

AGENTS INFECTIEUX, RÉSISTANCE ET CHIMIOTHÉRAPIE

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RESEARCH PROJECTS

The AGIR laboratory is interested in the development of **new anti-infective molecules**, possessing specific antimicrobial properties and/or capable of countering the phenomena of resistance linked to a lack of concentration of antibiotics within microorganisms (**analogs of siderophores, inhibitors efflux pumps...**).

The **team's research themes** revolve more specifically around 4 groups of infectious agents, found in clinical practice:

1. **ESKAPEE bacteria** (*Enterococcus faecium*, ***Staphylococcus aureus***, *Klebsiella pneumoniae*, ***Actinobacter baumannii***, *Pseudomonas aeruginosa*, *Enterobacter spp.*, ***Escherichia coli***)
2. **Mycobacteria** (typical and atypical)
3. ***Plasmodium falciparum***
4. **BK virus**

A multidisciplinary approach

Epidemiological and clinical research studies (characterization of the biomolecular targets of epidemic strains),

Design and synthesis of new antibacterials, antimalarials and antivirals of a heterocyclic and/or peptide nature (siderophore analogues, antimicrobial peptides (AMP), arylamino alcohols, etc.),

Physicochemical evaluation and study of structure-activity relationships (SAR) *in silico*,

***In vitro* biological evaluation** (efficacy, cytotoxicity, transmembrane passage) thanks to the development of **cellular models** and study of the mechanisms of action using **biomolecular approaches** (commercial or clinical strains, etc.),

Biological evaluation *ex vivo* and *in vivo* on animal models (efficacy, toxicity, pharmacokinetics, pharmacodynamics).