Supplementary Materials Information

Ciprofloxacin conjugated to diphenyltin(IV); A novel formulation with enhanced antimicrobial activity.

M.P. Chrysouli^[a], C.N. Banti^{[a],*}, N. Kourkoumelis^[b], E.E.Moushi^[c], A.J. Tasiopoulos^[d], A.

Douvalis^[e], C. Papachristodoulou^[f], A.G. Hatzidimitriou^[g], T. Bakas^[e], S.K. Hadjikakou^{[a,h],*}

^[a] Inorganic and Analytical Chemistry, Department of Chemistry, University of Ioannina, 45110 Ioannina, Greece

^[b] Medical Physics Laboratory, Medical School, University of Ioannina, Greece

^[c] Department of Life Sciences, The School of Sciences, European University Cyprus, Cyprus

^[d] Department of Chemistry, University of Cyprus, 1678 Nicosia, Cyprus

^[e] Mössbauer Spectroscopy and Physics of Material Laboratory, Department of Physics, University

of Ioannina, Greece

^[f] Department of Physics, University of Ioannina, Greece

^[g] Department of Chemistry, Aristotle University of Thessaloniki, Greece;

^[h] University Research Center of Ioannina (URCI), Institute of Materials Science and Computing,

Ioannina, Greece

*All correspondence should be addressed to:

Dr. C.N. Banti (Postdoctoral Fellow); email: cbanti@uoi.gr

Dr. S.K. Hadjikakou (Professor); e-mail: shadjika@uoi.gr; tel. x30-26510-08374, x30-26510-08362



Figure S1. IR spectra of CIPTIN, HCIP·HCl and DPTD



Figure S2. The simulated XRPD pattern (_____) using single crystal XRD data, which is overlaying the experimental one (_____), adequately resembles the experimental pattern.



Figure S3. Thermal analysis diagram of CIPTIN



Figure S4. UV spectra of CIPTIN in DMSO solution 1.5×10^{-5} M at 0, 24 and 48 hours



Figure S5. UV spectra of CIPTIN in DMSO/water solution 1.5×10⁻⁵ M at 0, 24 and 48 hours



Figure S6. ¹H-NMR spectra of **CIPTIN** in dmso- d_6 at 0 and 96 hours.



Figure S7. ¹H-NMR spectra of CIPTIN, HCIP•HCl and DPTD in DMSO-d₆



Figure S8. ESI-MS of CIPTIN in MeOH solution.



(A)

CIPTIN – E.coli							
ELESSIE -	S EL	The second					
Control (+) Control (-) 190 nM 200 nM	M 210 nM	220 nM	230 nM	240 nM	250 nM	260 nM	
	R	A CON				-	
	15 - F	- Let	and the	1		and a	

(B)



(C)

CIPTIN – S. Epidermidis								
				- All				
Control (+)	Control (-) 100 nM	200 nM	300 nM	400 nM	500 nM	600 nM	700 n M	800 nM
-						1-1-	1	
Carl Carl		ATK.	HART	C.	V.	10	I	The Party

(D)

Figure S9. Minimum Inhibitory Concentration of CIPTIN against PAOI (A), E. coli (B), S. aureus (C) and S. epidermidis (D)

Figure S10. Minimum Inhibitory Concentration of HCIP·HCl against E. coli

HCIP – P. aeruginosa								
		- Aller	and the second	Provide La Contraction Contrac				
Control (+) Control (-) 200 nM	300 nM	400 nM	500 nM	600 nM	700 nM	800 nM	900 nM	
	-	-	There a	- Friday	Part.			
			1		L	1		
	TEN	and the second	the	the a	and the second			

(A)
•		,

			HCIP -	– E. coli				
- FE			The state	and the				
Control (+) Control	(-) 300 nM	400 nM	500 nM	600 nM	700 nM	800 nM	900 nM	1000 nM

(B)



(C)



(D)

Figure S11. Minimum Inhibitory Concentration of **HCIP** against *PAO1* (**A**), *E. coli* (**B**), *S. aureus* (**C**) and *S. epidermidis* (**D**)

DPTD – *P. aeruginosa* Control (+) Control (-) 5 µM 10 µM 15 µM 20 µM 25 µM 30 µM 50 µM 100 µM

(A)



(B)



(C)



(D)

Figure S12. Minimum Inhibitory Concentration of DPTD against *PAO1* (A), *E. coli* (B), *S. aureus* (C) and *S. epidermidis* (D)



Figure S13. Results from MBC assay with CIPTIN against PAO1 (A), E. coli (B), S. aureus (C) and S. epidermidis (D)



Figure S14. Results from MBC assay with HCIP·HCl against *E. coli*



Figure S15. Results from MBC assay with HCIP against *PAO1* (A), *E. coli* (B), *S. aureus* (C) and *S. epidermidis* (D)



Figure S16. Results from MBC assay with DPTD against *PAO1* (A), *E. coli* (B), *S. aureus* (C) and *S. epidermidis* (D)



Figure S17. Inhibition zones of **HCIP** against *PAO1* (A), *E. coli* (B), *S. aureus* (C) and *S. epidermidis* (D) and that of **HCIP·HCl** against *E. coli* (E)



Figure S18. Inhibition zones of **DPTD** against *PAO1* (A), *E.coli* (B), *S. aureus* (C) and *S. Epidermidis* (D)



Figure S19 Biofilm inhibition (%) of *P. aeruginosa* and *S. aureus* versus pC=-log(C) (M) of **HCIP**.