

PUBLICATIONS ON OUR

RESIST RANGE

Detection of OXA-23 and OXA-58 in *Proteus mirabilis* by immunochromatographic assays - 2026 - *Microbiology Spectrum*

The Value of Rapid Carbapenemase Detection and Its Association with the Ceftazidime/Avibactam Resistance Phenotype in Gram-Negative Bacteria at Thanh Nhan Hospital in 2025 - 2026 - *Vietnam Medical Journal*

O.K.N.V.I RESIST-5 vs NG TEST CARBA-5: duel sans fausse note chez les carbapénémases - 2025 - 45^e Réunion interdisciplinaire de chimiothérapie anti-infectieuse

Rapid screening for carbapenemase-producing carbapenem-resistant Enterobacterales: clinical implementation of an immunochromatographic test using broth-enriched rectal swabs - 2025 - *Microbiology Spectrum*

Evaluation of the rapid lateral flow assay (LFA) for detection of five major carbapenemase enzyme families in genotypically characterised bacterial isolates - 2025 - *Indian J Med Res*

Evaluation of phenotypic and genotypic methods for detecting KPC variants - 2025 - *Antimicrob Agents Chemother*

Rapid naked-eye detection of carbapenemase-producing Enterobacterales from a positive hemoculture - 2025 - *The 47th Annual Conference of the Medical Technology of Thailand in 2025*

Rapid characterization of carbapenemases produced by Imipenem-Resistant *A. baumannii*: First experience with the RESIST ACINETO immunochromatographic test from Coris Bioconcept - 2025 - *Algerian Society of Clinical Microbiology - 4th International Congress*



OUR AMR PRODUCT RANGE

RESIST-1 MCR Multi
RESIST-1 OXA-48

RESIST-2 CTX-M

RESIST-3 OOK
RESIST-3 OKN
RESIST-3 MBL
RESIST-3 ACINETO

RESIST-5 - OKNVI

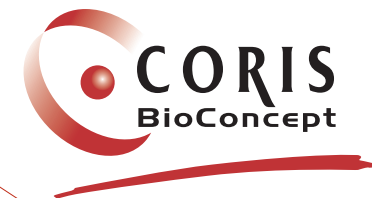


AntiMicrobial Resistance

Pressbook

V6

*A selection of the most
recent publications on
Metallo-β-Lactamases*



www.corisbio.com
sales@corisbio.com
client.care@corisbio.com

- April 2026 -

HIGHLIGHTS

According to recent genomic surveillance (2024–2026), MBLs are the dominant resistance mechanism in *Pseudomonas aeruginosa*.

- ♦ ***bla*_{VIM}** (Verona Integron-encoded MBL): The most prevalent gene globally in *P. aeruginosa*, accounting for approximately 51.2% of all MBL-carrying strains. It is highly endemic in Europe (Greece, Italy) and Latin America.
- ♦ ***bla*_{IMP}** (Imipenemase): The second most common (24.1%), particularly dominant in the Asia-Pacific region (Japan, China, Vietnam).
- ♦ ***bla*_{NDM}** (New Delhi MBL): While historically less common in *Pseudomonas*, it is the fastest-growing variant (23.4%) and is associated with high-risk global «superbug» clones like ST235.

FOCUS ON METALLO-β-LACTAMASES

The burden of infections caused by Metallo-Beta-Lactamase-Producing Enterobacterales in Italy - epidemiology, outcomes, and management - 2025 - *InfezMed*

- ♦ **Rising Epidemiological Threat:** Italy is facing a significant increase in infections caused by Metallo-Beta-Lactamase (MBL)-producing Enterobacterales, particularly *Klebsiella pneumoniae* carrying the NDM enzyme.
- ♦ **High Clinical Impact and Mortality:** Infections caused by these organisms are associated with high morbidity and mortality rates, NDM-producing strains show a higher risk of progressing to invasive infection compared to other types.
- ♦ **Diagnostic and Surveillance Challenges:** While molecular and immunochromatographic tests have improved detection, Italy still faces challenges with underreporting and heterogeneous laboratory practices.

Antibiotics for the Treatment of Patients with Metallo-β-Lactamase (MBL)-Producing Gram-Negative Bacterial Infections - 2025 - *Antibiotics*

- ♦ **Global Health Challenge:** Infections caused by MBL-producing pathogens are a rising global threat, characterized by significant patient morbidity and mortality.
- ♦ **Preferred New Antibiotics:** Cefiderocol and the newly approved aztreonam-avibactam are considered primary treatment options, though high costs and limited availability currently hinder their widespread use.
- ♦ **Alternative and Older Agents:** When newer drugs are unavailable, clinicians often use a combination of ceftazidime-avibactam and aztreonam, or older antibiotics like colistin and fosfomycin.

Difficult-to-Treat *Pseudomonas aeruginosa* Infections in Critically Ill Patients: A Comprehensive Review and Treatment Proposal - 2025 - *Antibiotics*

- ♦ **Key Therapeutic Options:** Newer antibiotics, including ceftolozane-tazobactam, ceftazidime-avibactam, and imipenem-relebactam are the preferred first-line treatments, while cefiderocol serves as a vital alternative particularly effective against metallo-beta-lactamase producing strains.
- ♦ **Optimization Strategies:** To improve clinical outcomes and suppress resistance, the authors emphasize optimizing pharmacokinetic targets through prolonged or continuous infusions of beta-lactams, which ensures drug concentrations remain above the minimum inhibitory concentration (MIC) for longer durations.

Navigating the Current Treatment Landscape of Metallo-β-Lactamase-Producing Gram-Negative Infections - What are the Limitations - 2024 - *Infectious Diseases and Therapy*

- ♦ **Global Public Health Threat:** MBL-producing pathogens are spreading rapidly worldwide, particularly in Asia.
- ♦ **Management:** Optimal management now requires rapid diagnostics, stewardship measures, and a deep understanding of local resistance patterns.

Global prevalence and antibiotic resistance profiles of carbapenem-resistant *Pseudomonas aeruginosa* reported from 2014 to 2024 a systematic review and meta-analysis - 2025 - *Frontiers in Microbiology*

- ♦ **High Global Prevalence:** The study analyzed 163 papers from 39 countries and found an overall global pooled prevalence estimate of 34.7% for CRPA.
- ♦ **Regional Variations:** CRPA is widespread across five continents, with Europe reporting the highest prevalence (47.6%) and Asia reporting the lowest (32.8%).
- ♦ **Antibiotic Resistance Trends:** CRPA isolates showed the highest resistance to ciprofloxacin (54.5%), aztreonam (54.4%), and ceftazidime (51.1%), whereas resistance to «last-resort» drugs like colistin (3.0%) and polymyxin B (1.0%) remained low.
- ♦ **Mortality:** The study calculated a global mortality rate of 8.6% associated with these infections.

Management of metallo-β-lactamase-producing Enterobacterales infections: a modified Delphi study - 2026 - *JAC-Antimicrobial Resistance*

- ♦ **Urgent Global Health Threat:** MBL-producing Enterobacterales are an increasing source of antimicrobial resistance worldwide. These infections are associated with high morbidity, mortality, and significant healthcare costs.
- ♦ **Need for Targeted Treatment:** There is a strong consensus on the necessity for targeted MBL treatments.
- ♦ **Critical Role of Rapid Testing:** To avoid delays in appropriate treatment, the panel advocates for the use of rapid tests to identify specific resistance mechanisms

A longitudinal seven-year multicenter study on the molecular epidemiology of carbapenemase-producing Enterobacterales in Taiwan: The burden of metallo-β-lactamases - 2026 - *Journal of Infection and Public Health*

- ♦ **Significant Rise in MBLs:** The proportion of Metallo-β-lactamase-producing strains among all carbapenemase-producing Enterobacterales increased significantly, rising from 22.3% in 2018 to 40% in 2024.
- ♦ **Species-Specific Associations:** *E. coli*, *Enterobacter cloacae* complex, *Citrobacter freundii*, and *Serratia marcescens* are almost exclusively associated with MBL genes.
- ♦ **Emergence of Multi-Carbapenemase Strains:** The study noted a worrying emergence of bacteria carrying multiple carbapenemase genes simultaneously, particularly *E. coli* co-harboring *bla*_{OXA-181} and *bla*_{NDM-5}.
- ♦ **Public Health Implications:** The rapid evolution and spread of these highly resistant «superbugs» via horizontal gene transfer highlight an urgent need for stricter infection control.

Epidemiological insights into global metallo-β-lactamases-producing *Pseudomonas aeruginosa* - A comprehensive analysis based on NCBI database - 2025 - *Journal of Global Antimicrobial Resistance*

- ♦ **Global Prevalence and Scope:** Out of 21,788 genomes analyzed from the NCBI database, 12.1% (2,639 strains) were found to carry metallo-β-lactamase (MBL) genes.
- ♦ **Predominant Resistance Genes:** The study identified *bla*_{VIM} as the most prevalent MBL gene (51.2%), followed by *bla*_{IMP} (24.1%) and *bla*_{NDM} (23.4%), with specific variants like VIM-2, IMP-1, and IMP-7 being the most common drivers of resistance.
- ♦ **Environmental and «One Health» Impact:** the detection of these isolates in hospital wastewater and food-producing animals raises significant concerns regarding environmental dissemination and public health

