2009). Identification of distinct ciprofloxacin susceptibility in *Acinetobacter* spp. by detection of the *gyrA* gene mutation using real-time PCR. *Mol Cell Probes*, **23**, 154-156.
- Shin JH, Lee HW, Kim SM and Kim J** (2009). Proteomic analysis of *Acinetobacter baumannii* in biofilm and planktonic growth mode. *J Microbiol*, **47**, 728-735.
- Silla RC, Fong J, Wright J and Wood F** (2006). Infection in acute burn wounds following the Bali bombings: a comparative prospective audit. *Burns*, **32**, 139-144.
- Skindersoe ME, Alhede M, Phipps R, Yang L, Jensen PO, Rasmussen TB, Bjarnsholt T, Tolker-Nielsen T, Hoiby N and Givskov M** (2008). Effects of antibiotics on quorum sensing in *Pseudomonas aeruginosa*. *Antimicrob Agents Chemother*, **52**, 3648-3663.
- Slover CM, Rodvold KA and Danziger LH** (2007). Tigecycline: a novel broad-spectrum antimicrobial. *Ann Pharmacother*, **41**, 965-972.
- Smani Y, Docobo-Perez F, McConnell MJ and Pachon J** (2011). *Acinetobacter baumannii*-induced lung cell death: role of inflammation, oxidative stress and cytosolic calcium. *Microb Pathog*, **50**, 224-232.
- Smith AW and Alpar KE** (1991). Immune response to *Acinetobacter calcoaceticus* infection in man. *J Med Microbiol*, **34**, 83-88.
- Smith MG, Gianoulis TA, Pukatzki S, Mekalanos JJ, Ornston LN, Gerstein M and Snyder M** (2007). New insights into *Acinetobacter baumannii* pathogenesis revealed by high-density pyrosequencing and transposon mutagenesis. *Genes Dev*, **21**, 601-614.
- Sobel ML, McKay GA and Poole K** (2003). Contribution of the MexXY multidrug transporter to aminoglycoside resistance in *Pseudomonas aeruginosa* clinical isolates. *Antimicrob Agents Chemother*, **47**, 3202-3207.
- Song JY, Cheong HJ, Lee J, Sung AK and Kim WJ** (2009). Efficacy of monotherapy and combined antibiotic therapy for carbapenem-resistant *Acinetobacter baumannii* pneumonia in an immunosuppressed mouse model. *Int J Antimicrob Agents*, **33**, 33-39.
- Srikumar R, Kon T, Gotoh N and Poole K** (1998). Expression of *Pseudomonas aeruginosa* multidrug efflux pumps MexA-MexB-OprM and MexC-MexD-OprJ in a multidrug-sensitive *Escherichia coli* strain. *Antimicrob Agents Chemother*, **42**, 65-71.

- Srinivasan VB, Rajamohan G and Gebreyes WA** (2009). Role of AbeS, a novel efflux pump of the SMR family of transporters, in resistance to antimicrobial agents in *Acinetobacter baumannii*. *Antimicrob Agents Chemother*, **53**, 5312-5316.
- Stewart RM, Wiehlmann L, Ashelford KE, Preston SJ, Frimmersdorf E, Campbell BJ, Neal TJ, Hall N, Tuft S, Kaye SB and Winstanley C** (2011). Genetic characterization indicates that a specific subpopulation of *Pseudomonas aeruginosa* is associated with keratitis infections. *J Clin Microbiol*, **49**, 993-1003.
- Stojiljkovic I, Baumler AJ and Hantke K** (1994). Fur regulon in gram-negative bacteria. Identification and characterization of new iron-regulated *Escherichia coli* genes by a fur titration assay. *J Mol Biol*, **236**, 531-545.
- Studier FW and Moffatt BA** (1986). Use of bacteriophage T7 RNA polymerase to direct selective high-level expression of cloned genes. *J Mol Biol*, **189**, 113-130.
- Su XZ, Chen J, Mizushima T, Kuroda T and Tsuchiya T** (2005). AbeM, an H⁺-coupled *Acinetobacter baumannii* multidrug efflux pump belonging to the MATE family of transporters. *Antimicrob Agents Chemother*, **49**, 4362-4364.
- Sun JR, Chan MC, Chang TY, Wang WY and Chiueh TS** (2010). Overexpression of the *adeB* gene in clinical isolates of tigecycline-nonsusceptible *Acinetobacter baumannii* without insertion mutations in *adeRS*. *Antimicrob Agents Chemother*, **54**, 4934-4938.
- Sun W, Xu X, Pavlova M, Edwards AM, Joachimiak A, Savchenko A and Christendat D** (2005). The crystal structure of a novel SAM-dependent methyltransferase PH1915 from *Pyrococcus horikoshii*. *Protein Sci*, **14**, 3121-3128.
- Takaya A, Tabuchi F, Tsuchiya H, Isogai E and Yamamoto T** (2008). Negative regulation of quorum-sensing systems in *Pseudomonas aeruginosa* by ATP-dependent Lon protease. *J Bacteriol*, **190**, 4181-4188.
- Talbot UM, Paton AW and Paton JC** (1996). Uptake of *Streptococcus pneumoniae* by respiratory epithelial cells. *Infect Immun*, **64**, 3772-3777.
- Tanabe M, Szakonyi G, Brown KA, Henderson PJ, Nield J and Byrne B** (2009). The multidrug resistance efflux complex, EmrAB from *Escherichia coli* forms a dimer in vitro. *Biochem Biophys Res Commun*, **380**, 338-342.
- Taziarova M, Holeckova K, Lesnakova A, Sladeckova V, Bartkovjak M, Seckova S, Bukovinova P, Hvizdak F, Svabova V, Findova L, Kisac P, Beno P, Bauer F, Bauer M, Karvaj M, Rudinsky B, Sabo I, Bielova M, Luzica R, Wiczmandyova O, Huttova M and Ondrusova A** (2007). Gram-negative bacillary community acquired meningitis is not a rare entity in last two decades. *Neuro Endocrinol Lett*, **28 Suppl 3**, 18-19.

- Thapa B, Tribuddharat C, Srifuengfung S and Dhiraputra C** (2010). High prevalence of *bla(OXA)-23* in oligoclonal carbapenem-resistant *Acinetobacter baumannii* from Siriraj Hospital, Mahidol University, Bangkok, Thailand. *Southeast Asian J Trop Med Public Health*, **41**, 625-635.
- The Brooklyn Antibiotic Resistance Task Force** (2002). The cost of antibiotic resistance: effect of resistance among *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Acinetobacter baumannii*, and *Pseudomonas aeruginosa* on length of hospital stay. *Infect Cont Hosp Epidem*, **23**, 106-108.
- Thom KA, Harris AD, Johnson JA and Furuno JP** (2010). Low prevalence of *Acinetobacter baumannii* colonization on hospital admission. *Am J Infect Control*, **38**, 329-331.
- Tikhonova EB, Dastidar V, Rybenkov VV and Zgurskaya HI** (2009). Kinetic control of TolC recruitment by multidrug efflux complexes. *Proc Natl Acad Sci U S A*, **106**, 16416-16421.
- Timurkaynak F, Can F, Azap OK, Demirbilek M, Arslan H and Karaman SO** (2006). In vitro activities of non-traditional antimicrobials alone or in combination against multidrug-resistant strains of *Pseudomonas aeruginosa* and *Acinetobacter baumannii* isolated from intensive care units. *Int J Antimicrob Agents*, **27**, 224-228.
- Tjernberg I and Ursing J** (1989). Clinical strains of *Acinetobacter* classified by DNA-DNA hybridization. *APMIS*, **97**, 595-605.
- Tomaras AP, Dorsey CW, Edelmann RE and Actis LA** (2003). Attachment to and biofilm formation on abiotic surfaces by *Acinetobacter baumannii*: involvement of a novel chaperone-usher pilus assembly system. *Microbiology*, **149**, 3473-3484.
- Tomaras AP, Flagler MJ, Dorsey CW, Gaddy JA and Actis LA** (2008). Characterization of a two-component regulatory system from *Acinetobacter baumannii* that controls biofilm formation and cellular morphology. *Microbiology*, **154**, 3398-3409.
- Towner KJ, Evans B, Villa L, Levi K, Hamouda A, Amyes SG and Carattoli A** (2011). Distribution of intrinsic plasmid replicase genes and their association with carbapenem-hydrolyzing class D beta-lactamase genes in European clinical isolates of *Acinetobacter baumannii*. *Antimicrob Agents Chemother*, **55**, 2154-2159.
- Tremblay J and Deziel E** (2010). Gene expression in *Pseudomonas aeruginosa* swarming motility. *BMC Genomics*, **11**, 587.
- Tripondi MF, Durante-Mangoni E, Fortunato R, Utili R and Zarrilli R** (2007). Comparative activities of colistin, rifampicin, imipenem and sulbactam/ampicillin alone or in combination against epidemic multidrug-

- resistant *Acinetobacter baumannii* isolates producing OXA-58 carbapenemases. *Int J Antimicrob Agents*, **30**, 537-540.
- Trisler P and Gottesman S** (1984). Ion transcriptional regulation of genes necessary for capsular polysaccharide synthesis in *Escherichia coli* K-12. *J Bacteriol*, **160**, 184-191.
- Turton JF, Baddal B and Perry C** (2011). Use of the accessory genome for characterization and typing of *Acinetobacter baumannii*. *J Clin Microbiol*, **49**, 1260-1266.
- Turton JF, Gabriel SN, Valderrey C, Kaufmann ME and Pitt TL** (2007). Use of sequence-based typing and multiplex PCR to identify clonal lineages of outbreak strains of *Acinetobacter baumannii*. *Clin Microbiol Infect*, **13**, 807-815.
- Turton JF, Kaufmann ME, Warner M, Coelho J, Dijkshoorn L, van der Reijden T and Pitt TL** (2004). A prevalent, multiresistant clone of *Acinetobacter baumannii* in Southeast England. *J Hosp Infect*, **58**, 170-179.
- Turton JF, Shah J, Ozongwu C and Pike R** (2010). Incidence of *Acinetobacter* species other than *A. baumannii* among clinical isolates of *Acinetobacter*: evidence for emerging species. *J Clin Microbiol*, **48**, 1445-1449.
- Turton JF, Ward ME, Woodford N, Kaufmann ME, Pike R, Livermore DM and Pitt TL** (2006). The role of ISAbal in expression of OXA carbapenemase genes in *Acinetobacter baumannii*. *FEMS Microbiol Lett*, **258**, 72-77.
- Tusher VG, Tibshirani R and Chu G** (2001). Significance analysis of microarrays applied to the ionizing radiation response. *Proc Natl Acad Sci U S A*, **98**, 5116-5121.
- Vallenet D, Nordmann P, Barbe V, Poirel L, Mangenot S, Bataille E, Dossat C, Gas S, Kreimeyer A, Lenoble P, Oztas S, Poulain J, Segurens B, Robert C, Abergel C, Claverie JM, Raoult D, Medigue C, Weissenbach J and Cruveiller S** (2008). Comparative analysis of *Acinetobacters*: three genomes for three lifestyles. *PLoS One*, **3**, e1805.
- van den Broek PJ, Arends J, Bernards AT, De Brauwer E, Mascini EM, van der Reijden TJ, Spanjaard L, Thewessen EA, van der Zee A, van Zeijl JH and Dijkshoorn L** (2006). Epidemiology of multiple *Acinetobacter* outbreaks in The Netherlands during the period 1999-2001. *Clin Microbiol Infect*, **12**, 837-843.
- van der Does AM, Bogaards SJ, Ravensbergen B, Beekhuizen H, van Dissel JT and Nibbering PH** (2010). Antimicrobial peptide hLF1-11 directs granulocyte-macrophage colony-stimulating factor-driven monocyte differentiation toward macrophages with enhanced recognition and clearance of pathogens. *Antimicrob Agents Chemother*, **54**, 811-816.

- van Dessel H, Dijkshoorn L, van der Reijden T, Bakker N, Paauw A, van den Broek P, Verhoef J and Brisse S** (2004). Identification of a new geographically widespread multiresistant *Acinetobacter baumannii* clone from European hospitals. *Res Microbiol*, **155**, 105-112.
- Van Melderden L and Aertsen A** (2009). Regulation and quality control by Lon-dependent proteolysis. *Res Microbiol*, **160**, 645-651.
- Vaneechoutte M, De Baere T, Nemec A, Musilek M, van der Reijden TJ and Dijkshoorn L** (2008). Reclassification of *Acinetobacter grimontii* Carr *et al.* 2003 as a later synonym of *Acinetobacter junii* Bouvet and Grimont 1986. *Int J Syst Evol Microbiol*, **58**, 937-940.
- Vila J, Ruiz J, Goni P, Marcos A and Jimenez de Anta T** (1995). Mutation in the *gyrA* gene of quinolone-resistant clinical isolates of *Acinetobacter baumannii*. *Antimicrob Agents Chemother*, **39**, 1201-1203.
- Waksman G and Hultgren SJ** (2009). Structural biology of the chaperone-usher pathway of pilus biogenesis. *Nat Rev Microbiol*, **7**, 765-774.
- Ward A, Hoyle C, Palmer S, O'Reilly J, Griffith J, Pos M, Morrison S, Poolman B, Gwynne M and Henderson P** (2001). Prokaryote multidrug efflux proteins of the major facilitator superfamily: amplified expression, purification and characterisation. *J Mol Microbiol Biotechnol*, **3**, 193-200.
- Waters CM and Bassler BL** (2005). Quorum sensing: cell-to-cell communication in bacteria. *Annu Rev Cell Dev Biol*, **21**, 319-346.
- Webb JS, Givskov M and Kjelleberg S** (2003). Bacterial biofilms: prokaryotic adventures in multicellularity. *Curr Opin Microbiol*, **6**, 578-585.
- Weernink A, Severin WP, Tjernberg I and Dijkshoorn L** (1995). Pillows, an unexpected source of *Acinetobacter*. *J Hosp Infect*, **29**, 189-199.
- Whitman TJ, Qasba SS, Timpone JG, Babel BS, Kasper MR, English JF, Sanders JW, Hujer KM, Hujer AM, Endimiani A, Eshoo MW and Bonomo RA** (2008). Occupational transmission of *Acinetobacter baumannii* from a United States serviceman wounded in Iraq to a health care worker. *Clin Infect Dis*, **47**, 439-443.
- Wiegand I, Hilpert K and Hancock RE** (2008). Agar and broth dilution methods to determine the minimal inhibitory concentration (MIC) of antimicrobial substances. *Nat Protoc*, **3**, 163-175.
- Wilson SJ, Knipe CJ, Zieger MJ, Gabehart KM, Goodman JE, Volk HM and Sood R** (2004). Direct costs of multidrug-resistant *Acinetobacter baumannii* in the burn unit of a public teaching hospital. *Am J Infect Control*, **32**, 342-344.
- Winstanley C, Kaye SB, Neal TJ, Chilton HJ, Miksch S and Hart CA** (2005). Genotypic and phenotypic characteristics of *Pseudomonas aeruginosa* isolates associated with ulcerative keratitis. *J Med Microbiol*, **54**, 519-526.

- Wisplinghoff H, Decker M, Haefs C, Krut O, Plum G and Seifert H** (2003). Mutations in *gyrA* and *parC* associated with resistance to fluoroquinolones in epidemiologically defined clinical strains of *Acinetobacter baumannii*. *J Antimicrob Chemother*, **51**, 177-180.
- Xu XJ, Su XZ, Morita Y, Kuroda T, Mizushima T and Tsuchiya T** (2003). Molecular cloning and characterization of the HmrM multidrug efflux pump from *Haemophilus influenzae* Rd. *Microbiol Immunol*, **47**, 937-943.
- Xu Z, O'Rourke BA, Skurray RA and Brown MH** (2006). Role of transmembrane segment 10 in efflux mediated by the staphylococcal multidrug transport protein QacA. *J Biol Chem*, **281**, 792-799.
- Yamamoto S, Okujo N and Sakakibara Y** (1994). Isolation and structure elucidation of acinetobactin, a novel siderophore from *Acinetobacter baumannii*. *Arch Microbiol*, **162**, 249-254.
- Yeung AT, Bains M and Hancock RE** (2011). The sensor kinase CbrA is a global regulator that modulates metabolism, virulence, and antibiotic resistance in *Pseudomonas aeruginosa*. *J Bacteriol*, **193**, 918-931.
- Yu EW, Aires JR and Nikaido H** (2003). AcrB multidrug efflux pump of *Escherichia coli*: composite substrate-binding cavity of exceptional flexibility generates its extremely wide substrate specificity. *J Bacteriol*, **185**, 5657-5664.
- Zavascki AP, Carvalhaes CG, Picao RC and Gales AC** (2010). Multidrug-resistant *Pseudomonas aeruginosa* and *Acinetobacter baumannii*: resistance mechanisms and implications for therapy. *Expert Rev Anti Infect Ther*, **8**, 71-93.
- Zerbino DR and Birney E** (2008). Velvet: algorithms for de novo short read assembly using de Bruijn graphs. *Genome Res*, **18**, 821-829.
- Zimbler DL, Penwell WF, Gaddy JA, Menke SM, Tomaras AP, Connerly PL and Actis LA** (2009). Iron acquisition functions expressed by the human pathogen *Acinetobacter baumannii*. *Biometals*, **22**, 23-32.
- Zolfaghari I, Evans DJ and Fleiszig SM** (2003). Twitching motility contributes to the role of pili in corneal infection caused by *Pseudomonas aeruginosa*. *Infect Immun*, **71**, 5389-5393.