



# ATLANGRAM

Atlantic Group For Research on Anti-Microbials

In vitro & In vivo

## Antibacterial Efficacy Studies

Nantes, France



[www.atlangram.com](http://www.atlangram.com)

### Therapeutic Efficacy Models

**Rabbit Pneumonia Model**  
*P. aeruginosa*

**Rabbit Endocarditis Model**  
*E. faecalis, E. faecium, S. aureus, P. aeruginosa, E. coli, K. pneumoniae, E. cloacae, S. marcescens, C. diptheriae*

**Rabbit Osteomyelitis Model**  
*S. aureus*

**Mouse Pneumonia Model**  
*P. aeruginosa, A. baumannii, S. aureus*

**Mouse Peritonitis / Sepsis Model**  
*Gram negative and Gram positive key pathogens*

**Mouse Thigh Infection**  
*S. aureus, E. coli, K. pneumoniae*

**Mouse Urinary Tract Infection**  
*E. coli*

**Mouse Foreign-body Infection**  
*S. aureus*

### In vitro Antimicrobial and Biofilm Assays

- Determination of MICs, MBCs, PAE (post-antibiotic effect)
- Time-kill studies
- Determination of mutation frequencies
- Combinations studies: FIC index, time-kill studies, checkerboard (classic or dynamic approach)
- Biofilm activity (on biofilm formed or inhibition of its formation): MICs, time-kill studies

**Ex Vivo Activity in Complex Media**  
type Fibrin Clots (surviving bacteria in tissue)

### In vivo Parameters



- Determination of PK/PD parameters [ $C_{max}$ ,  $T_{max}$ , half-life, area under the curve (AUC), %T>MIC etc.]
- Tissue distribution (plasma, fluids, lung, spleen, liver, kidneys)
- ED<sub>50</sub> determination (sepsis/peritonitis model)
- Survival and CFU endpoints
- Detection of the emergence of resistant variants during therapy
- Determination of the appropriate frequency and/or dose administration
- Pro-and anti-inflammatory cytokines quantification (ELISA)
- Surrogate markers of lung damage (myeloperoxidase activity, endothelial permeability)
- Computer-controlled simulation allowing to mimick the human pharmacokinetic of the drug in rabbits
- IV, SC, IP or PO dosing
- Drug alone or in combination
- Comparison of strains and/or comparators

## Research on Antibacterials



# ATLANGRAM

### Team

- **Pr. Gilles POTEL**  
Therapeutics Professor & Hospital Practitioner
- **Pr. Karim Asehnoune**  
Critical Care Medicine Professor & Hospital Practitioner
- **Dr. Jocelyne CAILLON**  
Microbiologist Associate Professor & Hospital Practitioner
- **Dr. Cédric JACQUELINE**  
Research Engineer
- **Dr. Amokrane REGHAL**  
Microbiologist
- **Dr. Amir TOUAFEK**  
MS Pharmaceutical Law and Affairs
- **Cyndie DESESSARD**  
Engineer
- **Xavier MAQUIN**  
Laboratory Technician

### Contact

[amokrane.reghal@atlangram.com](mailto:amokrane.reghal@atlangram.com)  
+33 610 341 744

[www.atlangram.com](http://www.atlangram.com)



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UFR de Médecine  
1, rue Gaston Veil

44035 Nantes Cedex 1 - France