PUBLICATIONS ON OUR RESIST RANGE

Performance evaluation of the newly developed In Vitro rapid diagnostic test for detecting OXA-48-like, KPC-, NDM-, VIM- and IMP-type carbapenemases: the RESIST-5 O.K.N.V.I. Multiplex Lateral Flow Assay - 2021 - *Antibiotics (Basel)*

Comparison of three lateral flow immunochromatographic assays for the rapid detection of KPC, NDM, IMP, VIM and OXA-48 carbapenemases in Enterobacterales - 2022 - *J Antimicrob Chemother.*

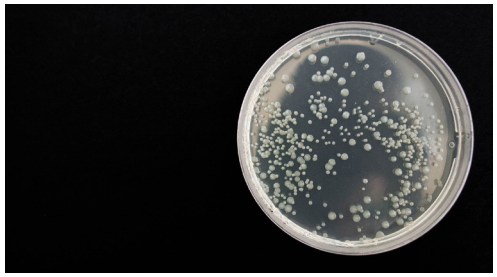
Assessing O.K.N.V.I. RESIST-5 performance for post-mortem biological samples: A prospective pilot study - 2023 - *Exp Ther Med.*

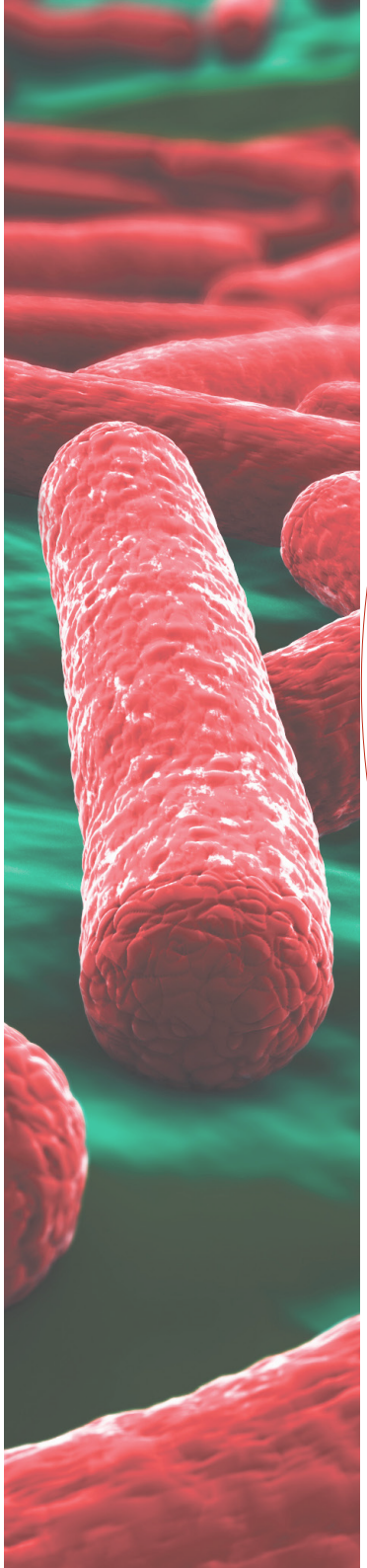
Carbapenem-resistant organismsisolated in surgical site infections in Benin: A public health problem - 2022 - *Trop Med Infect Dis.*

RESIST Acineto rapid immunological test for the detection of acquired carbapenemase producers among Acinetobacter spp - 2023 - *Diagn Microbiol Infect Dis.*

Evaluation of RESIST ACINETO immunochromatographic assay from positive blood cultures - 2023 - *J Antimicrob Chemother.*

Comparison of two immunochromatographic tests for the detection of CTX-M ESBL on clinical isolates at the Belgian National Reference Centre - 2023 - *ECCMID*





CORIS BioConcept

AntiMicrobial Resistance

Pressbook

V2

A selection of the most recent publications on AMR

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MECHANISMS OF RESISTANCE

Genomic insights into and *In Vitro* evaluation of AntiMicrobial combination therapies for CR *Acinetobacter baumannii* - 2024 - *Medicina*

◊ Carbapenem-resistant *A. baumannii* poses a significant healthcare challenge with high mortality rates - need to develop a thorough understanding of resistance to carbapenems by identifying mutations in genes and whether or not they exert a deleterious effect on gene expression

◊ Six CRAB strains were phenotypically characterized, tested for carbapenemases and MBL- encoding genes and exposed to antimicrobial combinations

◊ All isolates were tested positive, showing resistance to multiple antibiotics except colistin; 16 mutations were obeserved in the carbapenemase-encoding genes

Treatment guidelines for multidrug-resistant Gram-negative microorganisms - 2023 - *Rev Esp Quimioter*

◊ ESCMID, IDSA & SEIMC guidelines and treatment strategies for infections due to ESBL producers, AmpC producers, carbapenemase-producing Enterobacterales and MDR-resistant/difficult-to-treat *P. aeruginosa* and *A. baumannii*

◊ Distinction between general recommendations, low-risk patients, mild to moderate infections, severe infections, UTIs in the choice of treatment

◊ Need to adapt the guidelines to the changing epidemiology of resistance mechanisms and the introduction of new antimicrobials and treatment strategies

Carbapenem-resistant *Enterobacteriaceae* in Urinary Tract Infections: from biological insights to emerging therapeutic alternatives - 2024 - *Medicina*

◊ Review of the biological mechanisms underlying carbapenem resistance, with a focus on therapeutic alternatives currently available for complicated UTIs

◊ Overview of the 3 major mechanisms of resistance developed by *Enterobacteriaceae*

◊ Global increase of CRE infections with significant morbidity and mortality; 30,000 deaths estimated annually

◊ Current and emerging therapeutic alternative: Ceftazidime/Avibactam, Meropenem/Vaborbactam, Eravacycline, Cefiderocol, Imipenem-Cilastatin/Relebactam, Plazomicin, Aztreonam/Avibactam

◊ Importance of antibiotic stewardship to prevent the emergence of new resistance mechanisms

Characterization of Carbapenemase- and ESBL-producing gram-negative bacilli isolated from patients with urinary tract and bloodstream infections - 2023 - *Antibiotics*

◊ 361 isolates (199 from urine & 162 from blood) collected from 12 healthcare systems throughout the US and characterized through AST and whole genome sequencing to identify the genes encoding ESBLs, carbapenemases, & other β-lactamases in GNB obtained from patients with urinary tract & bloodstream infections

◊ Prevalence of *E. coli* (46.3 % blood culture vs 38.2 % urine culture); *K. pneumoniae* (15.4 % blood vs 25.6 % urine); *P. aeruginosa* (13 % blood vs 6 % urine); *E. cloacae* (6.8 % blood vs 12.6 % urine)

◊ Significant genetic diversity observed among isolates with several high-impact lineages identified across multiple states

◊ Carbapenemase genes (20.5 % with KPC, NDM & OXA types being the most common), ESBL genes (66.2 % with CTX-M-15 predominant), AmpC genes (33.2 % with chromosomal AmpC genes in *P. aeruginosa* and *A. baumannii* being the most common)

◊ Comparison of phenotypic and genotypic resistance profiles: new methods for detecting and differentiating among serine & MBL genes among CRAB to guide therapeutic strategies for serious infections

EPIDEMIOLOGY

Navigating the network: a narrative overview of AMR surveillance and data flow in the US - 2024 - *Antimicrob Steward Healthc Epidemiol*

◊ AMR surveillance landscape in the US: roles and processes of various organizations involved and the role of clinical labs in susceptibility testing

◊ Challenges in data collection and sharing

◊ AMR surveillance at local/regional public health levels (CDC ARLN), national levels (NARMS, SENTRY, CDC intiatives)

◊ Global AMR surveillance programs with US participation (ATLAS, GLASS)

◊ Future directions: OneHealth Approach, Electronic Health Record modernization & Whole Genome Sequencing

Carbapenem-resistant *Klebsiella pneumoniae* in large public acute-care healthcare system, New York, New York, USA, 2016-2022 - 2023 - *Emerging Infectious Diseases*

◊ Increase in CRKP cases, spread of different carbapenemase types, challenge posed by the prevalence of KPC and the emergence of NDM enzymes

◊ Data was collected from 11 acute care medical centers and included 509 patients with lab-identified CRKP

◊ Results showed CRKP cases increased significantly during 2021-2022, with 143 serine carbapenemases (mostly KPC) and 39 MBL (all NDM)

◊ High percentage of community-onset cases observed, suggesting contributing factors such as healthcare exposure, socioeconomic conditions and environmental contamination

◊ Increased number of CRKP after the onset of the COVID-19 pandemic, to be associated to increased antibiotic use

Colonization with ESBL- and Carbapenemase- producing *Enterobacteriaceae* among hospitalized patients at the global level: a systematic review and meta-analysis - 2023 - *PLOS ONE*

◊ Hospitalized patients are at high risk for colonization with multidrug-resistant bacteria, particularly ESBL and carbapenemase-producing *Enterobacteriaceae*

◊ Analysis of pooled prevalence of MDR, ESBL-producing *Enterobacteriaceae*, CRE-colonization, comorbidities & risk factors of MDR colonization; focus on *E. coli* & *K. pneumoniae*

◊ Geographical distribution: highest ESBL prevalence in Asia, followed by Africa, and highest CRE prevalence in Asia, with lower rates in Africa and Europe

◊ Risk factors: previous hospitalizations, previous antibiotic treatment, comorbidities

◊ Recommendations: strong mitigation strategies (routine screening, isolation of colonized patients), prudent antibiotic use

Community carriage of ESBL-producing *Escherichia coli* and *Klebsiella pneumoniae*: a cross-sectional study of risk factors and comparative genomics of carriage and clinical isolates - 2023 - *American Society for Microbiology*

◊ ESBL-producing *E. coli* and *K. pneumoniae*, major contributors to the global burden of disease due to their resistance to antibiotics: mortality of infections with ESBL-E ranges from 10 to 35 %

◊ Study conducted in Norway with 4,999 participants screened for gastrointestinal carriage of ESBL-Ec (3.3 % prevalence) & ESBL-Kp (0.08 % prevalence)

◊ Risk factor: travel to Asia; but no association between ESBL-Ec gut carriage and hospitalization, antibiotic use, acid-suppressive medication

◊ CTX-M enzymes accounted for at least 97 % of the ESBL phenotypes in both carriage and clinical isolates