Contre la rifampicine dans les infections sévères à Staphycocoque ?

Marion LACASSE, CHU Tours vs. Raphaël LECOMTE CHU Nantes
Gericco 2026

CHRU HÔPITAUX DE TOURS

CENTRES DE RÉFÉRENCE POUR LES INFECTIONS OSTÉO-ARTICULAIRES COMPLEXES DU GRAND OUEST
CRIOGO

Émergence de résistance.
Quand peut-on mettre la rifam?

Emergence de Résistance RMP

Emergence de résistance défini :
Risque d'émergence R QI > 10 ou AUIC > 100 [1]

Rifampicine:
Sélection rapide de résistance monothérapie de Rifampicine [2,3,4]
Chez l'animal : 63% de R monoT rifam [5]
En bithérapie dans l'endocardite, Riedel *et al* [6]:

- Emergence de résistance dans 9/42 (21%)
- Emergence de résistance dans 9/16 (57%) quand RMP 1 ère dose alors que hémocs + concomitantes

TABLE 3. Adverse effects of rifampin for cases and controls

Characteristic or effect	Value for group		*P* value
	Cases	Controls	
Total no. of subjects	42	42	
Rifampin-resistant isolates [no. (%)][a]	9 (21)	0 (0)	<0.001
Median time to rifampin resistance[b] [days (range)]	16 (11–26)	NA[d]	NA
Elevated transaminases, ≥5 × baseline [no. (%)]	9 (21)	1 (2)	0.014
Drug interactions [no. (%)][c]	22 (52)	0 (0)	<0.001

[a] All nine isolates were from patients who were bacteremic at initiation of rifampin treatment.
[b] Nine isolates were analyzed.
[c] Drug interactions occurred with methadone (nine cases), warfarin (four cases), protease inhibitors (three cases), antifungal agents (e.g., fluconazole [three cases], voriconazole [one case]), and antiepileptic agents (e.g., phenytoin [two cases]).
[d] NA, not applicable.

[1] Rapport spilf 2015
[2] O'Reilly *et al.*, Antimicrob Angents Chemother 1992
[3] Zimmerli *et al.*, J Antimicrob Chemother 1994
[4] Goldstein *et al*, Journal of Antibiotics 2014
[5] Goetz *et al.*, Bone joint Res 2022
[6] Riedel *et al*. Antimicrob Agent ChemotherAAC 2008

Interactions médicamenteuses.

Avec qui, peut-on mettre la rifam?

Interactions/agnonisme entre antibiotiques

- Clindamycine : réduit de >75% [1]

Dose de 4200 mg/24h en IV si biT [2]

- Doxycyline : réduit de 54% [3]
- Métronidazole : réduit de 54% [3]
- Fluconazole : réduit de 23% [3]
- Linézolide : réduit de 11- 35% [4]
- Bactrim : antagonsime + réduit 11% t1/2 [4,5]

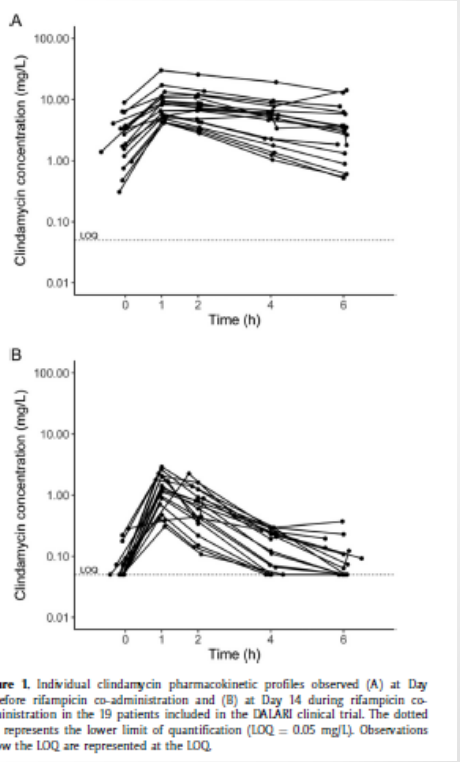


Figure 1. Individual clindamycin pharmacokinetic profiles observed (A) at Day 2 before rifampicin co-administration and (B) at Day 14 during rifampicin co-administration in the 19 patients included in the DALARI clinical trial. The dotted line represents the lower limit of quantification (LOQ = 0.05 mg/L). Observations below the LOQ are represented at the LOQ.

[1] Goulenok *et al*, J Antimicrob Agents 2023
[2] Mimram *et al*, J Antimicrob Chemother 2023
[3] Niemi *et al*., Clin Pharmacokinet 2003
[4] Galdeman *et al*, J Clin Pharmacol 2011, Pea *et al*, J Antimicrob Chemother 2012
[5] Keller *et al*, J Antimicrob Chemoter 1975

Interactions

Importance of selection and duration of antibiotic regimen in prosthetic joint infections treated with debridement and implant retention

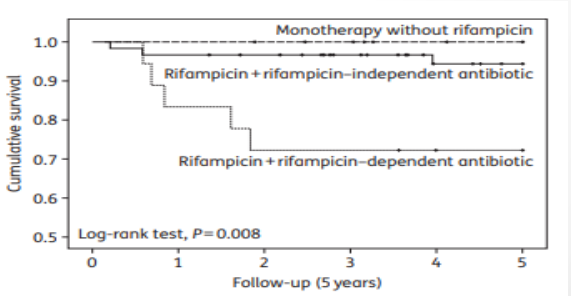
Eduard Tornero[1]*, Laura Morata[2], Juan C. Martínez-Pastor[1], Silvia Angulo[1], Andreu Combalia[1], Guillem Bori[1], Sebastián García-Ramiro[1], Jordi Bosch[3], Josep Mensa[2] and Alex Soriano[2]

- n=143 PJI aigues – DAIR
- Échecs 11,8%
- 11 monothérapies – 0 échecs
- FdR : bithérapie avec atb interagissant avec la rifam → clindamycine (mais 300 mg), bactrim, linézolide)

Attention aux interactions

Table 1. Outcome (failure or relapse) of PJIs due to Gram-positive microorganisms according to the pattern of susceptibility and antibiotic treatment received

	Number (%) of patients, remission (*N*=79)	Number (%) of patients, failure (*N*=10)	*P*		Number (%) of patients, relapse (*N*=4)	*P*	
Type of antibiotic treatment received							
levofloxacin + rifampicin	49 (62.0)	4 (40.0)	0.305		1 (25.0)	0.299	
amoxicillin + rifampicin	6 (7.6)	1 (10.0)	0.579		0 (0)	1.000	
linezolid + rifampicin	5 (6.3)	3 (30.0)	**0.043**		1 (25.0)	0.319	
co-trimoxazole + rifampicin	3 (3.8)	1 (10.0)	0.385	0.279[c]	1 (25.0)	0.171	0.262[c]
clindamycin + rifampicin	5 (6.3)	1 (10.0)	0.522		1 (25.0)	0.247	
linezolid	9 (11.4)	0 (0)	0.590		0 (0)	1.000	
co-trimoxazole	1 (1.3)	0 (0)	1.000		0 (0)	1.000	
ciprofloxacin	1 (1.3)	0 (0)	1.000		0 (0)	1.000	
Category							
rifampicin + rifampicin-independent antibiotic[a]	55 (69.6)	5 (50.0)	0.284		1 (25.0)	0.100	
rifampicin + rifampicin-dependent antibiotic[b]	13 (16.5)	5 (50.0)	**0.026**	**0.033**[d]	3 (75.0)	**0.025**	**0.020**[d]
monotherapy without rifampicin	11 (13.9)	0 (0)	0.352		0 (0)	1.000	



Interactions/agnonisme avec les autres médicaments

- Méthadone : réduit de 33-66%
- Morphine : réduit de 28%
- Anti psychotiques : halopéridol : réduit de 70%
- Anticoagulant oraux : AVK, apixaban, rivaroxaban (réduit jusqu'à 80%)
- Antidiabétiques oraux : glipizide, gliclazide (réduit de22 à 57% pour répaglinide
- IEC : ibesartan
- Statines: atorvastatine, simvastatine, lovastatine

Niemi *et al.*, Clin Pharmacokinet 2003

Comment prendre la rifam?

J Antimicrob Chemother 2019; **74**: 416–424
doi:10.1093/jac/dky444 Advance Access publication 8 November 2018

Journal of Antimicrobial Chemotherapy

Intra-individual effects of food upon the pharmacokinetics of rifampicin and isoniazid

Ana Requena-Méndez[1]*, Geraint Davies[2], David Waterhouse[3], Alison Ardrey[3], Oswaldo Jave[4], Sonia Llanet López-Romero[5], Stephen A. Ward[3] and David A. J. Moore[6]

clinical investigations

Pharmacokinetics of Rifampin Under Fasting Conditions, With Food, and With Antacids*

Charles A. Peloquin, PharmD; Rocsanna Namdar, PharmD; Michael D. Singleton, BS; and David E. Nix, PharmD

A jeun!!!!

→ Bon… dans la vraie vie…

Quoi surveiller? Effets indésirables

Per Protocol Tolerance : EVRIOS

AE's	Low dose (n=160)	High dose (n=162)	p
Loss of appetite	54 (33.8% [26.5% - 41.6%])	77 (47.5% [39.6% - 55.5%])	0.0118
Nausea	32 (20.0% [14.1% - 27.0%])	58 (35.8% [28.4% - 43.7%])	0.0016
Vomiting	11 (6.9% [3.5% - 12.0%])	21 (13.0% [8.2% - 19.1%])	0.0679
Itching	18 (11.3% [6.8% - 17.2%])	35 (21.6% [15.5% - 28.7%])	0.0122
Rash	8 (5.0% [2.2% - 9.6%])	19 (11.7% [7.2% - 17.7%])	0.0294
Tremor	7 (4.4% [1.8% - 8.8%])	20 (12.3% [7.7% - 18.4%])	0.0099
Any side effect at W6	**2.6 ± 2.6**	**3.2 ± 2.8**	**0.0321**
Severe AE	1,6 %	7 %	0,0043

* Seulement 5% des patients dans les 2 groupes n'avaient pas d'EI

Clinical Infectious Diseases

MAJOR ARTICLE

Safety and Tolerability of Fluoroquinolones in Patients with Staphylococcal Periprosthetic Joint Infections

Nicholas J. Vollmer,[1] Christina G. Rivera,[1] Ryan W. Stevens,[1] Caitlin P. Oravec,[2] Kristin C. Mara,[3] Gina A. Suh,[2] Douglas R. Osmon,[2] Elena N. Beam,[2] Matthew P. Abdel,[4] and Abinash Virk[2]

[1]Department of Pharmacy, Mayo Clinic Hospital, Rochester, Minnesota, USA; [2]Division of Infectious Diseases, Mayo Clinic Hospital, Rochester, Minnesota, USA; [3]Division of Biomedical Statistics and Informatics, Department of Health Sciences Research, Mayo Clinic Hospital, Rochester, Minnesota, USA; and [4]Department of Orthopedics, Mayo Clinic Hospital, Rochester, Minnesota, USA

Table 5. Antimicrobial Discontinuations, Severe Adverse Events, and Mortality Results

	TJA				THA				TKA			
	FQ (n = 90)	Non-FQ (n = 66)	Total (n = 156)	*P*	FQ (n = 40)	Non-FQ (n = 24)	Total (n = 64)	*P*	FQ (n = 50)	Non-FQ (n = 42)	Total (n = 92)	*P*
FQ/non-FQ cause for early discontinuation, n (%)	32 (35.6)	2 (3.0)	34 (21.8)	<.001	11 (27.5)	1 (4.2)	12 (18.8)	.021	21 (42.0)	1 (2.4)	22 (23.9)	<.001
Time to discontinuation among those with early discontinuation								.25				.17
No. of weeks	…	…	…		11	1	12		21	1	22	
Median (IQR)	…	…	…		3.5 (3.0, 4.8)	1.3 (1.3, 1.3)	3.0 (2.6, 4.3)		9.5 (3.5, 14.7)	20.3 (20.3, 20.3)	9.9 (3.5, 15.6)	
Rifamycin cause for early discontinuation, n (%)	15 (16.7)	8 (12.1)	23 (14.7)	.43	8 (20.0)	3 (12.5)	11 (17.2)	.44	7 (14.0)	5 (11.9)	12 (13.0)	.77
Severe adverse event[a] incidence	7 (7.8)	1 (1.5)	8 (5.1)	.14	3 (7.5)	0 (0.0)	3 (4.7)	.29	4 (8.0)	1 (2.4)	5 (5.4)	.37
Nonsevere adverse event incidence	39 (43.3)	4 (6.1)	43 (27.6)	<.001	13 (32.5)	1 (4.2)	14 (21.9)	.011	26 (52.0)	3 (7.1)	29 (31.5)	<.001
Death within 1 year of DAIR	4 (4.4)	3 (4.5)	7 (4.5)	.99	3 (7.5)	2 (8.3)	5 (7.8)	.99	1 (2.0)	1 (2.4)	2 (2.2)	.99
Death within 1 year of FQ/non-FQ start	4 (4.4)	4 (6.1)	8 (5.1)	.72	3 (7.5)	2 (8.3)	5 (7.8)	.99	1 (2.0)	2 (4.8)	3 (3.3)	.59

Abbreviations: DAIR, debridement, antibiotics, and implant retention; FQ, fluoroquinolone; IQR, interquartile range; THA, total hip arthroplasty; TJA, total joint arthroplasty; TKA, total knee arthroplasty.

[a]A total of 9 severe adverse events occurred within 8 patients.

Est-ce utile dans les IOA?

Rifampin combination therapy in staphylococcal prosthetic joint infections: a randomized controlled trial

Øystein Espeland Karlsen[1,2*], Pål Borgen[3], Bjørn Bragnes[4], Wender Figved[5], Bjarne Grøgaard[1], Jonas Rydinge[1], Lars Sandberg[6], Finnur Snorrason[1], Helge Wangen[7], Eivind Witsøe[8] and Marianne Westberg[1]

- n=48 PJI infection aigue
- Cloxa + vanco proba puis
  - Méti S :gpe rifam (J1) + cloxa IV 2 semaines puis relai oral cloxa + rifam 4 semaines
  - Meti R vanco + rifam 6 sm
- Vs pas de rifam
- Pas de différence pour les échecs entre les 2 gpes
- Peu de résistance

Atb à débattre cloxa PO et vanco …
Durée à débattre 6 semaines..
Petit effectif

Table 1 Baseline characteristics of the 48 patients

Characteristics	Rifampin group (*n* = 23)	Monotherapy group (*n* = 25)	Total (*n* = 48)
Age, year, median (range)	70 (37–92)	66 (39–84)	68.5 (37–92)
Sex, male (%)	15 (65)	17 (68)	32 (67)
ASA scores 1–2, no (%)	16 (70)	21 (84)	37 (77)
BMI, mean (SD)	30.1 (1.3)	27 (1.0)	28.4 (0.8)
Diabetes mellitus	3	3	6
Immunosuppressive medication	2	2	4
Smoking	3	4	7
Time from index surgery to revision, median, days (range)	19 (7–912)	17 (8–122)	18 (7–912)
Hip prosthesis			
Primary hip prosthesis	17	14	31
Revision hip prostehesis	3	5	8
Knee prosthesis			
Primary knee prosthesis	3	6	9
CRP pre surgery, mean (SD)	135 (21.1)	167 (26.4)	151 (16.9)
Creatinin pre surgery, mean (SD)	78 (5.7)	79 (4.4)	79 (3.5)
Type of prosthesis[a]			
Cemented prosthesis	14	16	30
Non cemented	4	5	9
Reverse hybrid	4	4	8

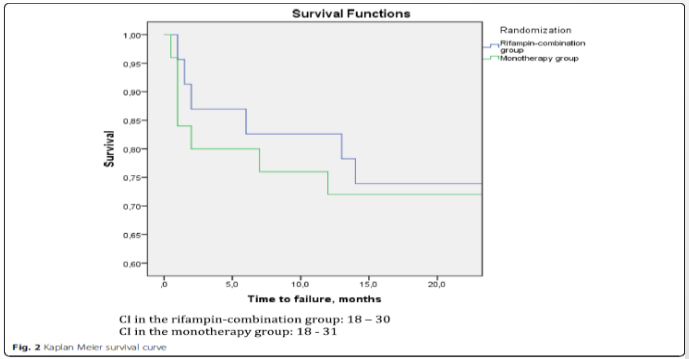


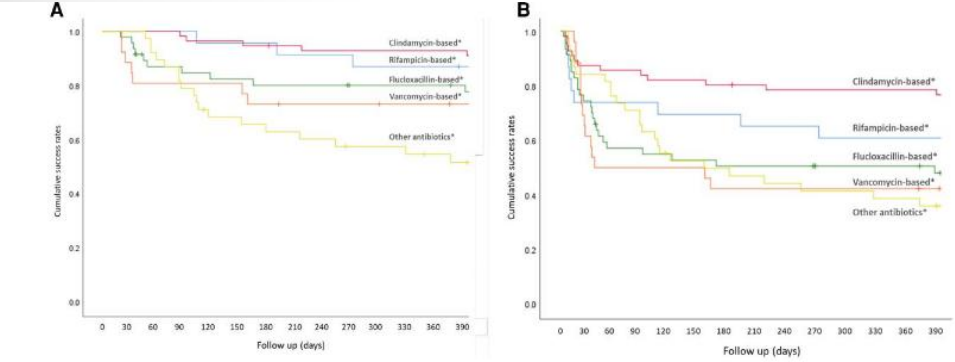
Fig. 2 Kaplan Meier survival curve

Clindamycine monothérapie

Open Forum Infectious Diseases
MAJOR ARTICLE

Effectiveness of Different Antimicrobial Strategies for Staphylococcal Prosthetic Joint Infection: Results From a Large Prospective Registry-Based Cohort Study

Henk Scheper,[1,a] Robert J. P. van der Wal,[2] Rachid Mahdad,[3] Stefan Keizer,[4] Nathalie M. Delfos,[5] Joris C. T. van der Lugt,[6] Karin Ellen Veldkamp,[7] Peter A. Nolte,[8] Masja Leendertse,[9] Luc B. S. Gelinck,[10] Femke P. N. Mollema,[10] Emile F. Schippers,[1,11] Hanke G. Wattel-Louis,[12] Leo G. Visser,[1] Rob G. H. H. Nelissen,[2] and Mark G. J. de Boer[1]



JAC Antimicrob Resist
https://doi.org/10.1093/jacamr/dlaf164
JAC-Antimicrobial Resistance

Evaluation of clindamycin use in bone and joint infections: is monotherapy a safe option? A monocentric observational study 2014–19

Simon Jamard[1,2]*, Marie-Frédérique Lartigue[2,3], Louis-Romée Le Nail[4], Vianney Tuloup[5], Marion Lacasse[1] and Adrien Lemaignen[1,6] on behalf of CRIOGO local group†

	Success (n=96)	Failure (n=41)	Univariate OR (IC95, p)	Multivariate adjusted on AIC OR (IC95, p)	IPTW OR (IC95, p)
Sex (Male)	71 (74.0)	28 (68.3)	0.76 (0.34-1.72, p=0.5)	-	-
Malnutrition	2 (2.1)	5 (12.2)	6.53 (1.34-47.03, p=0.03)	11.83 (1.74-112.31, p=0.02)	-
Diabetes mellitus	41 (42.7)	23 (56.1)	1.71 (0.82-3.62, p=0.15)	-	-
Malignant Neoplasm	17 (17.7)	11 (26.8)	1.70 (0.70-4.03, p=0.23)	2.43 (0.80-7.47, p=0.12)	-
Chronic alcoholic intoxication	29 (30.2)	19 (46.3)	2.00 (0.94-4.25, p=0.07)	-	-
Device related infection	59 (61.5)	25 (61.0)	0.98 (0.47-2.10, p=0.96)	-	-
Fever	30 (31.2)	24 (58.5)	3.11 (1.47-6.71, p=0.003)	3.26 (1.30-8.56, p=0.01)	-
Polymicrobial infection	29 (30.2)	10 (24.4)	0.75 (0.31-1.68, p=0.49)	-	-
Staphylococcus aureus	54 (56.2)	27 (65.9)	1.50 (0.71-3.27, p=0.3)	-	-
Monotherapy	72 (75.0)	16 (39.0)	0.21 (0.10-0.46, p<0.001)	0.18 (0.07-0.46, p<0.001)	0.36 (0.17-0.76, p=0.008)
Duration of treatment (days) Median (IQR)	42.0 (3.0)	42.0 (3.0)	1.00 (0.99-1.02, p=0.57)	-	-

Contemporary Clinical Trials 155 (2025) 107972

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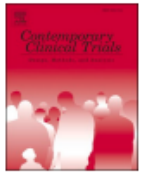


Rifampicin combination therapy versus targeted antimicrobial monotherapy in the oral antimicrobial treatment phase of staphylococcal prosthetic joint infection (RiCOTTA-trial): protocol for a randomized, controlled, open-label, non-inferiority trial

Jaap L.J. Hanssen [a,*], Esther Y. van Hulten [a], Pieter K. Bos [b], Olav P. van der Jagt [c], A.J. Jolanda Lammers [d], Rachid Mahdad [e], Peter A. Nolte [f], Edgar J.G. Peters [g,h,i], Rudolf W. Poolman [j], Jetze Visser [k], Matthijs P. Somford [l], Karin Veerman [m], Stephan B.W. Vehmeijer [n], Imro N. Vlasveld [o], Wierd Zijlstra [p], Rutger van Geenen [q], Jan Geurts [r], Maarten Röling [s], Marjan Wouthuyzen-Bakker [t], Henk Scheper [a], Mark G.J. de Boer [a,u], for the RiCOTTA study group

tients are treated with the first-choice regimen. Alternatives for levofloxacin in the rifampicin combination arm are (in this order): 1. clindamycin 600 mg TID; 2. Cotrimoxazole 960 mg BID; 3. doxycycline 100 mg BID or minocycline 100 mg BID. Alternatives for clindamycin in the monotherapy arm are: 1. Cotrimoxazole 960 mg BID; 2. levofloxacin 500 mg BID; 3. doxycycline 100 mg BID or minocycline 100 mg BID. Ciprofloxacin or moxifloxacin are only allowed in case levofloxacin is out of stock. The total antimicrobial treatment duration is 12 weeks.

Safety and Efficacy of Moxifloxacin Monotherapy for Treatment of Orthopedic Implant-Related Staphylococcal Infections▽

Rafael San Juan,[1]* Ana Garcia-Reyne,[1] Pedro Caba,[2] Fernando Chaves,[3] Carlos Resines,[2] Fernando Llanos,[2] Francisco López-Medrano,[1] Manuel Lizasoain,[1] and Jose Maria Aguado[1]

- n=48. IOA
- ttt: post op vanco + cloxa/céfazo puis moxiflo 3 mois
- Infection chronique chez 36 patients (75%) et n=21 (43%) implant gardé
- 82,6% succès et 71 % avec la rétention de matériel

TABLE 1. Characteristics of the 48 patients included in the study

Characteristic	Value
Sex (% male/% female)	52.1/47.9
Mean ± SD age (yr)	58.8 ± 2.6
Mean ± SD Charlson comorbidity index	0.8 ± 0.2
No. (%) of patients with the following type of orthopedic implant:	
Osteosynthesis material[b]	28 (58.3
Hip prosthesis	9 (18.8
Knee prosthesis	10 (20.8
Shoulder prosthesis	1 (2.1)
No. (%) of patients with the following timing of infection:	
Early infection	6 (12.5
Late chronic infection	33 (68.8
Late hematogenous infection	3 (6.3)
Finding in prosthetic joint revision	6 (12.5
No. (%) of patients with the following etiology of infection:	
Staphylococcus aureus	33 (68.8
CoNS	15 (31.2
Median (range) no. of days of i.v. antibiotic treatment[c]	12.6 (1–
Median (range) no. of days of oral moxifloxacin treatment	78 (24–2
No. (%) of patients with global cure	
Per ITT	38 (79.1)
All patients (n = 46)	38 (82.6)
Patients with implant retention[d] (n = 20)	15 (71.3)
Patients with *S. aureus* infection (n = 33)	26 (78.8)
Patients with CoNS infection with global cure (n = 14)	12 (86)

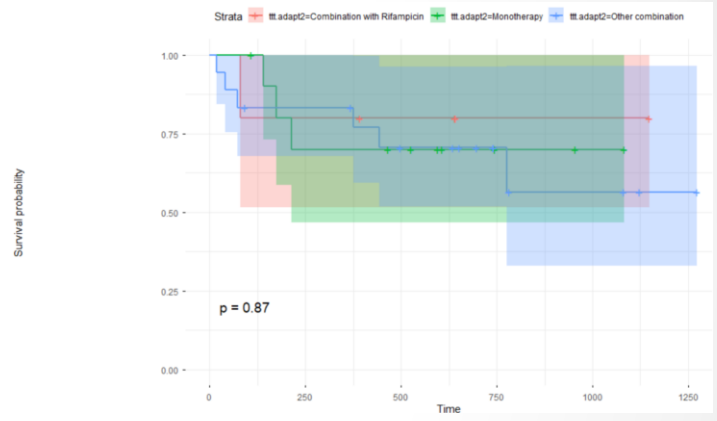
Pas d'émergence de résistance aux quinolones sur les échecs

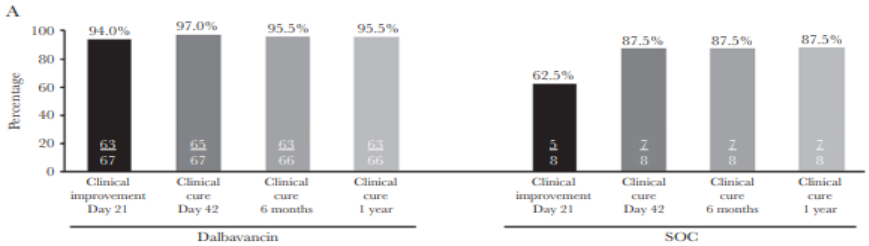
Lombes *et al.*, 2024:
ISO post op chir rachis: 20 patients
11 monoT vs 9 biT: pas de différence (5 sous FQ seule)

DALBASOS, S. FOSTIN

- 2 centres
- 109 patients IOA
  - 40 monothérapie (48% PJI, 35% S. aureus)
  - 69 bithérapie (33% PJI, 42% S. aureus)
- IOA tout confondu
- Pas plus d'échec en monothérapie mais
- 17% bithérapie rifam…

Rappo *et al.*, 2019: Randomisé
70 ostéomyélites dalba (monoT) vs 10 OM SOC



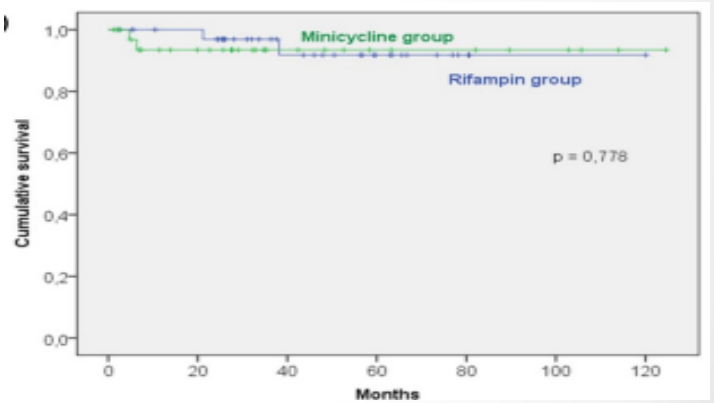


Cycline

Minocycline Combined with Vancomycin for the Treatment of Methicillin-Resistant Coagulase-Negative Staphylococcal Prosthetic Joint Infection Managed with Exchange Arthroplasty

Géraldine Bart[1], Valérie Zeller[1,2✉], Younes Kerroumi[2], Beate Heym[2,3], Vanina Meyssonnier[1,2], Nicole Desplaces[2], Marie Dominique Kitzis[5], Jean Marc Ziza[1,2], Simon Marmor[2,4]

- 70 PJI SCN méti-R : IV 6 semaines par
  - Vancomycine + rifam puis minocycline rifam
  - Vancomycine + minocycline puis mino seule
- 36 CMI Vanco > 2 (50% des effectifs dont 71% mino)
- Pas de différence : 80 % réussite sur IOAC
- 8 souches tétra R mais mino S pas de rechute (mécanisme d'efflux)



Tigécycline: alternative dans 2 séries de cas :
- 19 ostéomyélites Griffin *et al.*, 2013
- 36 IOAC Wach *et al.*, 2018

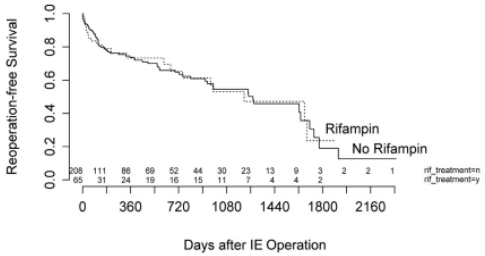
Cycline: alternative en monothérapie
Bonne diffusion des cyclines

Est-ce utile dans l'endocardite?

Rifampin for Surgically Treated Staphylococcal Infective Endocarditis: A Propensity Score-Adjusted Cohort Study

Nabin K. Shrestha, Shailee Y. Shah, Hannah Wang, Syed T. Hussain, Gosta B. Pettersson, Amy S. Nowacki, and Steven M. Gordon

PVE opérées S. aureus
2008-2014
273 patients
27% Rifam
vs 73% pas de rifam
Score de propension



Pas de différence
HR 0,76, IC95% 0.44-1.32, p value 0.34

Is Rifampin Use Associated With Better Outcome in Staphylococcal Prosthetic Valve Endocarditis? A Multicenter Retrospective Study

Audrey Le Bot,[1] Raphaël Lecomte,[2] Pierre Gazeau,[3] François Benezit,[1] Cédric Arvieux,[1] Séverine Ansart,[3] David Boutoille,[2] Rozenn Le Berre,[4] Céline Chabanne,[5] Matthieu Lesouhaitier,[1] Loren Dejoies,[6,7] Erwan Flecher,[5] Jean-Marc Chapplain,[1] Pierre Tattevin,[1,7,8,©] and Matthieu Revest[1,7,8]; Pour le Groupe d'Epidémiologie et Recherche en Infectiologie Clinique du Centre et de l'Ouest (GERICCO)

2000-2018 3 centres. PVE Staph.
N=180 : 101 rifam vs 79 sans rifam

Table 4. Univariate and Multivariate Analysis of Variables Associated With 1-Year Mortality

	Univariate				Multivariate	
Variable	Dead During the 1-year Follow-up (n = 63)	Alive at 1 year (n = 117)	Odds Ratio (95% CI)	*P* Value	Odds Ratio (95% CI)	*P* Value
Age, per 1-year increment	70.6 ± 13.2	70.3 ± 11.9		.73	.98 (.94–1.02)	.45
Sex, male	45 (71.4)	87 (74.4)	.86 (.43–1.71)	.80		
Charlson comorbidity index, per 1 point increment	5.1 ± 2.6	4.5 ± 2.1		.12	1.14 (.91–1.44)	.24
Healthcare-associated infection	35 (56.6)	73 (64.0)	.72 (.39–1.37)	.41		
Definite endocarditis (modified Duke criteria)	57 (90.5)	92 (78.6)	2.38 (.91–6.19)	.11	7.15 (1.47–34.77)	.018
Cerebral emboli	27 (42.9)	26 (22.2)	2.62 (1.35–5.10)	.006	2.95 (1.30–6.70)	.009
Staphylococcus aureus	45 (71.4)	69 (59.0)	1.74 (.90–3.36)	.14		
Methicillin-resistant *S. aureus*	9 (14.3)	8 (6.8)	2.27 (.83–6.22)	.17	6.04 (1.34–27.26)	.019
Rifampin treatment	38 (60.3)	63 (53.8)	1.30 (.70–2.42)	.50	.90 (.38–2.11)	.81

Pas de différence
p value 0.81

Est-ce utile dans l'endocardite?

- POET
- Relai PO sur le SA : 35 avec rifam et 10 sans rifam.

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 JANUARY 31, 2019 VOL. 380 NO. 5

Partial Oral versus Intravenous Antibiotic Treatment of Endocarditis

Kasper Iversen, M.D., D.M.Sc., Nikolaj Ihlemann, M.D., Ph.D., Sabine U. Gill, M.D., Ph.D., Trine Madsen, M.D., Ph.D., Hanne Elming, M.D., Ph.D., Kaare T. Jensen, M.D., Ph.D., Niels E. Bruun, M.D., D.M.Sc., Dan E. Høfsten, M.D., Ph.D., Kurt Fursted, M.D., D.M.Sc., Jens J. Christensen, M.D., D.M.Sc., Martin Schultz, M.D., Christine F. Klein, M.D., Emil L. Fosbøll, M.D., Ph.D., Flemming Rosenvinge, M.D., Henrik C. Schønheyder, M.D., D.M.Sc., Lars Køber, M.D., D.M.Sc., Christian Torp-Pedersen, M.D., D.M.Sc., Jannik Helweg-Larsen, M.D., D.M.Sc., Niels Tønder, M.D., D.M.Sc., Claus Moser, M.D., Ph.D., and Henning Bundgaard, M.D., D.M.Sc.

Antibiotic regimens in the POET trial.

	Oral regimens	Frequency n (%)
Staphylococcus aureus	Dicloxacillin and rifampicin	15 (33)
	Amoxicillin and rifampicin	13 (29)
	Moxifloxacin and rifampicin	3 (7)
	Amoxicillin and fusidic acid	2 (4)
	Dicloxacillin and fusidic acid	2 (4)
	Fusidic acid and linezolid	2 (4)
	Rifampicin and linezolid	2 (4)
	Penicillin and rifampicin	1 (2)
	Amoxicillin and clindamycin	1 (2)
	Ampicillin and rifampicin	1 (2)
	Moxifloxacin and fusidic acid	1 (2)
	Moxifloxacin and linezolid	1 (2)
	Linezolid and clindamycin	1 (2)

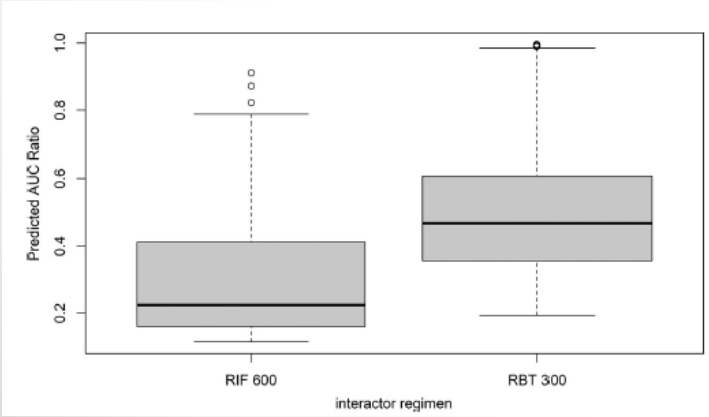
Si vraiment on veut mettre un antibiofilm: rifabutine

AMERICAN SOCIETY FOR MICROBIOLOGY | Antimicrobial Agents and Chemotherapy®

PHARMACOLOGY

Model-Based Comparative Analysis of Rifampicin and Rifabutin Drug-Drug Interaction Profile

Vianney Tuloup,[a,b] Mathilde France,[a] Romain Garreau,[a,b] Nathalie Bleyzac,[a] Laurent Bourguignon,[a,b,c] Michel Tod,[a,b,c] Sylvain Goutelle[a,b,c]



Rifabutine :
Cmax plus basse mais

- CMI plus basse
- Concentration plus élevée tissue et intracellulaire (haute lipophilie)
- Chez l'animal, activité antibiofilm

→ RIFAMAB

Skinner *et al*, Antimicorb. Agent Chemother 1989
Trampuz *et al*., Antimicorb. Agent Chemother, 2007

Conclusion

RIFREE

Protocol RIFREE

EUCT number: n° 2024-518018-22-00
Ref : RC24_0404

"Rifampin-free regimen versus rifampin-containing regimen in the treatment of staphylococcal prosthetic valve endocarditis: a multicenter randomized controlled non-inferiority study"

Coordinating Investigator:
Dr Raphaël LECOMTE
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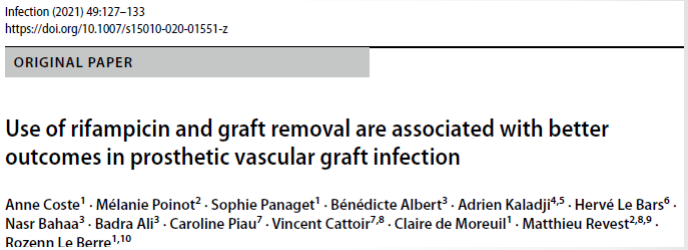
Merci de votre attention

CENTRES DE RÉFÉRENCE POUR LES INFECTIONS OSTÉO-ARTICULAIRES COMPLEXES DU GRAND OUEST
CRIOGO

CHRU
HÔPITAUX DE TOURS

Est-ce utile dans les infections vasculaires?

- 112 patients
- 31 rifam dont 28 staph
- Durée du traitement PO?
- Tous les patients ont été changé?



Infection (2021) 49:127–133
https://doi.org/10.1007/s15010-020-01551-z

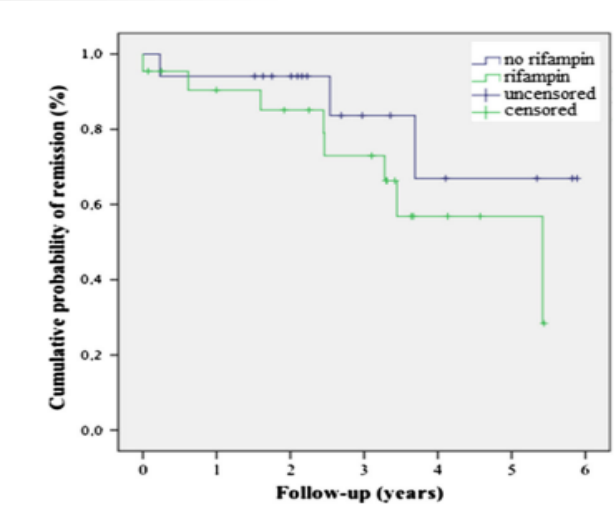
ORIGINAL PAPER

Use of rifampicin and graft removal are associated with better outcomes in prosthetic vascular graft infection

Anne Coste[1] · Mélanie Poinot[2] · Sophie Panaget[1] · Bénédicte Albert[3] · Adrien Kaladji[4,5] · Hervé Le Bars[6] · Nasr Bahaa[3] · Badra Ali[3] · Caroline Piau[7] · Vincent Cattoir[7,8] · Claire de Moreuil[1] · Matthieu Revest[2,8,9] · Rozenn Le Berre[1,10]

Linézolide

- Morata *et al.*, 2014: rétro
  - 22 PJI liné+ rifam vs 17 liné



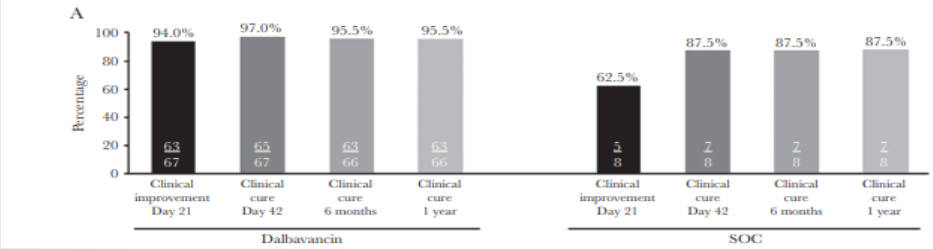
- Legout *et al.*, 2010: rétrospective
  - 49 PJI – 24 OS – 19 OM – 12 pied diab
  - Pas de différence entre mono ou bithérapie
- Bassetti *et al.*, 2005 : prospective
  - 20 PJI dont 15 bithérapie 80% réussite
  - 4 rechutes sans variation de la CMI liné
- Gomez *et al.*, 2011: prospective
  - 49 PJI – infection < 3 mois – échec DAIR
  - 69% succès biT

Theil *et al.*, 2020 : revue

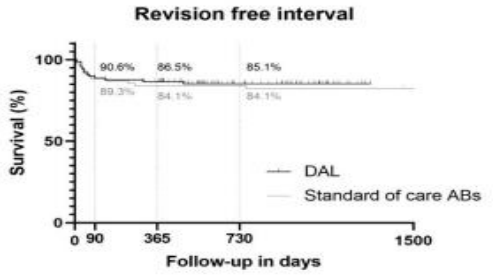
Monothérapie liné = option

Dalbavancine

Rappo *et al.*, 2019: Randomisé
70 ostéomyélites dalba (monoT) vs 10 OM SOC



Simon *et al.*, 2022: rétro biT
89 PJI dalba/89 SOC

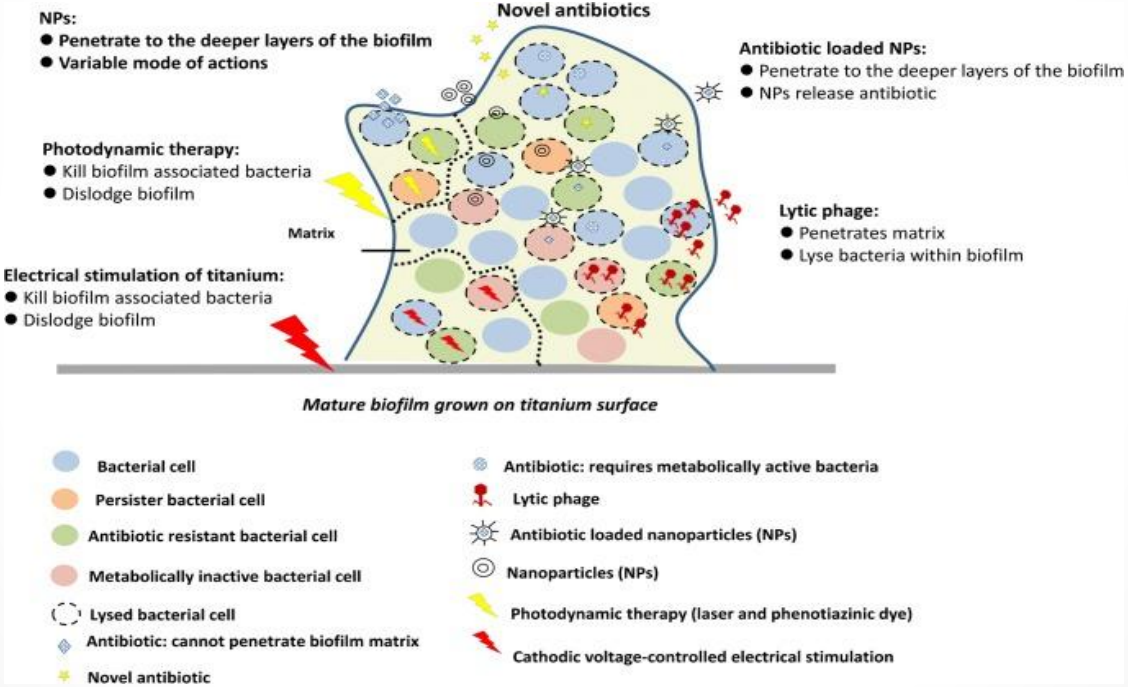


Morata *et al.*, 2019 : rétro
45 IOA matériel et 19 IOA natives
biT dalba vs SOC

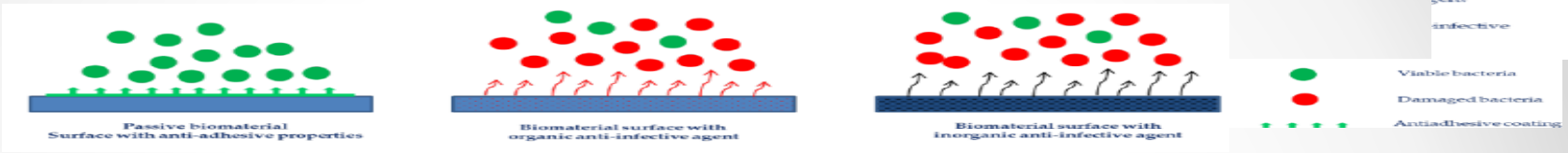
Wunsch *et al.*, 2019: rétro
32PJI - 30 OM 39 autres (64 biT)

Dimopoulou *et al.*, 2023 : revue

Dalbavancine alternative
Bonne tolérance


NPs:
Penetrate to the deeper layers of the biofilm
Variable mode of actions
Novel antibiotics
Antibiotic loaded NPs:
Penetrate to the deeper layers of the biofilm
NPs release antibiotic
Photodynamic therapy:
Kill biofilm associated bacteria
Dislodge biofilm
Matrix
Lytic phage:
Penetrates matrix
Lyse bacteria within biofilm
Electrical stimulation of titanium:
Kill biofilm associated bacteria
Dislodge biofilm
Mature biofilm grown on titanium surface
Bacterial cell
Persister bacterial cell
Antibiotic resistant bacterial cell
Metabolically inactive bacterial cell
Lysed bacterial cell
Antibiotic: cannot penetrate biofilm matrix
Novel antibiotic
Antibiotic: requires metabolically active bacteria
Lytic phage
Antibiotic loaded nanoparticles (NPs)
Nanoparticles (NPs)
Photodynamic therapy (laser and phenotiazinic dye)
Cathodic voltage-controlled electrical stimulation

Techniques innovantes

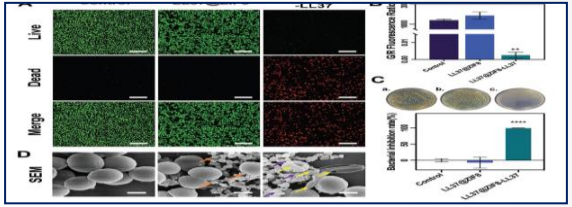


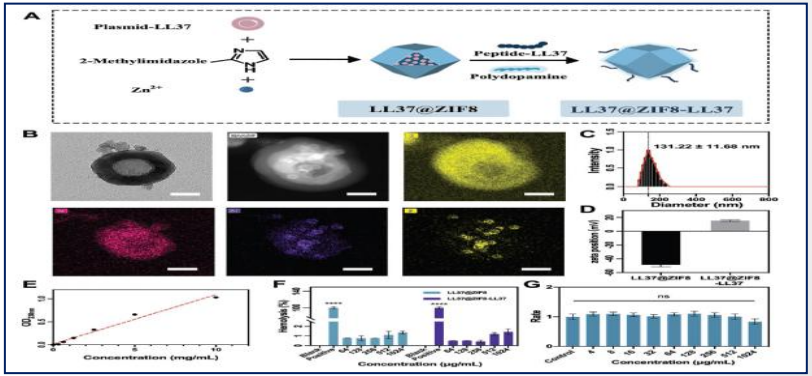
Surfaces passives : présente des modification chimiques ou structurelles empêchant l'adhésion sans relarguer d'agent anti microbien

- Anti adhésive: 5 propriétés:
  - répulsion stérique,
  - répulsion électrostatique
  - faible énergie de surface
  - interactions superhydrophobes et hydrophobes
  - Interaction physique substrat-microorganisme
- Polyethylène glycol, hydrogel, poly zwitterionic materiau…
- Ajouter sur la surface du serum ou plasma ou des protéines

Surfaces actives: relargue un agent antimicrobien

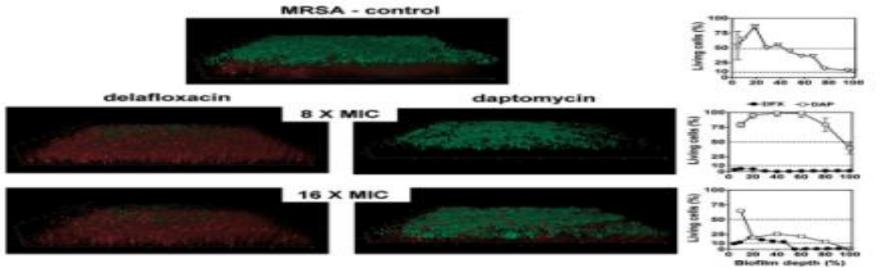
- Organic (antibiotiques, PAM, phages)
- Inorganique: métaux ou ions (nanoparticules)

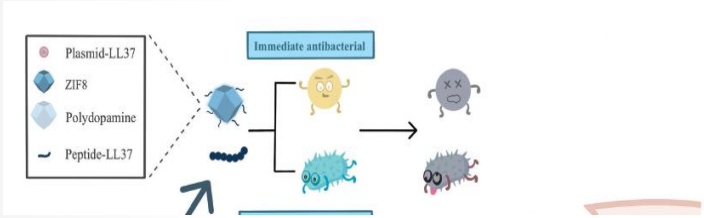


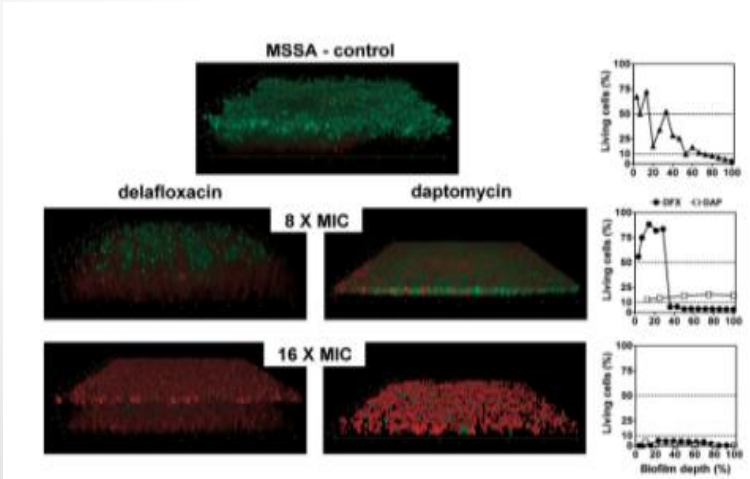


PAM: coûteux et sensible au pH et protéase
Inhibiteur de QS: desintégration de biofilm mais spectre étroit, Résistance
Nanoparticules de métaux

Exemple de technique innovante PAM







RESEARCH ARTICLE

ADVANCED MATERIALS
www.advmat.de

Multi-Mode Antibacterial Strategies Enabled by Gene-Transfection and Immunomodulatory Nanoparticles in 3D-Printed Scaffolds for Synergistic Exogenous and Endogenous Treatment of Infections

Xinhua Qu, Minqi Wang, Miaochen Wang, Haozheng Tang, Shutao Zhang, Hongtao Yang, Weien Yuan, You Wang, Jianping Yang,* and Bing Yue**